

## Compilation of Changes to the CPC Scheme Between 2016.02 and 2016.05

### Presentation Details

Entries for new symbols and headings:	<i>Black text in italics</i>
Entries for existing symbols and headings	
—text insertions:	<i>Green text in italics with yellow background</i>
—text deletions:	<del>Red strikethrough text with grey background</del>
Entries for deleted symbols and headings:	<del>Black strikethrough text</del>

- In cases when the originating project cannot be found, "N/A" is given for the Project information (e.g. the change could be due to an Editorial Correction).
- Projects ending in "-F" indicate finalisation after reclassification was completed.

### Project: N/A (A01B)

A01B 76/00 Parts, details or accessories of agricultural machines or implements, not provided for in groups [A01B 51/00](#) to- [A01B 75/00](#)

A01B 77/00 Machines for lifting and treating soil (biocides, pest repellants or attractants, plant growth regulators [A01N 25/00](#) to- [A01N 65/00](#); fertilisers [C05](#); soil-conditioning or soil-stabilising materials [C09K 17/00](#))

### Project: N/A (A01C)

A01C PLANTING; SOWING; FERTILISING (combined with general working of soil [A01B 49/04](#); parts, details or accessories of agricultural machines or implements, in general [A01B 51/00](#) to- [A01B 75/00](#); {apparatus for spreading sand or salt [E01C](#); sowing and fertilising with aircraft [B64D 1/16](#) to- [B64D 1/20](#)})

A01C 1/00 Apparatus, or methods of use thereof, for testing or treating seed, roots, or the like, prior to sowing or planting (chemicals therefor [A01N 25/00](#) to- [A01N 65/00](#) {irradiation in general [B01J 19/08](#)})

U A01C 9/00 Potato planters ({planting by hand [A01C 7/02](#)}; combinations with soil working tools [A01B 49/04](#))

A01C 9/02 · with ~~conveyer~~*conveyor* belts

U A01C 15/00 Fertiliser distributors ([A01C 7/06](#) takes precedence; {combined with seeders [A01C 7/06](#)}; arrangements for driving working parts [A01C 19/00](#); {harrows with special additional arrangements [A01B 19/00](#)}; sand, gravel or salt spreaders for roads [E01C 19/20](#))

A01C 15/18 · with endless chains, {i.e. side transporting elements, e.g. auger or screw ~~conveyers~~*conveyors*, swash plates}

### Project: N/A (A01D)

A01D HARVESTING; MOWING {(parts, details or accessories of agricultural machines or implements in general [A01B 51/00](#) to- [A01B 75/00](#))}

#### NOTES

1. This subclass covers the shredding or pulverising of stubble, e.g. for the purpose of producing mulch, but does not cover other mechanical destruction of unwanted vegetation, which is covered by group [A01M 21/02](#)
2. In this subclass, in groups [A01D 34/00](#), [A01D 42/00](#), [A01D 43/00](#), [A01D 57/00](#), [A01D 67/00](#), [A01D 69/00](#) and [A01D 75/00](#), it is desirable to add the indexing code of group [A01D 2101/00](#)

- A01D 7/00** Rakes (mowers convertible to rakes or capable of raking [A01D 42/02](#); mowers combined with rakes [A01D 43/02](#); haymakers, crop conditioners [A01D 76/00](#) ~~to~~ [A01D 84/00](#); {making rakes from sheet metal [B21D 53/68](#); making rakes by rolling [B21H 7/08](#)})
- U A01D 17/00** **Digging machines with sieving and conveying mechanisms**
- A01D 17/02 · with ~~conveyers~~[conveyors](#) arranged above the sieving device
- A01D 17/04 · with ~~conveyers~~[conveyors](#) arranged below the sieving device
- A01D 17/10 · with smooth ~~conveyer~~[conveyor](#) belts, lath bands or rake bands
- A01D 17/101 · · {with two superposed ~~conveyer~~[conveyor](#) belts}
- A01D 2017/105 · · {Driving means for the belt:}
- A01D 2017/106 · · {Belts with fingers mounted on them:}
- A01D 2017/108 · · {Belts with paddles mounted on them:}
- A01D 17/12 · with bucket ~~conveyers~~[conveyors](#)
- U A01D 17/14** · with cylindrical screens
- A01D 17/16 · · with a ~~conveyer~~[conveyor](#) spiral
- A01D 17/18 · · without a ~~conveyer~~[conveyor](#) spiral
- U A01D 23/00** **Topping machines**
- U A01D 23/02** · cutting the tops before being lifted
- A01D 2023/024 · · {Devices with fix blades for topping:}
- A01D 2023/026 · · {Devices with movable knives for topping, e.g. rotatable cutting disks:}
- A01D 2023/028 · · · {Cutters rotating around a shaft forming a cutting rotor:}
- U A01D 33/00** **Accessories for digging harvesters**
- A01D 2033/005 · {Yield crop determination mechanisms for root-crop harvesters:}
- A01D 34/00 - A01D 51/00** **Harvesters or mowers for grass, cereals, or other crops (component parts thereof [A01D 57/00](#) ~~to~~ [A01D 69/00](#); accessories therefor [A01D 75/00](#))**
- A01D 34/00** **Mowers (combined with apparatus performing additional operations while mowing [A01D 37/00](#) ~~to~~ [A01D 41/00](#), [A01D 43/00](#); convertible to apparatus for purposes other than mowing or capable of performing operations other than mowing [A01D 42/00](#)); Mowing apparatus of harvesters**
- U A01D 34/01** · characterised by features relating to the type of cutting apparatus
- U A01D 34/02** · · having reciprocating cutters
- A01D 34/125 · · · with means for discharging mown material ([A01D 57/26](#) ~~to~~ [A01D 57/30](#) take precedence; combined with means for gathering or loading mown material [A01D 43/06](#))
- U A01D 34/412** · · having rotating cutters
- U A01D 34/42** · · · having cutters rotating about a horizontal axis, e.g. cutting-cylinders
- A01D 34/49 · · · · with means for discharging mown material ([A01D 57/26](#) ~~to~~ [A01D 57/30](#) take precedence; combined with means for gathering or loading mown material [A01D 43/06](#))
- U A01D 34/63** · · · having cutters rotating about a vertical axis
- A01D 34/71 · · · · with means for discharging mown material ([A01D 57/26](#) ~~to~~ [A01D 57/30](#) take precedence; combined with means for gathering or loading mown material [A01D 43/06](#))
- A01D 41/00** **Combines, i.e. harvesters or mowers combined with threshing devices (threshing devices for combines [A01F 7/00](#) ~~to~~ [A01F 12/00](#))**
- U A01D 41/12** · Details of combines

- U A01D 41/14                   · · Mowing tables  
A01D 41/16                   · · · Devices for coupling mowing tables to **conveyersconveyors**
- A01D 46/00**                   **Picking of fruits, vegetables, hops, or the like; Devices for shaking trees or shrubs**  
**NOTE**  
In this group, group [A01D 46/30](#) takes precedence over groups [A01D 46/02](#) to-  
[A01D 46/28](#)
- U A01D 46/08                   · of cotton  
A01D 46/10                   · · pneumatically {([A01D 46/081](#) to- [A01D 46/088](#) take precedence)}
- U A01D 57/00**                   **Delivering mechanisms for harvesters or mowers**
- U A01D 57/01                   · Devices for leading crops to the mowing apparatus  
A01D 57/06                   · · using endless **conveyersconveyors**  
A01D 57/20                   · with **conveyerconveyor** belts
- A01D 61/00**                   **Elevators or **conveyersconveyors** for binders or combines {(conveying in general **B65G**; hoisting, lifting in general **B66**)}**
- A01D 76/00 -**  
**A01D 93/00**                   **Haymakers (combined with mowers [A01D 43/04](#)); Crop Conditioners**  
**NOTE**  
In groups [A01D 76/00](#) to- [A01D 87/00](#), the following terms are used with the meanings indicated:
- "hay" includes all mowed forage crop in a dry or partially dry state;
  - "haymakers" covers all apparatus working on mowed forage crop lying on the ground with the intention to make hay, with the exception of "rakes" which are covered by group [A01D 7/00](#)
- A01D 84/00**                   **Haymakers not provided for in a single one of groups [A01D 76/00](#) to-  
[A01D 82/00](#)**
- U A01D 85/00**                   **Arrangements for making or setting stacks**
- U A01D 85/005                   · {Forming groups of bales, e.g. bale sledges (loaders for bales [A01D 87/12](#);  
vehicles for loading bales [A01D 90/08](#))}
- A01D 2085/008                   · · {Making groups of bales just at horizontal level for leaving them on the field.}
- U A01D 87/00**                   **Loaders for hay or like field crops (combined with mowers [A01D 43/06](#);  
{loading in forage silos [A01F 25/18](#); } ; loading in general **B65G**, **B66**)**
- A01D 87/02                   · with **conveyerconveyor** belts {or conveyor chains, with or without pick-up means}
- U A01D 87/12                   · Loaders for sheaves, stacks or bales
- U A01D 87/122                   · · {for bales on the ground (vehicles for loading [A01D 90/08](#))}
- A01D 2087/123                   · · · {Manual trolleys for bales.}
- U A01D 87/127                   · · {Apparatus for handling, loading or unrolling round bales}
- A01D 2087/128                   · · · {Devices for unrolling or breaking round bales.}
- Project: N/A (A01F)**
- U A01F 12/00**                   **Parts or details of threshing apparatus (devices, other than safety devices for feeders, for protecting human beings [A01D 75/20](#), [A01F 21/00](#))**
- A01F 12/46                   · Mechanical grain **conveyersconveyors**
- U A01F 15/00**                   **Baling presses for straw, hay or the like {(making compressed stacks [A01D 85/00](#))}**

- U A01F 15/07 · Rotobalers, i.e. machines for forming cylindrical bales by winding and pressing
- U A01F 15/071 · · {Wrapping devices (tying devices [A01F 15/141](#))}
- U A01F 15/0715 · · · {Wrapping the bale in the press chamber before opening said chamber}
- A01F 2015/072 · · · · {Braking means for the film roll in balers which wrap the bale before opening the pressing chamber in order to stretch the film while wrapping.}
- A01F 2015/074 · · · {Mechanisms for discharging a bale from the wrapping machine.}
- A01F 2015/0745 · · · {Special features of the wrapping material for wrapping the bale.}
- A01F 2015/077 · · {Pressing chamber formed by belts and rollers.}
- A01F 2015/0785 · · {Latching or locking means for the tailgate of the rotobaler.}
- A01F 2015/079 · · {Sledge for rollers of the pressing chamber.}
- A01F 17/00** **Straw conveyersconveyors for threshing machines or baling presses**
- A01F 17/02 · Mechanical conveyersconveyors
- A01F 17/04 · Pneumatic conveyersconveyors

**Project: N/A (A01G)**

- U **A01G 31/00** **Hydroponics; Cultivation without soil ([A01G 33/00](#) takes precedence)**
- U A01G 31/02 · Special apparatus therefor (apparatus for cultivation in receptacles or greenhouses in general [A01G 9/00](#); self-acting watering devices [A01G 27/00](#))
- A01G 31/04 · · Hydroponic culture on conveyersconveyors

**Project: N/A (A01H)**

- A01H 3/00 **Processes for modifying phenotypes, {e.g. symbiosis with bacteria} ([A01H 4/00](#) takes precedence; influencing the growth of plants without producing new plants, non-chemically [A01G 7/00](#), chemically [A01N 25/00](#) to- [A01N 65/00](#))**

**Project: N/A (A01K)**

- U **A01K 1/00** **Housing animals; Equipment therefor (building construction, features of buildings [E04](#); ventilating buildings [F24F](#))**
- U A01K 1/01 · Removal of dung or urine, {e.g. from stables}{[A01K 1/015](#) takes precedence; {from poultry houses [A01K 31/04](#)}
- A01K 1/0135 · · {by means of conveyerconveyor belts}
- A01K 1/0139 · · {by means of screw conveyersconveyors}
- A01K 1/12 · Milking stations (devices for milking [A01J 1/00](#) to- [A01J 9/00](#))

**Project: RP0306 (A01K)**

- U **A01K 5/00** **Feeding devices for stock or game ([A01K 1/10](#) takes precedence; for poultry [A01K 39/00](#) ){Feeding wagons; Feeding stacks}**
- A01K 5/015 · Licking-stone holders (salt blocks [A23K 1/16](#) [A23K 20/00](#)); -{Other dispensers for minerals}

**Project: N/A (A01K)**

- U A01K 5/02 · Automatic devices {(automatic identification devices for stock [A01K 11/006](#))}
- A01K 5/0208 · · {with conveyerconveyor belts or the like}

**Project: RP0306 (A01K)**

- U **A01K 61/00** **Culture of fish, mussels, crayfish, lobsters, sponges, pearls or the like (harvesting oysters, mussels, sponges or the like [A01K 80/00](#))**

A01K 61/02      · Feeding devices for fish {(fish food ~~A23K 1/188~~[A23K 50/80](#))}

**Project: N/A (A01K)**

A01K 79/00      **Methods or means of catching fish in bulk not provided for in groups [A01K 69/00](#) ~~to~~- [A01K 77/00](#), {e.g. fish pumps; Detection of fish; Whale fishery}**

**U**    A01K 81/00      **Fishing with projectiles (weapons, projectiles other than fish-spears [F41](#), [F42](#))**

A01K 81/06      · Equipment for hunting fish under water (swimming equipment [A63B 31/00](#) ~~to~~- [A63B 35/00](#))

**Project: RP0306 (A01K)**

**U**    A01K 97/00      **Accessories for angling (landing-nets, landing-spoons [A01K 77/00](#))**

A01K 97/04      · Containers for bait; Preparation of bait {}; Dispensers (feeding-stuffs for particular animals ~~A23K 1/18~~[A23K 50/00](#))

**Project: N/A (A01K)**

A01K 99/00      **Methods or apparatus for fishing not provided for in groups [A01K 69/00](#) ~~to~~- [A01K 97/00](#)**

**Project: N/A (A01M)**

**A01M**      **CATCHING OR TRAPPING OF ANIMALS (apiculture [A01K 47/00](#) ~~to~~- [A01K 59/00](#); fishing [A01K 69/00](#) ~~to~~- [A01K 97/00](#); pesticides [A01N](#)); APPARATUS FOR THE DESTRUCTION OF NOXIOUS ANIMALS OR NOXIOUS PLANTS (equipment fitted in or to aircraft for dropping or releasing powdered, liquid or gaseous matter, e.g. pesticides, herbicides, [B64D 1/16](#))**

**NOTE**

in this subclass, terms "killing" and "destruction" cover "non-chemical sterilisation" of invertebrates

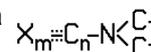
**A01M 7/00**      **Special adaptations or arrangements of liquid-spraying apparatus for purposes covered by this subclass ({apparatus for the destruction of unwanted vegetation [A01M 21/00](#); distributing devices specially adapted for liquid manure or other fertilising liquid [A01C 23/00](#); watering gardens, fields, sports grounds or the like [A01G 25/00](#); chemical treatment of plants or soils [A01N 25/00](#) ~~to~~- [A01N 65/00](#)}; spraying apparatus in general [B05B](#))**

**A01M 21/00**      **Apparatus for the destruction of unwanted vegetation, e.g. weeds (biocides, plant growth regulators [A01N 25/00](#) ~~to~~- [A01N 65/00](#); spraying or atomising apparatus in general [B05B](#); soil-conditioning or soil-stabilising materials [C09K 17/00](#); control of undesirable vegetation on roads or permanent ways of railways [E01H 11/00](#))**

**Project: N/A (A01N)**A01N 25/00 -  
A01N 65/00**Biocides; Pest repellants or attractants; Plant growth regulators**NOTES

1. Attention is drawn to the definitions of groups of chemical elements following the title of section C.
2. In groups [A01N 27/00](#) to [A01N 65/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place for an active ingredient.
3. Where a compound is described as existing in tautomeric forms, it is classified as if existing in the form which is classified last in the system.
4. Compounds covered by different main groups according to alternatively specified parts of their formulae are classified in every one of the relevant main groups.
5. Salts formed between two or more organic compounds are classified as the compound providing the essential ion and it is also classified as the compound providing the other ion.
6. Salts or metal chelates of an organic compound are classified as that compound.
7. In this subclass, a foodstuff is not considered as an active ingredient.
8. Different materials applied in sequence, at different times, are considered as a mixture of all materials employed
9. Synergistic or potentiated compositions are classified as if the synergist or potentiator were an active ingredient.
10. In groups [A01N 25/00](#) to [A01N 65/00](#), the symbol X means nitrogen, oxygen, sulfur or a halogen; Y means nitrogen, oxygen or sulfur. A dotted line between atoms indicates an optional bond, e.g. **....** indicates one or two single bonds or a double bond.
11. In groups [A01N 25/00](#) to [A01N 65/00](#), it is required to use Combination Sets for classifying mixtures of (active or formulation-relevant) ingredients. Symbols relating to additional ingredients of mixtures or specific formulation types are added to the Combination Set of the main ingredient. The additional ingredient may be a further active ingredient (for example in case of synergistic mixtures) or may relate to a particular special formulation-ingredient (such as a surfactant or safener) or to a special formulation embodiment (like a wettable powder or microcapsule).

A01N 43/00

**Biocides, pest repellants or attractants, or plant growth regulators containing heterocyclic compounds (containing cyclic anhydrides, cyclic imides [A01N 37/00](#); containing compounds of the formula****containing only one heterocyclic ring, wherein  $m \geq 1$  and  $n \geq 0$  and****is unsubstituted or alkylsubstituted pyrrolidine, piperidine, morpholine, thiomorpholine, piperazine or a polymethyleneimine with four or more  $CH_2$  groups, [A01N 33/00](#) to [A01N 41/12](#))**NOTES

1. In group [A01N 43/00](#), the following terms or expressions are used with the meanings indicated:
  - "Hetero ring" is a ring having at least one halogen nitrogen, oxygen or sulfur atom as a ring member.
  - "Bridged" means the presence of at least one fusion other than ortho, peri and spiro.
  - Two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed.

- "Condensed ring system" is a ring system in which all rings are condensed among themselves.

2. In group [A01N 43/00](#), the number of rings in a condensed system equals the number of scissions necessary to convert the ring system into one acyclic chain. The relevant rings in a condensed system are chosen according to the following criteria consecutively:

- lowest number of ring members,
- highest number of hetero atoms as ring members.

Ring members shared by two or more rings are regarded as being a member of each of these rings.

**U A01N 47/00**

**Biocides, pest repellants or attractants, or plant growth regulators containing organic compounds containing a carbon atom not being member of a ring and having no bond to a carbon or hydrogen atom, e.g. derivatives of carbonic acid (carbon tetrahalides [A01N 29/02](#))**

U A01N 47/40

- the carbon atom having a double or triple bond to nitrogen e.g. cyanates, cyanamides (inorganic cyanamides [A01N 59/24](#))

A01N 47/48

- containing -S-C≡N groups ([A01N 43/00](#) ~~to~~ [A01N 47/38](#) take precedence)

**U A01N 61/00**

**Biocides, pest repellants or attractants, or plant growth regulators containing substances of unknown or undetermined composition, e.g. substances characterised only by the mode of action**

A01N 61/02

- Mineral oils; Tar oils; Tar; Distillates, extracts or conversion products thereof (containing single chemical compounds isolated from these materials [A01N 27/00](#) ~~to~~ [A01N 59/00](#))

**A01N 63/00**

**Biocides, pest repellants or attractants, or plant growth regulators containing micro-organisms, viruses, microbial fungi, enzymes, fermentates or substances produced by, or extracted from, micro-organisms or animal material (containing compounds of determined constitution [A01N 27/00](#) ~~to~~ [A01N 59/00](#))**

**A01N 65/00**

**Biocides, pest repellants or attractants, or plant growth regulators containing material from algae, lichens, bryophyta, multi-cellular fungi or plants, or extracts thereof (containing compounds of determined constitution [A01N 27/00](#) ~~to~~ [A01N 59/00](#))**

WARNING

Groups [A01N 65/03](#) ~~to~~ [A01N 65/48](#), with the exception of [A01N 65/385](#), are incomplete. See also group [A01N 65/00](#).

**A01N 2300/00**

**Combinations or mixtures of active ingredients covered by classes [A01N 27/00](#) ~~to~~ [A01N 65/48](#) with other active or formulation relevant ingredients, e.g. specific carrier materials or surfactants, covered by classes [A01N 25/00](#) ~~to~~ [A01N 65/48](#)**

**Project: N/A (A21B)**

**U A21B 1/00**

**Bakers' ovens**

U A21B 1/42

- characterised by the baking surfaces moving during the baking (conveying in general [B65G](#))

A21B 1/46

- with surfaces suspended from an endless ~~conveyer~~[conveyor](#) or a revolving wheel

**Project: N/A (A21C)**

**U A21C 13/00**

**Provers, i.e. apparatus permitting dough to rise {(testing dough properties [G01N 33/10](#))}**

A21C 13/02

- with endless **conveyersconveyors** {e.g. for moving the dough pieces progressively through the prover}

**Project: N/A (A21D)**

A21D 2/00

**Treatment of flour or dough by adding materials thereto (A21D 10/00 takes precedence)**

**NOTE**

In groups [A21D 2/02](#) to- [A21D 2/40](#), in the absence of an indication to the contrary, a substance is classified in the last appropriate place

**Project: N/A (A22B)**

U A22B 7/00

**Slaughterhouse arrangements**

U A22B 7/001

- {Conveying arrangements}

A22B 7/003

- {Positioning, orienting or supporting carcasses as they are being conveyed (influencing the position of articles during transit by **conveyersconveyors** [B65G 47/22](#); during feeding [B65G 47/14](#))}

A22B 7/005

- {Means for transferring carcasses from a conveying unit to a different one, e.g. hooking, unhooking (transferring articles between **conveyersconveyors** [B65G 47/52](#))}

**Project: N/A (A22C)**

U A22C 25/00

**Processing fish; {Curing of fish; Stunning of fish by electric current; Investigating fish by optical means (slaughtering fish [A22B 3/08](#))}**

A22C 25/08

- Holding, guiding, or conveying fish before, during or after its preparation ([A22C 25/06](#) takes precedence); {Devices for sizing fish; Automatically adapting **conveyersconveyors** or processing machines to the measured size (transport in general [B65G](#))}

**Project: N/A (A23B)**

U A23B 7/00

**Preservation or chemical ripening of fruit or vegetables**

U A23B 7/02

- Dehydrating; Subsequent reconstitution (dried cooked potatoes [A23L 1/216](#))

A23B 7/022

- • with addition of chemicals {before or during drying, e.g. semi-moist products} ([A23B 7/024](#) to- [A23B 7/028](#) take precedence)

**Project: N/A (A23C)**

U A23C 9/00

**Milk preparations; Milk powder or milk powder preparations ([A23C 21/06](#) takes precedence; preservation [A23C 3/00](#); chocolate milk [A23G 1/00](#); ice-cream, mixtures for preparation of ice-cream [A23G 9/00](#); puddings, dry powder puddings [A23L 1/187](#))**

A23C 9/20

- Dietetic milk products not covered by groups [A23C 9/12](#) to- [A23C 9/18](#)

U A23C 2260/00

**Particular aspects or types of dairy products (not used, see subgroups below)**

U A23C 2260/15

- Frozen dairy products (not used, see subgroups below)

A23C 2260/152

- • Frozen fermented milk products e.g. frozen yoghurt or yoghurt ice cream; Frozen milk products containing living microorganisms;

**Project: RP0306 (A23D)**

**A23D** **EDIBLE OILS OF FATS, e.g. MARGARINES, SHORTENINGS, COOKING OILS (animal feeding-stuffs [A23K 1/00](#)[A23K 10/00](#)-[A23K 20/30](#), [A23K 30/00](#)-[A23K 50/90](#)); foods or foodstuffs containing edible oils or fats [A21D](#), [A23C](#), [A23G](#), [A23L](#); obtaining, refining, preserving [C11B](#), [C11C](#); hydrogenation [C11C 3/12](#))**

**Project: N/A (A23G)**

**U A23G 1/00** **Cocoa; Cocoa products, e.g. chocolate; Substitutes therefor (kitchen equipment for cocoa preparation [A47J](#), e.g. apparatus for making beverages [A47J 31/00](#))**

NOTE

Attention is drawn to the internal note after the subclass title

- U A23G 1/0003 · {Processes of manufacture not relating to composition or compounding ingredients}
- A23G 1/0006 · · {Processes specially adapted for manufacture or treatment of cocoa or cocoa products ([A23G 1/002](#) ~~to~~- [A23G 1/005](#) take precedence)}
- A23G 1/005 · · {Moulding, shaping, cutting, or dispensing chocolate ([A23G 1/0076](#) ~~to~~- [A23G 1/0096](#) take precedence)}
- U A23G 1/04 · Apparatus specially adapted for manufacture or treatment of cocoa or cocoa products (machines for roasting cocoa [A23N 12/00](#); crushing or grinding apparatus in general [B02C](#))
- U A23G 1/20 · · Apparatus for moulding, cutting, or dispensing chocolate
- A23G 1/201 · · · {Apparatus not covered by groups [A23G 1/21](#) ~~to~~- [A23G 1/28](#) (not used)}

**U A23G 3/00** **Sweetmeats; Confectionery; Marzipan; Coated or filled products (chewing gum [A23G 4/00](#))**

NOTE

Attention is drawn to the internal note after the subclass title

- U A23G 3/0002 · {Processes of manufacture not relating to composition and compounding ingredients}
- A23G 3/0004 · · {Processes specially adapted for manufacture or treatment of sweetmeats or confectionery ([A23G 3/0044](#) ~~to~~- [A23G 3/0063](#) take precedence)}
- U A23G 3/02 · Apparatus specially adapted for manufacture or treatment of sweetmeats or confectionery; Accessories therefor
- U A23G 3/0236 · · {Shaping of liquid, paste, powder; Manufacture of moulded articles, e.g. modelling, moulding, calendering}
- U A23G 3/0252 · · · {Apparatus in which the material is shaped at least partially in a mould, in the hollows of a surface, a drum, an endless band, or by a drop-by-drop casting or dispensing of the material on a surface, e.g. injection moulding, transfer moulding}
- A23G 3/0278 · · · · {Mould ~~conveyer~~[conveyor](#), e.g. with the associated mould}
- U A23G 3/20 · · Apparatus for coating or filling sweetmeats or confectionery
- U A23G 3/2007 · · · {Manufacture of filled articles, composite articles, multi-layered articles}
- U A23G 3/2023 · · · · {the material being shaped at least partially in a mould, in the hollows of a surface, a drum, an endless band or by drop-by-drop casting or dispensing of the materials on a surface or an article being completed}
- A23G 3/2046 · · · · · {Mould ~~conveyer~~[conveyor](#), e.g. with the associated moulds}

- U A23G 7/00** **Other apparatus {or process} specially adapted for the chocolate or confectionery industry**
- A23G 7/0043 · {Other processes specially adapted for the chocolate or confectionery industry ([A23G 7/0006](#) ~~to~~ [A23G 7/02](#))}

**Project: RP0306 (A23J)**

- U A23J 1/00** **Obtaining protein compositions for foodstuffs; Bulk opening of eggs and separation of yolks from whites (preparation of glue [C09H](#))**
- A23J 1/04 · from fish or other sea animals (for animal feeding-stuff ~~A23K 1/10~~ [A23K 10/20](#))
- A23J 1/06 · from blood (for animal feeding-stuff ~~A23K 1/04~~ [A23K 10/24](#); plastic materials from blood [C08H 1/00](#))

**Project: N/A (A23J)****A23J 3/00 Working-up of proteins for foodstuffs****NOTE**

In groups [A23J 3/04](#) ~~to~~ [A23J 3/20](#), in the absence of an indication to the contrary, classification is made in the last appropriate place

- A23J 3/22 · by texturising

**NOTE**

Subject matter classified in groups [A23J 3/22](#) ~~to~~ [A23J 3/28](#) is also classified in groups [A23J 3/04](#) ~~to~~ [A23J 3/20](#), if the nature of the protein is of interest {except if subgroups [A23J 3/22](#) ~~to~~ [A23J 3/28](#) already provide for this subject matter}

- A23J 3/30 · by hydrolysis

**NOTE**

Subject matter classified in groups [A23J 3/30](#) ~~to~~ [A23J 3/34](#) is also classified in groups [A23J 3/04](#) ~~to~~ [A23J 3/20](#), if the nature of the protein is of interest {except if subgroups of [A23J 3/30](#) ~~to~~ [A23J 3/34](#) already provide for this subject matter}

**Project: N/A (A23K)****A23K****FODDER****WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups are classified in the following CPC groups:

~~A23K 1/20~~ covered by ~~\_\_\_\_\_~~ ~~A23K 1/003~~ \_\_\_\_\_  
~~A23K 1/24~~ covered by ~~\_\_\_\_\_~~ ~~A23K 1/003~~ \_\_\_\_\_,  
~~A23K 1/1826~~ \_\_\_\_\_  
~~A23K 3/04~~ covered by ~~\_\_\_\_\_~~ ~~A23K 1/143~~ \_\_\_\_\_

**Project: RP0306 (A23K)**

- D A23K 1/00** **Animal feeding-stuffs (detoxicating or removing bitter tastes from seeds, e.g. lupin seeds for fodder or food [A23L 1/211](#))**
- D A23K 1/001 · {Shaping or working-up of feeding-stuffs}
- D A23K 1/002 · · {by agglomeration; by granulation, e.g. making powders}
- D A23K 1/003 · · {by moulding; by extrusion}
- D A23K 1/004 · · {by encapsulating; by coating}

- D A23K 1/005 . . . {Making capsules specially adapted for ruminants}
- D A23K 1/006 . {Animal feeding-stuffs obtained by microbiological or biochemical processes}
- D A23K 1/007 . . {by fermentation of natural products, or vegetable or animal offal materials, e.g. biomasses (single cell proteins as additives A23K 1/008; live micro-organisms as additives A23K 1/009)}
- D A23K 1/008 . . {Addition of micro-organisms to feeding-stuff compositions, e.g. single cell proteins (biomasses A23K 1/007; enzymes A23K 1/165)}
- D A23K 1/009 . . . {Addition of live micro-organisms to feeding-stuff compositions}
- D A23K 1/02 . from molasses
- D A23K 1/04 . from blood (proteins from blood A23J 1/06)
- D A23K 1/06 . from distillers' or brewers' waste
- D A23K 1/08 . from waste products of dairy plant
- D A23K 1/10 . from meat, fish, or bones; from kitchen waste
- D A23K 1/103 . . {from fish}
- D A23K 1/106 . . {from animal offal material, e.g. feathers, bones, skin (from blood A23K 1/04)}
- D A23K 1/12 . from hydrolysates of wood or straw
- D A23K 1/14 . from vegetable materials, e.g. potatoes or roots without ensilaging (preserving food A23B, A23L)
- D A23K 1/143 . . {from potatoes}
- D A23K 1/146 . . {from vegetable offal material (molasses A23K 1/02; distillers' and brewers' waste A23K 1/06; from wood or straw A23K 1/12)}
- D A23K 1/16 . supplemented with accessory food factors; Salt blocks {(steroids, hormones or enzymes A23K 1/165; antibiotics A23K 1/17; inorganic additions A23K 1/175)}
- D A23K 1/1603 . . {Vitamins}
- D A23K 1/1606 . . {Pigmenting agents}
- D A23K 1/1609 . . {Aliphatic or alicyclic compounds}
- D A23K 1/1612 . . {Aromatic compounds}
- D A23K 1/1615 . . {Heterocyclic compounds}
- D A23K 1/1618 . . . {containing oxygen or sulfur as hetero atom}
- D A23K 1/1621 . . . {Lactones}
- D A23K 1/1625 . . . {containing only one nitrogen as hetero atom}
- D A23K 1/1628 . . . {containing two hetero atoms of which at least one is nitrogen}
- D A23K 1/1631 . . {Amino acids; Derivatives thereof, e.g. peptides, proteins}
- D A23K 1/1634 . . . {Amino acids; Non-polymeric derivatives thereof}
- D A23K 1/1637 . . {Nucleic acids; Hydrolysis products or derivatives thereof}
- D A23K 1/164 . . {Fatty acids, fats, oil or fat-containing products}
- D A23K 1/1643 . . {Sugars or polysaccharides}
- D A23K 1/1646 . . {Other organic substances}
- D A23K 1/165 . . with steroids, hormones, or enzymes
- D A23K 1/1653 . . . {Enzymes}
- D A23K 1/1656 . . . . {Pretreatment of feeding-stuffs with enzymes}
- D A23K 1/17 . . with antibiotics
- D A23K 1/175 . . with inorganic substances; Salt blocks

**NOTE**

In groups A23K 1/1751 to A23K 1/1758, in the absence of an indication to the contrary, an invention is classified in the last appropriate place

- D A23K 1/1751 . . . {Alkali-metal compounds}
- D A23K 1/1753 . . . {Earth-alkali-metal compounds}
- D A23K 1/1755 . . . {Compounds-containing-phosphorus}
- D A23K 1/1756 . . . {Silicates, e.g. perlite, zeolite, bentonite}
- D A23K 1/1758 . . . {Oligoelements}
- D A23K 1/18 . . . specially adapted for particular animals (milk-substitutes A23C 11/00)
- D A23K 1/1806 . . . {for horses}
- D A23K 1/1813 . . . {for ruminants}
- D A23K 1/182 . . . {for birds}
- D A23K 1/1826 . . . {for poultry}
- D A23K 1/1833 . . . {for monogastric animals}
- D A23K 1/184 . . . {for swine}
- D A23K 1/1846 . . . {for carnivorous animals, e.g. cats, dogs}
- D A23K 1/1853 . . . {Dry feed}
- D A23K 1/186 . . . {Semi-moist feed}
- D A23K 1/1866 . . . {Moist feed}
- D A23K 1/1873 . . . {for insects, e.g. bees, silk worms}
- D A23K 1/188 . . . {for aquatic animals, e.g. fish, crustaceans, molluscs}
- D A23K 1/1886 . . . {for rodents}
- D A23K 1/1893 . . . {for weanlings}
- D A23K 1/22 . . . containing chemicals which are converted to proteins by cattle, e.g. ammonium salts, urea
  
- D A23K 3/00**      **Preservation of materials to produce animal feeding-stuffs**
- D A23K 3/005 . . . {Dehydration}
- D A23K 3/02 . . . of green fodder (processing and storing A01F 25/00; silos E04H)
- D A23K 3/025 . . . {Dehydration of green fodder}
- D A23K 3/03 . . . using chemicals for ensilaging
- D A23K 3/035 . . . {Ensilage by use of micro-organisms or enzymes}
  
- N A23K 10/00**      **Animal feeding-stuffs**
- N A23K 10/10 . . . obtained by microbiological or biochemical processes (using chemicals or micro-organisms for ensilaging of green fodder [A23K 30/15](#))
- N A23K 10/12 . . . by fermentation of natural products, e.g. of vegetable material, animal waste material or biomass
- N A23K 10/14 . . . Pretreatment of feeding-stuffs with enzymes
- N A23K 10/16 . . . Addition of micro-organisms or extracts thereof, e.g. single-cell proteins, to feeding-stuff compositions ([A23K 10/12](#) takes precedence)
- N A23K 10/18 . . . of live micro-organisms
- N A23K 10/20 . . . from material of animal origin (obtained by microbiological or biochemical processes [A23K 10/10](#))
- N A23K 10/22 . . . from fish
- N A23K 10/24 . . . from blood
- N A23K 10/26 . . . from waste material, e.g. feathers, bones or skin ([A23K 10/24](#) takes precedence)
- N A23K 10/28 . . . from waste dairy products

- N A23K 10/30
  - from material of plant origin, e.g. roots, seeds or hay; from material of fungal origin, e.g. mushrooms (obtained by microbiological or biochemical processes, e.g. using yeasts or enzymes, [A23K 10/10](#))
- N A23K 10/32
  - • from hydrolysates of wood or straw
- N A23K 10/33
  - • from molasses
- N A23K 10/35
  - • from potatoes
- N A23K 10/37
  - • from waste material (from hydrolysates of wood or straw [A23K 10/32](#); from molasses [A23K 10/33](#))
- N A23K 10/38
  - • • from distillers' or brewers' waste
- N A23K 10/40
  - Mineral licks, e.g. salt blocks

**WARNING**

Group [A23K 10/40](#) is incomplete pending reclassification of documents from group [A23K 20/20](#).

Groups [A23K 10/40](#) and [A23K 20/20](#) should be considered in order to perform a complete search.

**N A23K 20/00 Accessory food factors for animal feeding-stuffs**

- N A23K 20/10
  - Organic substances
- N A23K 20/105
  - • Aliphatic or alicyclic compounds

**NOTE**

When classifying in groups [A23K 20/105](#) - [A23K 20/168](#), classification is also made in groups [A23K 20/174](#) - [A23K 20/195](#) if the substance has a particular function.

- N A23K 20/111
  - • Aromatic compounds
- N A23K 20/116
  - • Heterocyclic compounds
- N A23K 20/121
  - • • containing oxygen or sulfur as hetero atom
- N A23K 20/126
  - • • • Lactones
- N A23K 20/132
  - • • containing only one nitrogen as hetero atom
- N A23K 20/137
  - • • containing two hetero atoms, of which at least one is nitrogen
- N A23K 20/142
  - • Amino acids; Derivatives thereof
- N A23K 20/147
  - • • Polymeric derivatives, e.g. peptides or proteins
- N A23K 20/153
  - • Nucleic acids; Hydrolysis products or derivatives thereof
- N A23K 20/158
  - • Fatty acids; Fats; Products containing oils or fats
- N A23K 20/163
  - • Sugars; Polysaccharides
- Q A23K 20/168
  - • Steroids

**WARNING**

Group [A23K 20/168](#) is impacted by reclassification into group [A23K 20/184](#). Groups [A23K 20/168](#) and [A23K 20/184](#) should be considered in order to perform a complete search.

- N A23K 20/174
  - • Vitamins
- N A23K 20/179
  - • Colouring agents, e.g. pigmenting or dyeing agents
- N A23K 20/184
  - • Hormones

**WARNING**

Group [A23K 20/184](#) is incomplete pending reclassification of documents from group [A23K 20/168](#).

Groups [A23K 20/184](#) and [A23K 20/168](#) should be considered in order to perform a complete search.

- N A23K 20/189      • • Enzyme
- N A23K 20/195      • • Antibiotics
- Q A23K 20/20      • Inorganic substances, e.g. oligoelements
- WARNING**  
Group [A23K 20/20](#) is impacted by reclassification into group [A23K 10/40](#).  
Groups [A23K 20/20](#) and [A23K 10/40](#) should be considered in order to perform a complete search.
- N A23K 20/22      • • Compounds of alkali metals
- NOTE**  
In groups [A23K 20/22](#) - [A23K 20/28](#), the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.
- N A23K 20/24      • • Compounds of alkaline earth metals, e.g. magnesium
- N A23K 20/26      • • Compounds containing phosphorus
- N A23K 20/28      • • Silicates, e.g. perlites, zeolites or bentonites
- N A23K 20/30      • • {Oligoelements}
- N A23K 30/00      *Processes specially adapted for preservation of materials in order to produce animal feeding-stuffs***
- N A23K 30/10      • of green fodder
- N A23K 30/12      • • Dehydration
- N A23K 30/15      • • using chemicals or micro-organisms for ensilaging
- N A23K 30/18      • • • using micro-organisms or enzymes
- N A23K 30/20      • Dehydration (of green fodder [A23K 30/12](#))
- N A23K 40/00      *Shaping or working-up of animal feeding-stuffs***
- N A23K 40/10      • by agglomeration; by granulation, e.g. making powders
- Q A23K 40/20      • by moulding, e.g. making cakes or briquettes
- WARNING**  
Group [A23K 40/20](#) is impacted by reclassification into group [A23K 40/25](#).  
Groups [A23K 40/20](#) and [A23K 40/25](#) should be considered in order to perform a complete search.
- N A23K 40/25      • by extrusion
- WARNING**  
Group [A23K 40/25](#) is incomplete pending reclassification of documents from group [A23K 40/20](#).  
Groups [A23K 40/25](#) and [A23K 40/20](#) s should be considered in order to perform a complete search.
- N A23K 40/30      • by encapsulating; by coating
- N A23K 40/35      • • Making capsules specially adapted for ruminants
- N A23K 50/00      *Feeding-stuffs specially adapted for particular animals***
- N A23K 50/10      • for ruminants
- N A23K 50/15      • • containing substances which are metabolically converted to proteins, e.g. ammonium salts or urea
- N A23K 50/20      • for horses
- N A23K 50/30      • for swines

- N A23K 50/40 · for carnivorous animals, e.g. cats or dogs
- N A23K 50/42 · · Dry feed
- N A23K 50/45 · · Semi-moist feed
- N A23K 50/48 · · Moist feed
- N A23K 50/50 · for rodents
- N A23K 50/60 · for weanlings

NOTE

When classifying in group [A23K 50/60](#), classification is also made in groups [A23K 50/10](#) - [A23K 50/50](#) if the weanling is any of the animals covered by those groups.

- N A23K 50/70 · for birds
- N A23K 50/75 · · for poultry
- N A23K 50/80 · for aquatic animals, e.g. fish, crustaceans or molluscs
- N A23K 50/90 · for insects, e.g. bees or silkworms

**Project: N/A (A23L)****A23L**

**FOODS, FOODSTUFFS, OR NON-ALCOHOLIC BEVERAGES, NOT COVERED BY SUBCLASSES [A23B TO](#) [A23J](#); THEIR PREPARATION OR TREATMENT, e.g. COOKING, MODIFICATION OF NUTRITIVE QUALITIES, PHYSICAL TREATMENT (shaping or working, not fully covered by this subclass, [A23P](#)); PRESERVATION OF FOODS OR FOODSTUFFS, IN GENERAL**

**A23L 1/00**

**Foods or foodstuffs; Their preparation or treatment (preservation thereof in general [A23L 3/00](#); {mechanical aspects [A23P](#)})**

WARNING

Groups [A23L 1/0002 to](#) [A23L 1/0097](#) might be incomplete as a number of documents presently classified in groups [A23P 1/00 to](#) [A23P 1/16](#), still needs reclassification to groups [A23L 1/0002 to](#) [A23L 1/0097](#)

- U A23L 1/0014 · {Specially shaped or worked food or foodstuffs}
- A23L 1/0073 · · {Shaped or worked products not covered by groups [A23L 1/0017 to](#) [A23L 1/0044](#), [A23L 1/0082](#) or [A23L 1/0097](#), e.g. moulded}
- A23L 1/076 · Products from apiculture, e.g. royal jelly or pollen (apiculture [A01K 47/00 to](#) [A01K 59/00](#)); Substitutes therefor
- U A23L 1/10 · containing cereal-derived products (treating or baking of doughs containing flour [A21D](#))
- A23L 1/1025 · · {Treatment of whole grains not provided for in groups [A23L 1/164 to](#) [A23L 1/182](#) (preservation [A23B 9/00](#))}
- A23L 1/1041 · · {Dry unshaped finely divided cereal products, not provided for in groups [A23L 1/05226](#) and [A23L 1/164 to](#) [A23L 1/182](#), e.g. meal, flour, powder, dried cereal creams or extracts}

**Project: MP0181 (A23L)**

- U A23L 1/31 · Meat products; Meat meal (working-up proteins for foodstuffs [A23J 3/00](#))
- U A23L 1/314 · · containing additives
- M A23L 1/31409 · · · {using additives other than enzymes or micro-organisms in **comminuted** meat products **or meat meals**}

**Project: N/A (A23L)**

- U A23L 3/00 Preservation of foods or foodstuffs, in general, e.g. pasteurising, sterilising, specially adapted for foods or foodstuffs (preservation of flour or bread [A21D](#); processes specially adapted for particular foods or foodstuffs, see the relevant groups for the foods or foodstuffs in [A23](#); preserving foods or foodstuffs in association with packaging [B65B 55/00](#); preservation of alcoholic beverages [C12H](#))
- U A23L 3/02 · by heating materials in packages which are progressively transported, continuously or stepwise, through the apparatus ([A23L 3/005](#) takes precedence)
- A23L 3/04 · · with packages on endless chain or band ~~conveyers~~[conveyors](#) {([A23L 3/022](#) takes precedence)}
- U A23L 3/34 · by treatment with chemicals
- U A23L 3/3454 · · in the form of liquids or solids
- U A23L 3/3463 · · · Organic compounds; Micro-organisms; Enzymes
- A23L 3/34635 · · · · {Antibiotics}

**NOTE**

In groups [A23L 3/3472](#) to [A23L 3/3562](#), in the absence of an indication to the contrary, classification is made in the last appropriate place

**Project: RP0306 (A23N)**

- U A23N 17/00 Apparatus specially adapted for preparing animal feeding-stuffs {(automatic devices for the distribution of liquid fodder for stock or game [A01K 5/0216](#); sucking apparatus for young stock [A01K 9/00](#))}
- A23N 17/001 · {by treating with chemicals, e.g. ammoniac, sodium hydroxide (processes ~~A23K 1/12~~[A23K 10/32](#))}
- A23N 17/005 · {for shaping by moulding, extrusion, pressing, e.g. pellet-mills (processes ~~A23K 1/001~~[A23K 40/00](#); presses in general [B30B](#))}

**Project: MP0180 (A23V)**

- M A23V 2002/00 Food compositions, function of food ingredients or processes for food or foodstuffs

**NOTE**

1. Indexing codes of main groups [A23V 2200/00](#), [A23V 2250/00](#) and [A23V 2300/00](#) are used in combination with the base symbol [A23V 2002/00](#) to indicate the composition, function of ingredients or processes.

1. Indexing codes of main groups [A23V 2200/00](#), [A23V 2250/00](#) and [A23V 2300/00](#) are used in combination as C-sets with the base symbol [A23V 2002/00](#) to indicate the composition, function of ingredients or processes.

2.

The indexing codes of this group are used in combination with the ingredients compositions codes

**Project: N/A (A24B)**

- A24B 13/00 Tobacco for pipes, for cigars, e.g. cigar inserts, or for cigarettes; Chewing tobacco; Snuff (mechanical treatment [A24B 3/00](#) to [A24B 11/00](#); reconstituted tobacco products [A24B 3/14](#); chemical features or treatment of tobacco [A24B 15/00](#))
- U A24B 15/00 Chemical features or treatment of tobacco; Tobacco substitutes ([A24B 3/00](#) takes precedence)

- U A24B 15/18 · Treatment of tobacco products or tobacco substitutes
- U A24B 15/28 · · by chemical substances
- U A24B 15/281 · · · {the action of the chemical substances being delayed}
- A24B 15/283 · · · · {by encapsulation of the chemical substances}

**NOTE**

In groups [A24B 15/30](#) ~~to~~ [A24B 15/42](#), in the absence of an indication to the contrary, classification is made in the last appropriate place for a substance

**Project: N/A (A24C)**

- U A24C 5/00 **Making cigarettes; Making tipping materials for, or attaching filters or mouthpieces to, cigars or cigarettes**
- U A24C 5/39 · Tobacco feeding devices (regulating feed according to rod or cigarette condition [A24C 5/34](#))
- A24C 5/393 · · {with a vibrating ~~conveyer~~[conveyor](#)}

**Project: N/A (A41D)**

- U A41D 13/00 **Professional, industrial, or sporting protective garments, e.g. garments affording protection against blows or punches, surgeon's gowns (helmets [A42B 3/00](#); clothing affording protection against {heat or harmful} chemical agents or for use at high altitudes [A62B 17/00](#); life-saving garments for use at sea, diving-bell suits [B63C](#); bulletproof or armoured clothing [F41H](#); clothing affording protection against radiation [G21F 3/02](#); electric heating elements [H05B](#))**
- A41D 13/0002 · {Details of protective garments not provided for in groups [A41D 13/0007](#) ~~to~~ [A41D 13/1281](#)}
- A41D 13/0015 · {Sports garments other than provided for in groups [A41D 13/0007](#) ~~to~~ [A41D 13/088](#) (sports overalls [A41D 13/02](#))}
- U A41D 31/00 **Selection of special materials for outerwear**
- U A41D 31/0011 · {Selection of special materials for protective garments (composition of materials for clothing affording protection against harmful chemical agents [A62D 5/00](#))}
- A41D 31/0016 · · {of layered products ([A41D 31/0022](#) ~~to~~ [A41D 31/0077](#) take precedence)}

**Project: N/A (A41F)**

- A41F 18/00 **Garment suspenders covered by two or more of groups [A41F 3/00](#) ~~to~~ [A41F 17/00](#)**

**Project: N/A (A41H)**

- A41H **APPLIANCES OR METHODS FOR MAKING CLOTHES, e.g. FOR DRESS-MAKING, FOR TAILORING, NOT OTHERWISE PROVIDED FOR (machines, appliances, or methods for making particular articles of apparel, see the relevant groups for these articles in [A41B](#) ~~to~~ [A41E](#); cutting tools or machines in general [B26](#); weaving, braiding, lace-making, knitting, tufting, treating of textiles [D03](#) ~~to~~ [D06](#); sewing-machines, sewing appliances, seam-ripping devices [D05B](#); cutting or otherwise severing textile materials [D06H 7/00](#))**
- U A41H 43/00 **Other methods, machines or appliances**
- U A41H 43/02 · Handling garment parts or blanks, e.g. feeding, piling, separating, reversing (handling thin material in general [B65H](#))
- U A41H 43/0235 · · {Feeding or advancing}

A41H 43/0242 . . . {~~Conveyers~~~~Conveyors~~ therefor}

**Project: N/A (A43D)**

**A43D 8/00** Machines for cutting, ornamenting, marking or otherwise working up shoe part blanks (pulling-over or lasting [A43D 9/00](#) ~~to~~ [A43D 23/00](#); making or fastening soles, heels or welts [A43D 25/00](#) ~~to~~ [A43D 83/00](#))

**A43D 86/00** Machines for assembling soles or heels onto uppers, not provided for in groups [A43D 25/00](#) ~~to~~ [A43D 83/00](#), e.g. by welding

**A43D 111/00** Shoe machines with ~~conveyers~~~~conveyors~~ for jacked shoes {or for shoes or shoe parts}

**Project: N/A (A44B)**

**U A44B 11/00** Buckles; Similar fasteners for interconnecting straps or the like, e.g. for safety belts

U A44B 11/25 . with two or more separable parts

U A44B 11/2503 . {Safety buckles (safety belts in vehicles [B60R 22/00](#); safety belts for aircraft [B64D 25/02](#))}

U A44B 11/2546 . . . {Details}

A44B 11/2549 . . . . {Fastening of other buckle elements to the main buckle (buckles with several tongues released by the same mechanism [A44B 11/2507](#) ~~to~~ [A44B 11/2542](#))}

**U A44B 19/00** Slide fasteners

U A44B 19/42 . Making by processes not fully provided for in one other class, e.g. [B21D 53/50](#), [B21F 45/18](#), [B22D 17/16](#), [B29D 5/00](#) {(attaching closure devices, e.g. slide fasteners, to bags [B31B 19/00](#); making package opening by applying or incorporating profile strips, e.g. for reclosable bags [B65B 61/188](#))}

U A44B 19/44 . . Securing metal interlocking members to ready-made stringer tapes (making metal slide fastener parts combined with attaching [B21D 53/52](#))

U A44B 19/46 . . . Securing separate interlocking members

A44B 19/48 . . . . Arranging interlocking members before securing (article handling devices associated with ~~conveyers~~~~conveyors~~ in general [B65G 47/00](#), e.g. [B65G 47/14](#))

**Project: N/A (A44C)**

**U A44C 5/00** Bracelets; Wrist-watch straps; Fastenings for bracelets or wrist-watch straps {(settings for holding gems or the like [A44C 17/02](#); devices for putting-on or pulling-off bracelets [A47G 25/901](#))}

U A44C 5/18 . Fasteners for straps, {chains or the like}(buckles [A44B 11/00](#))

U A44C 5/20 . . for open straps, {chains or the like}

A44C 5/2071 . . . {with the two ends of the strap or chain overlapping each other and fastened by an action perpendicularly to the main plane of these two ends ([A44C 5/2009](#) ~~to~~ [A44C 5/2057](#) take precedence)}

A44C 5/2076 . . . {with the two ends of the strap or chain abutting each other or sliding in the main plane or a plane parallel to the main plane of these two ends ([A44C 5/2009](#) ~~to~~ [A44C 5/2061](#) take precedence)}

**U A44C 15/00** Other forms of jewellery

A44C 15/0045 . {Jewellery specially adapted to be worn on a specific part of the body not fully provided for in groups [A44C 1/00](#) ~~to~~ [A44C 9/00](#) ([A44C 15/0035](#) takes precedence)}

**Project: N/A (A45B)**

A45B 25/00

Details of umbrellas (sticks for umbrellas [A45B 1/00](#) ~~to~~ [A45B 9/00](#); illuminating devices for umbrellas [A45B 3/02](#); {sockets or holders for poles or posts [E04H 12/22](#)})

A45B 2025/003

· {Accessories not covered by groups [A45B 25/24](#) ~~to~~ [A45B 25/30](#)}

**Project: N/A (A45C)**

A45C

**PURSES; LUGGAGE; HAND CARRIED BAGS** (sacks or packs carried on the body [A45F](#) containers in general [B65D](#), e.g. portable flexible containers, [B65D 27/00](#) ~~to~~ [B65D 37/00](#); making leather, canvas, or like articles [B68F](#))

NOTES

- In this subclass, the following term is used with the meaning indicated:
  - "luggage" means containers for personal belongings for a journey, e.g. travelling bags, suitcases, trunks.
- In this subclass, the following terms are used with the meaning indicated:
  - "flexible" means providing a structure with no considerable resistance against deformation or decrease of the enclosed volume, whereby a two-dimensional stability may be provided, e.g. by a stiffened bottom
  - "semi-rigid" means providing a structure with three-dimensional stability in an unloaded state and resilient resistance against deformation, or allowing a limited decrease, of the enclosed volume, e.g. by a resilient frame or a rigid frame with flexible side walls
  - "rigid" means providing a structure with three-dimensional stability allowing no deformation leading to a considerable decrease of the enclosed volume
  - "collapsible" means providing a feature other than use of flexible material for reducing the dimensions of flexible luggage or the enclosed volume of semi-rigid or rigid luggage
  - "extensible" means providing a feature other than use of flexible material for increasing the enclosed volume of flexible, semi-rigid or rigid luggage

A45C 11/00

Receptacles for purposes not provided for in groups [A45C 1/00](#) ~~to~~ [A45C 9/00](#) (specially adapted for toilet or cosmetic equipment [A45D](#); travelling sewing kits [A45F 3/48](#); {devices for carrying bowling balls [A63B 47/007](#)})

A45C 11/24

· Etais for purposes not covered by a single one of groups [A45C 11/02](#) ~~to~~ [A45C 11/22](#), [A45C 11/26](#), [A45C 11/32](#) ~~to~~ [A45C 11/38](#)

A45C 15/00

Purses, bags, luggage or other receptacles covered by groups [A45C 1/00](#) ~~to~~ [A45C 11/00](#), combined with other {objects or} articles ([A45C 1/08](#), [A45C 3/14](#), {[A45C 11/321](#) and [A45C 13/28](#)} take precedence; {Purses combined with sticks [A45B 3/10](#)})

**Project: N/A (A45D)**A45D 19/00 -  
A45D 27/00

Cleaning the hair or the scalp; Drying the hair; Colouring the hair (preparations for treating the hair [A61K 8/00](#), [A61Q 5/00](#) ~~to~~ [A61Q 9/00](#))

A45D 24/00

Hair combs for care of the hair; Accessories therefor (high combs or dress combs [A45D 8/12](#); hair-drying combs [A45D 20/48](#) ~~to~~ [A45D 20/52](#); hair-trimming devices, using a razor blade, integral or combined with combs [B26B 21/00](#), e.g. [B26B 21/12](#))

U A45D 33/00

Containers or accessories specially adapted for handling toilet or cosmetic powder

- A45D 33/006
- {Vanity boxes or cases, compacts, i.e. containing a powder receptacle and a puff or applicator ([A45D 33/025](#) ~~to~~ [A45D 33/34](#) and [A45D 40/22](#) take precedence; toilet etuis [A45C 11/008](#))}
- U A45D 33/02
- with dispensing means, e.g. sprinkling means
- A45D 33/025
- • {for compacts, vanity boxes or cases ([A45D 33/04](#) ~~to~~ [A45D 33/16](#) take precedence)}

**Project: N/A (A45F)**

- U A45F 4/00
- Travelling or camp articles which may be converted into {other} articles {or into objects} for other use; Sacks or packs carried on the body and convertible into other articles {or into objects for other use}**
- U A45F 4/02
- Sacks or packs convertible into other articles {or into objects for other use}
- A45F 2004/023
- • {into articles covered by groups [A45F 3/00](#) ~~to~~ [A45F 3/15](#)}

**Project: N/A (A47B)**

- A47B 96/00
- Details of cabinets, racks or shelf units not covered by a single one of groups [A47B 43/00](#) ~~to~~ [A47B 95/00](#); General details of furniture (doors [E06B](#))**
- U A47B 2210/00
- General construction of drawers, guides and guide devices**
- U A47B 2210/0091
- Drawer movement damping
- A47B 2210/0097
- • Ball or roller cage incorporating damping means;
- U A47B 2220/00
- General furniture construction, e.g. fittings**
- A47B 2220/13
- Sound or noise reduction or dampening, e.g. built in via the furniture panels;

**Project: N/A (A47C)**

A47C 17/00 -  
A47C 31/00

**Sofas; Beds****NOTE**

In groups [A47C 17/00](#) ~~to~~ [A47C 27/00](#), the following terms or expressions are used with the meaning indicated:

- "bedstead" is used only for the frame of a bed;
- "bed" includes bedsteads combined with spring mattresses, stuffed mattresses, or similar means to enable the lying of persons thereon;
- "spring mattresses" do not include any stuffed material;
- "stuffed mattresses" may include metal springs.

A47C 17/04

- {Seating furniture, e.g.} sofas, couches, settees, or the like, with movable parts ~~{changeable to beds}~~; Chair beds

**Project: N/A (A47F)**

A47F 10/00

**Furniture or installations specially adapted to particular types of service systems, not otherwise provided for (~~conveyer aspects B65G~~; ~~conveyor aspects B65G~~; building aspects [E04H](#); coin-freed apparatus [G07F](#))**

**Project: MP0172 (A47G)**

**M A47G HOUSEHOLD OR TABLE EQUIPMENT (book-ends [A47B 5/00](#); knives [B26B](#))**  
**NOTE**

This subclass covers equipment for similar use in hotels, dressing rooms, vehicles, or the like, not otherwise provided for

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[A47G 25/42](#) covered by [A47G 25/40](#), [A47G 2025/4092](#)

[A47G 25/46](#) covered by [A47G 25/44](#), [A47G 2025/448](#)

[A47G 25/64](#) covered by [A47G 25/62](#), [A47G 2025/629](#)

[A47G 29/02](#) covered by [A47B 97/001](#)

**Project: N/A (A47G)**

**U A47G 1/00 Mirrors (as optical elements [G02B 5/08](#)); Picture frames or the like, {e.g. provided with heating, lighting or ventilating means}**

- U A47G 1/16
  - Devices for hanging or supporting pictures, mirrors, or the like
- A47G 1/24
  - · Appliances for adjusting pictures, mirrors, or the like, into a desired position, especially inclined {([A47G 1/1646](#) ~~to~~ [A47G 1/22](#) take precedence)}

**U A47G 23/00 Other table equipment**

- A47G 23/08
  - Food-conveying devices for tables {(restaurant service systems [A47F 10/06](#); ~~conveyers for washing or rinsing crockery or tableware [A47L 15/00](#); conveyors for washing or rinsing crockery or tableware [A47L 15/00](#))}; Movable or rotary food-serving devices~~

**U A47G 29/00 Miscellaneous supports, holders, or containers for household use (for drying towels [A47K 10/04](#); stands, racks, or the like for airing beds, garments, or the like, clothes, drying devices [D06F 57/00](#))**

**WARNING**

The following IPC group is not used in the CPC scheme. Subject matter covered by this group is classified in the following CPC group:

[A47G 29/02](#) covered by [A47B 97/001](#)

- U A47G 29/12
  - Mail or newspaper receptacles, e.g. letter-boxes; Openings in doors or the like for delivering mail or newspapers ([A47G 29/14](#) takes precedence; chutes for mail in buildings [B65G 11/04](#); {for desktop use [B42F 7/10](#)})
- A47G 29/122
  - · Parts, details, or accessories, e.g. signalling devices, lamps, devices for leaving messages {([A47G 29/1201](#) ~~to~~ [A47G 29/1218](#) take precedence)}

**Project: N/A (A47J)**

**A47J 27/00 Cooking-vessels ([A47J 29/00](#) ~~to~~ [A47J 33/00](#) takes precedence)**

**A47J 36/00 Parts, details or accessories of cooking-vessels ([A47J 27/00](#) ~~to~~ [A47J 33/00](#) take precedence insofar as these parts, details or accessories are restricted to a particular kind of cooking-vessel provided for in a single one of these groups; heating devices for cooking-vessels in general [F24](#))**

**U A47J 37/00 Baking; Roasting; Grilling; Frying (bakers' ovens, non-domestic baking apparatus or equipment [A21B](#); domestic stoves or ranges [F24B](#), [F24C](#))**

- U A47J 37/04
  - Roasting apparatus with movably-mounted food supports or with movable heating implements; Spits {(field-cookers [A47J 33/00](#), [A47J 36/26](#), [F24B](#))}

- A47J 37/044
  - • {with **conveyersconveyors** moving in a horizontal or an inclined plane ([A47J 37/045](#), [A47J 37/046](#) take precedence)}
- A47J 37/045
  - • {with endless **conveyersconveyors**}

**U A47J 43/00****Miscellaneous implements for preparing or holding food**

- U A47J 43/04
  - Machines for domestic use not covered elsewhere, e.g. for grinding, mixing, stirring, kneading, emulsifying, whipping or beating foodstuffs, e.g. power-driven (food straining implements [A47J 19/00](#); devices for grating [A47J 43/25](#); multi-purpose machines [A47J 44/00](#))
- U A47J 43/07
  - • Parts or details, e.g. mixing tools, whipping tools
- A47J 43/0705
  - • • {for machines with tools driven from the upper side ([A47J 43/0727](#) ~~to~~-[A47J 43/08](#) take precedence)}
- A47J 43/0716
  - • • {for machines with tools driven from the lower side ([A47J 43/0727](#) ~~to~~-[A47J 43/08](#) take precedence)}

**Project: N/A (A47K)**

A47K 5/00

**Holders or dispensers for soap, toothpaste, or the like (specially adapted for shaving soap or cosmetics [A45D 33/00](#) ~~to~~-[A45D 40/00](#))**

**U A47K 13/00**

**Seats or covers for all kinds of closets {(dog or cat toilets adapted to fit on conventional toilets [A01K 1/0121](#))}**

A47K 13/24

- Parts or details not covered in, or of interest apart from, groups [A47K 13/02](#) ~~to~~-[A47K 13/22](#), {e.g. devices imparting a swinging or vibrating motion to the seats}

**Project: N/A (A47L)****U A47L 11/00**

**Machines for cleaning floors, carpets, furniture, walls, or wall coverings**

A47L 11/40

- Parts or details of machines not {provided for in} groups [A47L 11/02](#) ~~to~~-[A47L 11/38](#), {or not restricted to one of these groups}, e.g. handles, arrangement of switches, skirts, buffers, levers

**U A47L 15/00**

**Washing or rinsing machines for crockery or tableware**

**U A47L 15/0065**

- {specially adapted for drinking glasses}

A47L 15/0071

- • {the glasses being placed on **conveyersconveyors**}

A47L 15/0076

- {of non-domestic use type, e.g. commercial dishwashers for bars, hotels, restaurants, canteens or hospitals (machines specially adapted for drinking glasses [A47L 15/0065](#); drawer-type dishwashers [A47L 15/0084](#); in-sink dishwashers [A47L 15/0086](#); miniature dishwashers [A47L 15/0089](#); ~~conveyer-type dishwashers [A47L 15/24](#)~~; ~~conveyor-type dishwashers [A47L 15/24](#)~~; machines with crockery cleaned by brushes [A47L 15/37](#))}

A47L 15/24

- with movement of the crockery baskets by **conveyersconveyors** {(for drinking glasses [A47L 15/0071](#))}

**U A47L 15/241**

- • {the dishes moving in a horizontal plane}

**U A47L 15/242**

- • • {in a closed loop}

A47L 15/243

- • • • {with **conveyersconveyors** of the rotary table type}

A47L 15/245

- • • {the dishes being placed directly on the **conveyersconveyors**, i.e. not in dish racks ([A47L 15/242](#) takes precedence)}

A47L 15/247

- • {Details specific to **conveyerconveyor**-type machines, e.g. curtains}

A47L 15/248

- • • {relating to the **conveyersconveyors**}

- U A47L 15/42
- Details
- NOTE  
Details specific to a particular type of dishwasher should also get a classification symbol for the relevant type of dishwasher
- U A47L 15/50
- A47L 15/501
- • Racks
  - • • {Baskets, e.g. for ~~conveyer~~conveyor-type, in-sink type or hood-type machines}

**Project: N/A (A61B)**

- U A61B 5/00
- Detecting, measuring or recording for diagnostic purposes (radiation diagnosis [A61B 6/00](#); diagnosis by ultrasonic, sonic or infrasonic waves [A61B 8/00](#)); Identification of persons {(medical informatics [G06F 19/30](#))}**
- A61B 5/16
- Devices for psychotechnics (testing capability [G09B 1/00](#) ~~to-~~ [G09B 5/00](#)); Testing reaction times; ~~{(Devices for evaluating the psychological state)}~~
- U A61B 8/00
- Diagnosis using ultrasonic, sonic or infrasonic waves (imaging of objects using sonar [G01S 15/00](#))**
- A61B 8/08
- Detecting organic movements or changes, e.g. tumours, cysts, swellings ([A61B 8/02](#) ~~to-~~ [A61B 8/06](#) take precedence)
- U A61B 17/00
- Surgical instruments, devices or methods, e.g. tourniquets ([A61B 18/00](#) takes precedence; contraceptive devices, pessaries, or applicators therefor [A61F 6/00](#); eye surgery [A61F 9/007](#); ear surgery [A61F 11/00](#))**
- U A61B 17/068
- Surgical staplers {, e.g. containing multiple staples or clamps}{(staplers containing only one staple [A61B 17/10](#); magazines or containers for staples [A61B 17/105](#));} for performing anastomosis [A61B 17/115](#); {staplers in general [B25C 5/00](#)}
- A61B 17/072
- • for applying a row of staples in a single action ~~{, [e.g. the staples being applied simultaneously]}~~

**Project: N/A (A61F)**

- U A61F 2/00
- Filters implantable into blood vessels; Prostheses, i.e. artificial substitutes or replacements for parts of the body; Appliances for connecting them with the body; Devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents (as cosmetic articles, see the relevant subclasses, e.g. wigs, hair pieces, [A41G 3/00](#), [A41G 5/00](#), artificial nails [A45D 31/00](#); dental prostheses [A61C 13/00](#); materials for prostheses [A61L 27/00](#); artificial hearts [A61M 1/10](#); artificial kidneys [A61M 1/14](#))**
- WARNING  
Groups [A61F 2/07](#), [A61F 2/844](#) - [A61F 2/97](#) correspond to IPC2013.01
- A61F 2/0059
- {Cosmetic or alloplastic implants ([A61F 2/10](#) ~~to-~~ [A61F 2/16](#), [A61F 2/28](#) take precedence)}
- U A61F 2/02
- Prostheses implantable into the body {(closure means for urethra or rectum or for artificial body openings therefor [A61F 2/0004](#))}
- U A61F 2/30
- A61F 2/30988
- • Joints
  - • • {Other joints not covered by any of the groups [A61F 2/32](#) ~~to-~~ [A61F 2/4425](#)}
- A61F 2/82
- Devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents (stent-grafts for tubular structures of the body other than blood vessels [A61F 2/04](#); stent-grafts for blood vessels [A61F 2/07](#); instruments specially adapted for placement or removal of stents or stent-grafts [A61F 2/95](#); for closing wounds, or holding wounds closed [A61B 17/04](#) ~~to-~~ [A61B 17/115](#); dilators [A61M 29/00](#))

- U A61F 13/00** Bandages or dressings (suspensory bandages [A61F 5/40](#); {contact-avoiding wound protectors [A61F 15/008](#); bandages or dressings with incorporated medicaments [A61L 15/44](#), [A61M 35/006](#); radioactive dressings [A61N 5/1029](#)}); Absorbent pads (chemical aspects of, or use of materials for, bandages, dressings or absorbent pads [A61L 15/00](#); {absorbent pads for tracheostomy [A61M 16/047](#)})
- A61F 13/02 · Adhesive plasters or dressings ([A61F 13/06](#) ~~to~~ [A61F 13/15](#) take precedence; {for diagnosis, e.g. allergy test patches, [A61B 10/0035](#)}; surgical adhesives or cements [A61L 24/00](#); {for transdermal drug administration [A61M 35/00](#)})
- A61F 13/04 · Plaster of Paris bandages; Other stiffening bandages ([A61F 13/06](#) ~~to~~ [A61F 13/15](#) take precedence)
- U A61F 13/15** · Absorbent pads, e.g. sanitary towels, swabs or tampons for external or internal application to the body (non-absorbent catamenial receptacles [A61F](#)); Supporting or fastening means therefor; Tampon applicators
- U A61F 13/15577** · · {Apparatus or processes for manufacturing}
- A61F 13/15585 · · · {of babies' napkins, e.g. diapers ([A61F 13/15617](#) ~~to~~ [A61F 13/15804](#) take precedence)}
- A61F 2210/00** Particular material properties of prostheses classified in groups [A61F 2/00](#) ~~to~~ [A61F 2/26](#) or [A61F 2/82](#) or [A61F 9/00](#) or [A61F 11/00](#) or subgroups thereof
- A61F 2220/00** Fixations or connections for prostheses classified in groups [A61F 2/00](#) ~~to~~ [A61F 2/26](#) or [A61F 2/82](#) or [A61F 9/00](#) or [A61F 11/00](#) or subgroups thereof
- A61F 2230/00** Geometry of prostheses classified in groups [A61F 2/00](#) ~~to~~ [A61F 2/26](#) or [A61F 2/82](#) or [A61F 9/00](#) or [A61F 11/00](#) or subgroups thereof
- A61F 2240/00** Manufacturing or designing of prostheses classified in groups [A61F 2/00](#) ~~to~~ [A61F 2/26](#) or [A61F 2/82](#) or [A61F 9/00](#) or [A61F 11/00](#) or subgroups thereof
- A61F 2250/00** Special features of prostheses classified in groups [A61F 2/00](#) ~~to~~ [A61F 2/26](#) or [A61F 2/82](#) or [A61F 9/00](#) or [A61F 11/00](#) or subgroups thereof
- A61F 2310/00** Prostheses classified in [A61F 2/28](#) or [A61F 2/30](#) ~~to~~ [A61F 2/44](#) being constructed from or coated with a particular material

**Project: N/A (A61G)**

- A61G 12/00** Accommodation for nursing, e.g. in hospitals, not covered by groups [A61G 1/00](#) ~~to~~ [A61G 11/00](#), e.g. trolleys for transport of medicaments or food {(service or tea-tables, trolleys or wagons [A47B 31/00](#)}); Prescription lists

**Project: N/A (A61H)**

- U A61H 39/00** Devices for locating or stimulating specific reflex points of the body for physical therapy, e.g. acupuncture (chiropractors' instruments [A61B 17/54](#); {for radiation therapy [A61N 5/0619](#)})
- A61H 39/04 · Devices for pressing such points, e.g. Shiatsu {or Acupressure} (Massage or pressure on general areas [A61H 9/00](#) ~~to~~ [A61H 23/00](#))

## Project: N/A (A61K)

## A61K

**PREPARATIONS FOR MEDICAL, DENTAL, OR TOILET PURPOSES (devices or methods specially adapted for bringing pharmaceutical products into particular physical or administering forms [A61J 3/00](#); chemical aspects of, or use of materials for deodorisation of air, for disinfection or sterilisation, or for bandages, dressings, absorbent pads or surgical articles [A61L](#); {compounds per se [C01](#), [C07](#), [C08](#), [C12N](#)} ; soap compositions [C11D](#); {micro-organisms per se [C12N](#)})**

NOTES

1. This subclass covers the following subject matter, whether set forth as a composition (mixture), process of preparing the composition or process of treating using the composition:

- a. Drug or other biological compositions which are capable of:
  - preventing, alleviating, treating or curing abnormal or pathological conditions of the living body by such means as destroying a parasitic organism, or limiting the effect of the disease or abnormality by chemically altering the physiology of the host or parasite (biocides [A01N 25/00](#) ~~to~~ [A01N 65/00](#));
  - maintaining, increasing, decreasing, limiting, or destroying a physiological body function, e.g. vitamin compositions, sex sterilants, fertility inhibitors, growth promoters, or the like (sex sterilants for invertebrates, e.g. insects, [A01N](#); plant growth regulators [A01N 25/00](#) ~~to~~ [A01N 65/00](#));
  - diagnosing a physiological condition or state by an in vivo test, e.g. X-ray contrast or skin patch test compositions (measuring or testing processes involving enzymes or micro-organisms [C12Q](#); in vitro testing of biological material, e.g. blood, urine, [G01N](#), e.g. [G01N 33/48](#))
- b. Body treating compositions generally intended for deodorising, protecting, adorning or grooming the body, e.g. cosmetics, dentifrices, tooth filling materials.

2. Attention is drawn to the definitions of groups of chemical elements following the title of section C.

3. Attention is drawn to the notes in class [C07](#), for example the notes following the title of the subclass [C07D](#), setting forth the rules for classifying organic compounds in that class, which rules are also applicable, if not otherwise indicated, to the classification of organic compounds in [A61K](#).

4. In this subclass, with the exception of group [A61K 8/00](#), the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.

WARNINGS

1.

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">A61K 9/133</a>	covered by	<a href="#">A61K 9/127</a>
<a href="#">A61K 9/18</a>	covered by	<a href="#">A61K 9/14</a>
<a href="#">A61K 9/22</a>	covered by	<a href="#">A61K 9/20</a>
<a href="#">A61K 9/24</a>	covered by	
<a href="#">A61K 9/209</a>		
<a href="#">A61K 9/26</a>	covered by	<a href="#">A61K 9/2077</a> ,
<a href="#">A61K 9/2081</a>		
<a href="#">A61K 9/30</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/32</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/34</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/36</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/38</a>	covered by	<a href="#">A61K 9/28</a>

<a href="#">A61K 9/40</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/42</a>	covered by	<a href="#">A61K 9/28</a>
<a href="#">A61K 9/44</a>	covered by	
<a href="#">A61K 9/2072</a>		
<a href="#">A61K 9/46</a>	covered by	
<a href="#">A61K 9/0007</a>		
<a href="#">A61K 9/52</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/54</a>	covered by	<a href="#">A61K 9/5073</a> ,
<a href="#">A61K 9/5078</a> ,	<a href="#">A61K 9/5084</a>	
<a href="#">A61K 9/56</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/58</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/60</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/62</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/64</a>	covered by	<a href="#">A61K 9/50</a>
<a href="#">A61K 9/66</a>	covered by	<a href="#">A61K 9/48</a>
<a href="#">A61K 9/68</a>	covered by	
<a href="#">A61K 9/0058</a>		
<a href="#">A61K 9/72</a>	covered by	
<a href="#">A61K 9/0073</a>		
<a href="#">A61K 45/08</a>	covered by	<a href="#">A61K 31/00</a> ,
<a href="#">A61K 47/00</a>		
<a href="#">A61K 47/04</a>	covered by	
<a href="#">A61K 47/02</a>		
<a href="#">A61K 50/00</a>	covered by	<a href="#">A61K 9/0009</a> ,
<a href="#">C09J 9/02</a>		

The following IPC indexing codes are not used in the CPC scheme:

[A61K 101/00](#) - [A61K 135/00](#)

2. Subgroups of [A61K 48/00](#) are incomplete (Jan. 2003). Documents are being reclassified from [A61K 48/00](#) to its subgroups

## U A61K 8/00

**Cosmetic or similar toilet preparations (casings or accessories for storing or handling of solid or pasty toilet or cosmetic substances [A45D 40/00](#))**

### NOTES

1. Use of cosmetics or similar toilet preparations is further classified in subclass [A61Q](#).
2. Use of cosmetics or similar toilet preparations is mandatorily further classified in subclass [A61Q](#).
3. Attention is drawn to the Notes in class [C07](#), for example the notes following the title of subclass [C07D](#), setting forth the rules for classifying organic compounds in that class, which rules are also applicable, if not otherwise indicated, to the classification of organic compounds in group [A61K 8/00](#).
4. Salts or complexes of organic compounds are classified according to the base compounds. If a complex is formed between two or more compounds, classification is made for each compound.

### WARNING

Group [A61K 8/00](#) and subgroups are incomplete. See provisionally also [A61K7/00](#) and subgroups.

## U A61K 8/02

- characterised by special physical form

### NOTE

In this group, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.

## A61K 8/0204

- {Specific forms not provided for by any of groups [A61K 8/0208](#) to [A61K 8/14](#)}

**A61K 9/00**

**Medicinal preparations characterised by special physical form (nuclear magnetic resonance contrast preparations or magnetic resonance imaging contrast preparations [A61K 49/18](#); preparations containing radioactive substances [A61K 51/12](#))**

**NOTE**

Among the one-dot groups of [A61K 9/00](#), classification is not made in the last appropriate place.

[A61K 9/00](#) is subdivided according to the following concepts:

- the drug release technique ( [A61K 9/0002](#) and subgroups),
- the site of application ( [A61K 9/0012](#) and subgroups), and
- the physical form ( [A61K 9/0087](#) ~~to~~ [A61K 9/7023](#) ).

Where relevant, documents are classified in more than one of these subdivisions.

A61K 9/0087

• {Galenic forms not covered by [A61K 9/02](#) ~~to~~ [A61K 9/7023](#)}

**A61K 31/00**

**Medicinal preparations containing organic active ingredients**

**NOTES**

1. When classifying in groups [A61K 31/00](#) ~~to~~ [A61K 41/00](#) the symbol [A61K 2300/00](#) may be added, using Combination Sets, to indicate a mixture of active ingredients.

2. In the preparation of new organic compounds and their use in medicinal preparations, classification is only made in the relevant subclasses [C07C](#) ~~to~~ [C07J](#) according to the type of compound. However, the inventions dealing with medicinal preparations containing at least two active organic ingredients are always classified in this group in addition to the classification for the type of compounds in [C07C](#) ~~to~~ [C07J](#).

3. Attention is drawn to the notes in class [C07](#), particularly to the definition of steroids given in Note (1) following the title of [C07J](#) and to the definition of carbohydrates and sugars given in the notes following the title of [C07H](#).

4. Salts and complexes of organic active compounds are always classified according to the free active compounds. If a complex is formed between two or more active compounds, then they are classified according to all compounds forming the salts or complexes followed by the symbol [A61K 2300/00](#) (i.e. as a mixture of active organic compounds). According to the last place rule, organic active compounds forming salts with heavy metals should be classified in [A61K 33/24](#) ~~to~~ [A61K 33/38](#) and not in subgroups [A61K 31/28](#) ~~to~~ [A61K 31/32](#), [A61K 31/555](#) or [A61K 31/714](#).

This does not apply to complexes, as apparent from the [A61K 31/00](#) scheme, wherein the complexes hemin and hematin are classified in [A61K 31/555](#) and cyanocobalamin in [A61K 31/714](#).

5. From January 2003 onwards, the EPO copies into CPC the IPC classification of the first document received (family representative). However, blends of active ingredients receive the additional symbol [A61K 2300/00](#) as Combination Set.

U A61K 31/74

• Synthetic polymeric materials

A61K 31/80

• • Polymers containing hetero atoms not provided for in groups [A61K 31/755](#) ~~to~~ [A61K 31/795](#)

## U A61K 35/00

**Medicinal preparations containing materials or reaction products thereof with undetermined constitution**NOTES

1. In this group, classification is made for each active component or material. For each active component or material, classification is then made in the last appropriate place.
2. When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

A61K 35/56

- Materials from animals other than mammals;

## A61K 38/00

**Medicinal preparations containing peptides (peptides containing beta-lactam rings [A61K 31/00](#); cyclic dipeptides not having in their molecule any other peptide link than those which form their ring, e.g. piperazine-2,5-diones, [A61K 31/00](#); ergot alkaloids of the cyclic peptide type [A61K 31/48](#); containing macromolecular compounds having statistically distributed amino acid units [A61K 31/74](#); medicinal preparations containing antigens or antibodies [A61K 39/00](#); medicinal preparations characterised by the non-active ingredients, e.g. peptides as drug carriers, [A61K 47/00](#))**

NOTES

1. The terms or expressions used in this group follow exactly the definitions given in Note (1) following the title of subclass [C07K](#).
2. Preparations containing fragments of peptides or peptides modified by removal or addition of amino acids, by substitution of amino acids by others, or by combination of these modifications are classified as the preparations containing parent peptides. However, preparations containing fragments of peptides having only four or less amino acids are also classified in groups [A61K 38/05](#) to- [A61K 38/07](#).
3. Preparations containing peptides prepared by recombinant DNA technology are not classified according to the host, but according to the original peptide expressed, e.g. preparations containing HIV peptide expressed in E. coli are classified with the preparations containing HIV peptides.
4. This group covers also medicinal preparation containing DNA or RNA encoding for peptides as active ingredient.
5. Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their medical uses.

## U A61K 38/04

- Peptides having up to 20 amino acids in a fully defined sequence; Derivatives thereof ((enzyme inhibitors [A61K 38/005](#)); gastrins {[A61K 38/2207](#)} somatostatins [A61K 38/31](#), melanotropins [A61K 38/34](#); {protease inhibitors [A61K 38/55](#)})

A61K 38/08

- Peptides having 5 to 11 amino acids {([A61K 38/043](#) to- [A61K 38/046](#) take precedence)}

A61K 38/10

- Peptides having 12 to 20 amino acids {([A61K 38/043](#) to- [A61K 38/046](#) take precedence)}

A61K 38/12

- Cyclic peptides {, e.g. bacitracins; Polymyxins; Gramicidins S, C; Tyrocidins A, B or C ([A61K 38/043](#) to- [A61K 38/046](#) take precedence)}

## U A61K 38/16

- Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof ((enzyme inhibitors [A61K 38/005](#)))

U A61K 38/43

- Enzymes; Proenzymes; Derivatives thereof

NOTE

In this group,

1. proenzymes are classified with the corresponding enzymes;
2. enzymes are generally categorised according to the "Nomenclature and Classification of Enzymes" of the International Commission of Enzymes. Where appropriate, this designation appears in the subgroups below in parenthesis.
3. the specific enzyme(s) used are additionally classified in [C12Y](#).

A61K 38/54

- • Mixtures of enzymes or proenzymes covered by more than a single one of groups [A61K 38/44](#) to- [A61K 38/46](#) or [A61K 38/51](#) to- [A61K 38/53](#)

A61K 39/00

**Medicinal preparations containing antigens or antibodies (materials for immunoassay [G01N 33/53](#))**

NOTES

1. Groups [A61K 39/002](#) to- [A61K 39/295](#) cover preparations containing protozoa, bacteria, viruses, or subunits thereof, e.g. membrane parts.
2. Preparation of antigen or antibody compositions is also classified in subclass [C12N](#), if the step of cultivating the micro-organism is of interest.
3. Documents relating to new peptides, e.g. enzymes, or new DNA or RNA encoding for peptides and their use in medicinal preparations are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their medical uses.
4. Documents relating to antibodies or DNA or RNA encoding for antibodies and their use in medicinal preparations are classified in group [C07K 16/00](#) or in group [C12N 9/0002](#) according to the antibodies, with the appropriate indexing codes relating to their medical uses.
5. Documents relating to new therapeutical uses of antibodies or DNA or RNA encoding for antibodies are classified in group [C07K 16/00](#) or in group [C12N 9/0002](#) according to the antibodies, with the appropriate indexing codes relating to their medical uses.
6. Documents relating to medicinal preparations containing different antibodies as active ingredients are classified in group [C07K 16/00](#) according to the different active antibodies, with the appropriate indexing codes relating to their medical uses. However, documents relating to medicinal preparations containing antibodies and other compounds as active ingredients are classified in groups [A61K 39/395](#) to- [A61K 39/42](#), in association with symbol [A61K 2300/00](#) in Combination Sets.

U A61K 41/00

**Medicinal preparations obtained by treating materials with wave energy or particle radiation; {Therapies using these preparations}([A61K 31/59](#) takes precedence; generation of ultrasonic waves [B06B](#); electric discharge tubes [H01J](#))**

A61K 41/0023

- {Aggression treatment or altering}

NOTE

This groups covers aggression treatment or altering - of a medicinal preparation prior to administration to the human/animal, e.g. altering a binding specificity of a monoclonal antibody used in a medicinal agent with an oxidizing agent or an electric potential; - of a tissue/organ prior to graft, e.g. destroying immunodominant epitopes; - the permeability of cell membranes or biological barriers in vivo, e.g. by ultrasound, prior to the administration of a medicinal preparation to the animal/human; - for inducing the production of stress response proteins or heat shock proteins in order to reduce subsequent response to injuries

- of a medicinal preparation prior to administration to the human/animal, e.g. altering a binding specificity of a monoclonal antibody used in a medicinal agent with an oxidizing agent or an electric potential;
- of a tissue/organ prior to graft, e.g. destroying immunodominant epitopes;
- the permeability of cell membranes or biological barriers in vivo, e.g. by ultrasound, prior to the administration of a medicinal preparation to the animal/human;
- for inducing the production of stress response proteins or heat shock proteins in order to reduce subsequent response to injuries

- A61K 45/00** Medicinal preparations containing active ingredients not provided for in groups [A61K 31/00](#) ~~to~~ [A61K 41/00](#)
- U A61K 47/00** Medicinal preparations characterised by the non-active ingredients used, e.g. carriers, inert additives
- A61K 47/44
- Oils, fats or waxes according to more than one of groups [A61K 47/02](#) ~~to~~ [A61K 47/42](#); {Natural or modified natural oils, fats or waxes, e.g. (polyethoxylated) castor oil, montan wax, ozokerite, lignite, shellac, rosin, beeswax, lanolin (synthetic glycerides, e.g. medium-chain triglycerides [A61K 47/14](#))}
- U A61K 47/48
- the non-active ingredient being chemically bound to the active ingredient, e.g. polymer drug conjugates
- U A61K 47/48007
- {the pharmacologically- or therapeutically-active agent being covalently bound or complexed to a modifying agent}
- NOTE**  
The modifying agent being a macromolecular compound [A61K 47/48169](#), a peptide, protein or polyamino acid [A61K 47/48238](#), an antibody or immunoglobulin [A61K 47/48369](#)
- U A61K 47/48023
- . . {the modifying agent being an organic compound ([A61K 47/48161](#) takes precedence)}
- A61K 47/4803
- . . . {the modifying agent being an organic ion that forms an ion pair complex with the pharmacologically or therapeutically active agent}
- U A61K 47/48046
- . . . {the modifying agent being a lipid, e.g. a triglyceride; the modifying agent being a polyamine, e.g. spermine or spermidine}
- NOTE**  
Fatty acid conjugates are classified in [A61K 47/48038](#); cholesterol conjugates are classified in [A61K 47/48123](#)
- A61K 47/48053
- . . . . {the modifying agent being a phospholipid}
- U A61K 47/48369
- {the modifying part being an antibody, an immunoglobulin, or a fragment thereof, e.g. a Fc-fragment}
- U A61K 47/48507
- . . {the modifying agent being a well defined antibody or immunoglobulin bearing at least one antigen-binding site}
- NOTE**  
According to the nature of the antibody, the appropriate [A61K 47/48515](#) subgroup being given. If the pharmacologically or therapeutically active agent in the antibody conjugate being known, the appropriate [A61K 47/48384](#) subgroup being also given
- U A61K 47/48515
- . . . {not used; see subgroups}
- A61K 47/48538
- . . . . {the antibody being targeting a material from animals or humans}

- U A61K 47/48769
- • {the conjugate being characterized by a special physical or galenical form}
- NOTE  
The conjugates in the [A61K 47/48769](#) subgroups correspond (i) either to a pharmacologically or therapeutically active agent complexed/covalently linked to the special physical or galenical form, e.g. on the surface of a polymeric nanoparticle or liposome, or to polymeric chains in the matrix of a polymeric gel, (ii) or to a special physical or galenical form encapsulating the pharmacologically or therapeutically active agent and modified on its surface or matrix by a modifying agent. In case (i), classification being made according to the nature of the special physical or galenical form in the appropriate [A61K 47/48769](#) subgroup and may be completed by the appropriate [A61K 47/48](#) subgroup defining the compound to which the pharmacologically or therapeutically active agent being linked, e.g. [A61K 47/48053](#) in case of a drug linked to a phospholipid and inserted in the bilayer surface of a liposome. In case (ii), classification being made according to the nature of the modifying agent. Physical or galenical forms not modified by a modifying agent and/or wherein the pharmacologically or therapeutically active agent being not complexed/covalently linked to said forms, are not classified in [A61K 47/48](#), but in [A61K 9/00](#) and its subgroups
- A61K 47/48776
- • • {forms of ingredients not provided for by groups [A61K 47/48784](#) to-  
[A61K 47/48992](#), e.g. cells, cell fragments, viruses, ghosts, red blood cells, viral vectors having the pharmacologically or therapeutically active agent complexed or covalently linked to, or being themselves modified by complexation or covalent linkage by a modifying agent}
- NOTE  
Simple encapsulation in cells being isclassified in [A61K 9/5068](#); simple encapsulation in a virus capsid is classified in [A61K 9/5184](#)
- U A61K 49/00**      **Preparations for testing in vivo**  
A61K 49/04
- X-ray contrast preparations
- NOTE  
In the preparation of new organic compounds and their use in X-ray contrast preparations, classification is only made in the relevant subclasses [C07C](#) to-  
[C07J](#) according to the type of compound
- U A61K 51/00**      **Preparations containing radioactive substances for use in therapy or testing in vivo**
- U A61K 51/02
- characterised by the carrier, {i.e. characterised by the agent or material covalently linked or complexing the radioactive nucleus}
- U A61K 51/04
- • organic compounds
- NOTE  
Organic compounds used as carriers
- A61K 51/041
- • • {Heterocyclic compounds-}
- NOTE  
Under this group, the last place rule is followed
- U A61K 51/12
- characterised by a special physical form, e.g. emulsion, microcapsules, liposomes, {characterized by a special physical form, e.g. emulsions, dispersions, microcapsules (liposomes [A61K 51/1234](#))}
- A61K 51/1203
- • {in a form not provided for by groups [A61K 51/1206](#) to- [A61K 51/1296](#), e.g. cells, cell fragments, viruses, virus capsids, ghosts, red blood cells, viral vectors}

**A61K 2300/00** Mixtures or combinations of active ingredients, wherein at least one active ingredient is fully defined in groups [A61K 31/00](#) to- [A61K 41/00](#):

NOTE

This code is meant to be allocated in combination with the CPC classification symbol of the active ingredients, and replaces the former +M Combi symbols used in this subclass

**U A61K 2800/00** Properties of cosmetic compositions or active ingredients thereof or formulation aids used therein and process related aspects

NOTE

This subclass is a secondary classification, e.g. obligatory supplementary classification when already classified in group [A61K 8/00](#) or subclass [A61Q](#)

- U A61K 2800/40 · Chemical, physico-chemical or functional or structural properties of particular ingredients
- U A61K 2800/59 · · Mixtures
- A61K 2800/591 · · · Mixtures of compounds not provided for by any of the codes [A61K 2800/592](#) to- [A61K 2800/596](#)
- U A61K 2800/80 · Process related aspects concerning the preparation of the cosmetic composition or the storage or application thereof
- A61K 2800/805 · · Corresponding aspects not provided for by any of codes [A61K 2800/81](#) to- [A61K 2800/95](#)

**Project: N/A (A61L)**

**A61L** METHODS OR APPARATUS FOR STERILISING MATERIALS OR OBJECTS IN GENERAL; DISINFECTION, STERILISATION, OR DEODORISATION OF AIR; CHEMICAL ASPECTS OF BANDAGES, DRESSINGS, ABSORBENT PADS, OR SURGICAL ARTICLES; MATERIALS FOR BANDAGES, DRESSINGS, ABSORBENT PADS, OR SURGICAL ARTICLES (preservation of bodies or disinfecting characterised by the agent employed [A01N](#); preserving, e.g. sterilising, food or foodstuffs [A23](#); preparations for medical, dental or toilet purposes [A61K](#); preparation of ozone [C01B 13/10](#))

WARNINGS

1. The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[A61L 33/10](#) covered by [A61L 33/0011](#)

[A61L 33/14](#) covered by [A61L 33/0011](#)

[A61L 33/16](#) covered by [A61L 33/0047](#)

2. IPC7 groups [A61L 2/07](#) and subgroups, and [A61L 9/012](#) to- [A61L 9/014](#) might be incomplete as relevant documents might still be classified in the hierarchical higher groups

**A61L 9/00** Disinfection, sterilisation or deodorisation of air (body deodorants [A61Q 15/00](#); purifying air by respirators [A62B](#), [A62D 9/00](#); separating dispersed particles from gases or vapours [B01D 45/00](#) to- [B01D 51/00](#), [B03C 3/00](#); chemical or biological purification of waste gases [B01D 53/34](#); production of ozone [C01B 13/10](#); air-conditioning systems incorporating sterilisation [F24F 3/16](#))

**A61L 15/00** **Chemical aspects of, or use of materials for, bandages, dressings or absorbent pads (for liquid bandages [A61L 26/00](#); radioactive dressings {[A61N 5/1029](#)})**

NOTES

1. In each set of groups [A61L 15/08](#) ~~to~~ [A61L 15/12](#) and [A61L 15/18](#) ~~to~~ [A61L 15/40](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. When classifying in groups [A61L 15/08](#) ~~to~~ [A61L 15/12](#), classification is also made in group [A61L 15/14](#) if the use of materials characterised by their function or physical properties is of interest.
3. When classifying in groups [A61L 15/18](#) ~~to~~ [A61L 15/40](#), classification is also made in groups [A61L 15/42](#) ~~to~~ [A61L 15/64](#) if the use of materials characterised by their function or physical properties is of interest.

- U A61L 15/16 • Bandages, dressings or absorbent pads for physiological fluids such as urine or blood, e.g. sanitary towels, tampons
- A61L 15/22 • • containing macromolecular materials

NOTE

In groups [A61L 15/22](#) ~~to~~ [A61L 15/30](#), the use of specific polymers is indicated using the relevant combination set symbol, adding, after the symbol in [A61L](#), the correspondent symbol of the polymer in subclass [C08L](#), e.g. absorbent pad containing starch [A61L 15/22](#), [C08L 3/02](#)

**A61L 17/00** **Materials for surgical sutures or for ligaturing blood vessels (surgical adhesives [A61L 24/00](#); surgical instruments, devices or methods for suturing or ligaturing [A61B 17/04](#), [A61B 17/12](#); supports or packages for suture materials [A61B 17/04](#)); {Materials for prostheses or catheters (bone cements or surgical adhesives for soft body tissues [A61L 24/00](#); shape or structure of prostheses [A61F 2/00](#); shape or structure of catheters [A61M 5/00](#))}**

NOTES

1. In groups [A61L 17/04](#) ~~to~~ [A61L 17/145](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. When classifying in group [A61L 17/00](#), classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic.

**A61L 24/00** **Surgical adhesives or cements; Adhesives for colostomy devices**

NOTES

1. In groups [A61L 24/00](#) ~~to~~ [A61L 24/12](#), the use of specific polymers is indicated using the relevant combination set symbol, adding, after the symbol in [A61L](#), the correspondent symbol of the polymer in subclass [C08L](#), e.g. surgical adhesives based on polymethylmethacrylate: [A61L 24/06](#), [C08L 33/12](#)
2. In groups [A61L 24/02](#) ~~to~~ [A61L 24/12](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.
3. When classifying in group [A61L 24/00](#), classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic.

- U A61L 24/04 • containing macromolecular materials
- U A61L 24/10 • • Polypeptides; Proteins {([A61L 24/043](#) takes precedence)}
- A61L 24/108 • • • {Specific proteins or polypeptides not covered by groups [A61L 24/102](#) ~~to~~ [A61L 24/106](#)}

**A61L 26/00**      **Chemical aspects of, or use of materials for, {wound dressings or} bandages {in liquid, gel or powder form}**

NOTES

1. When classifying in group [A61L 26/00](#), classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic.
2. In groups [A61L 26/00](#) ~~to~~ [A61L 26/0095](#), the use of specific polymers is indicated using the relevant combination set symbol, adding, after the symbol in [A61L](#), the correspondent symbol of the polymer in subclass [C08L](#), e.g. liquid bandages on alginates: [A61L 26/0023](#), [C08L 5/04](#)

- U A61L 26/0009      · {containing macromolecular materials}
- U A61L 26/0028      · · {Polypeptides; Proteins; Degradation products thereof}
- A61L 26/0047      · · · {Specific proteins or polypeptides not covered by groups [A61L 26/0033](#) ~~to~~ [A61L 26/0042](#)}

**A61L 27/00**      **Materials for {grafts or} prostheses or for coating {grafts or} prostheses (dental prostheses [A61C 13/00](#); shape or structure of prostheses [A61F 2/00](#); use of preparations for artificial teeth [A61K 6/02](#); artificial kidneys [A61M 1/14](#))**

NOTES

1. In groups [A61L 27/02](#) ~~to~~ [A61L 27/48](#), in the absence of an indication to the contrary, classification is made in the last appropriate place
2. When classifying in groups [A61L 27/02](#) ~~to~~ [A61L 27/48](#), classification is also made in groups [A61L 27/50](#) ~~to~~ [A61L 27/60](#) if the use of materials characterised by their function or physical properties is of interest
3. When classifying in group [A61L 27/00](#), classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic
4. In group [A61L 27/00](#), the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the second position of the combination set, e.g. prosthesis based on polyvinylchloride [A61L 27/16](#), [C08L 27/06](#)

- U A61L 27/02      · Inorganic materials
- A61L 27/025      · · {Other specific inorganic materials not covered by [A61L 27/04](#) ~~to~~ [A61L 27/12](#)}
- U A61L 27/04      · · Metals or alloys
- A61L 27/047      · · · {Other specific metals or alloys not covered by [A61L 27/042](#) ~~to~~ [A61L 27/045](#) or [A61L 27/06](#)}
- U A61L 27/28      · Materials for coating prostheses
- U A61L 27/30      · · Inorganic materials
- A61L 27/306      · · · {Other specific inorganic materials not covered by [A61L 27/303](#) ~~to~~ [A61L 27/32](#)}

**A61L 29/00**

**Materials for catheters, {medical tubing, cannulae, or endoscopes} or for coating catheters (shape or structure of catheters [A61M 25/00](#))**

**NOTES**

1. In groups [A61L 29/02](#) to {[A61L 29/126](#)}, in the absence of an indication to the contrary, classification is made in the last appropriate place
2. When classifying in groups [A61L 29/02](#) to {[A61L 29/126](#)}, classification is also made in groups [A61L 29/14](#) ~~to~~ [A61L 29/18](#) if the use of materials characterised by their function or physical properties is of interest
3. When classifying in group [A61L 29/00](#), classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic
4. In group [A61L 29/00](#), the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the combination set, e.g. a catheter based on polyvinylchloride [A61L 29/041](#), [C08L 27/06](#)

U A61L 29/04

- Macromolecular materials

U A61L 29/044

- • {Proteins; Polypeptides; Degradation products thereof}

A61L 29/048

- • • {Other specific proteins or polypeptides not covered by [A61L 29/045](#) ~~to~~ [A61L 29/047](#)}

**A61L 31/00**

**Materials for other surgical articles, {e.g. stents, stent-grafts, shunts, surgical drapes, guide wires, materials for adhesion prevention, occluding devices, surgical gloves, tissue fixation devices (shape or structure of stent-grafts [A61F 2/07](#), of stents [A61F 2/82](#), of surgical gloves [A61B 42/00](#), of surgical drapes [A61B 46/00](#), of occluding devices [A61B 17/12022](#))}**

**NOTES**

1. In groups [A61L 31/02](#) to {[A61L 31/129](#)}, in the absence of an indication to the contrary, classification is made in the last appropriate place
2. When classifying in groups [A61L 31/02](#) to {[A61L 31/129](#)}, classification is also made in groups [A61L 31/14](#) ~~to~~ [A61L 31/18](#) if the use of materials characterised by their function or physical properties is of interest
3. When classifying in group [A61L 31/00](#), classification is also made in [A61L 33/00](#) if the materials used are antithrombogenic
4. In group [A61L 31/00](#), the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the second position of the combination set, e.g. surgical clamp based on polyvinylchloride [A61L 31/048](#), [C08L 27/06](#)

U A61L 31/02

- Inorganic materials

A61L 31/028

- • {Other inorganic materials not covered by [A61L 31/022](#) ~~to~~ [A61L 31/026](#)}

U A61L 31/04

- Macromolecular materials

U A61L 31/043

- • {Proteins; Polypeptides; Degradation products thereof}

A61L 31/047

- • • {Other specific proteins or polypeptides not covered by [A61L 31/044](#) ~~to~~ [A61L 31/046](#)}

**A61L 33/00**

**Antithrombogenic treatment of surgical articles, e.g. sutures, catheters, prostheses, or of articles for the manipulation or conditioning of blood; Materials for such treatment**

NOTES

1. In groups [A61L 33/0076](#) to- [A61L 33/0094](#) and [A61L 33/02](#) to- [A61L 33/122](#), in the absence of an indication to the contrary, classification is made in the last appropriate place
2. When classifying in groups [A61L 33/02](#) to- [A61L 33/122](#), classification is also made in group [A61L 33/0005](#) if of interest
3. In group [A61L 33/00](#), the use of specific polymers is indicated using the relevant classification symbols of subclass [C08L](#) in the second position of the combination set, e.g. antithrombogenic treatment with the help of polyvinylchloride [A61L 33/064](#), [C08L 27/06](#)

- U A61L 33/06
  - Use of macromolecular materials (grafting of a monomer onto the substrate [A61L 33/0088](#))
- U A61L 33/12
  - • Polypeptides, proteins or derivatives thereof, {e.g. degradation products thereof}
- A61L 33/128
  - • • {Other specific proteins or polypeptides not covered by [A61L 33/122](#) to- [A61L 33/126](#)}
- U **A61L 2300/00**

**Biologically active materials used in bandages, wound dressings, absorbent pads or medical devices**
- U A61L 2300/40
  - characterised by a specific therapeutic activity or mode of action
- A61L 2300/432
  - • Inhibitors, antagonists ([A61L 2300/402](#) to- [A61L 2300/43](#) take precedence)

**Project: N/A (A61M)****A61M 1/00**

**Suction or pumping devices for medical purposes; Devices for carrying-off, for treatment of, or for carrying-over, body-liquids; Drainage systems ({[A61M 3/00](#) to- [A61M 5/00](#), [A61M 11/00](#) to- [A61M 16/00](#), [A61M 27/00](#) to- [A61M 35/00](#) take precedence } ; catheters [A61M 25/00](#); tube connectors, tube couplings, valves or branch units specially adapted for medical use [A61M 39/00](#); devices for taking samples of blood [A61B 5/14](#); implements for holding wounds open [A61B 17/02](#); {saliva removers for dentists [A61C 17/04](#)} ; filters implantable into blood vessels [A61F 2/01](#); pumps in general [F04](#))**

WARNING

Groups [A61M 1/0007](#), [A61M 1/0015](#), [A61M 1/0017](#), [A61M 1/0025](#) - [A61M 1/0029](#), [A61M 1/0033](#), [A61M 1/0035](#), [A61M 1/0045](#), [A61M 1/005](#) - [A61M 1/0054](#), [A61M 1/006](#), [A61M 1/0068](#) - [A61M 1/0072](#), [A61M 1/0082](#), [A61M 1/0086](#), [A61M 1/009](#) - [A61M 1/0098](#), [A61M 1/0204](#), [A61M 1/0213](#) - [A61M 1/0236](#), [A61M 1/0254](#), [A61M 1/0277](#), [A61M 1/0286](#), [A61M 1/0295](#), [A61M 1/062](#) - [A61M 1/068](#), [A61M 1/1001](#) - [A61M 1/1008](#), [A61M 1/1012](#) - [A61M 1/1036](#), [A61M 1/1039](#) - [A61M 1/1044](#), [A61M 1/1048](#) - [A61M 1/1051](#), [A61M 1/1055](#) - [A61M 1/1058](#), [A61M 1/1062](#) - [A61M 1/1065](#), [A61M 1/1074](#) - [A61M 1/1075](#), [A61M 1/1082](#), [A61M 1/1084](#), [A61M 1/1087](#) - [A61M 1/1089](#), [A61M 1/1096](#) - [A61M 1/1098](#), [A61M 1/122](#) - [A61M 1/125](#), [A61M 1/1601](#) - [A61M 1/1652](#), [A61M 1/166](#) - [A61M 1/1676](#), [A61M 1/1682](#) - [A61M 1/1684](#), [A61M 1/1688](#), [A61M 1/262](#) - [A61M 1/267](#), [A61M 1/281](#) - [A61M 1/284](#), [A61M 1/288](#), [A61M 1/301](#) - [A61M 1/309](#), [A61M 1/322](#) - [A61M 1/327](#), [A61M 1/3403](#) - [A61M 1/341](#), [A61M 1/3417](#), [A61M 1/3424](#) - [A61M 1/3437](#), [A61M 1/3444](#) - [A61M 1/3451](#), [A61M 1/3458](#), [A61M 1/3465](#), [A61M 1/3468](#), [A61M 1/3475](#) - [A61M 1/3493](#), [A61M 1/3601](#) - [A61M 1/362](#), [A61M 1/3629](#) - [A61M 1/3632](#), [A61M 1/3635](#) - [A61M 1/3638](#), [A61M 1/3641](#), [A61M 1/3644](#) - [A61M 1/3652](#), [A61M 1/3656](#) - [A61M 1/3661](#), [A61M 1/3667](#), [A61M 1/3673](#), [A61M 1/3676](#), [A61M 1/3678](#),

[A61M 1/3683](#), [A61M 1/3686](#), [A61M 1/3689](#), [A61M 1/3692](#), [A61M 1/3695](#) - [A61M 1/3698](#) are incomplete pending reclassification of documents from group [A61M 1/00](#) or respective subgroup.

Until reclassification is complete, groups [A61M 1/00](#) or respective subgroup and [A61M 1/0007](#), [A61M 1/0015](#), [A61M 1/0017](#), [A61M 1/0025](#) - [A61M 1/0029](#), [A61M 1/0033](#), [A61M 1/0035](#), [A61M 1/0045](#), [A61M 1/005](#) - [A61M 1/0054](#), [A61M 1/006](#), [A61M 1/0068](#) - [A61M 1/0072](#), [A61M 1/0082](#), [A61M 1/0086](#), [A61M 1/009](#) - [A61M 1/0098](#), [A61M 1/0204](#), [A61M 1/0213](#) - [A61M 1/0236](#), [A61M 1/0254](#), [A61M 1/0277](#), [A61M 1/0286](#), [A61M 1/0295](#), [A61M 1/062](#) - [A61M 1/068](#), [A61M 1/1001](#) - [A61M 1/1008](#), [A61M 1/1012](#) - [A61M 1/1036](#), [A61M 1/1039](#) - [A61M 1/1044](#), [A61M 1/1048](#) - [A61M 1/1051](#), [A61M 1/1055](#) - [A61M 1/1058](#), [A61M 1/1062](#) - [A61M 1/1065](#), [A61M 1/1074](#) - [A61M 1/1075](#), [A61M 1/1082](#), [A61M 1/1084](#), [A61M 1/1087](#) - [A61M 1/1089](#), [A61M 1/1096](#) - [A61M 1/1098](#), [A61M 1/122](#) - [A61M 1/125](#), [A61M 1/1601](#) - [A61M 1/1652](#), [A61M 1/166](#) - [A61M 1/1676](#), [A61M 1/1682](#) - [A61M 1/1684](#), [A61M 1/1688](#), [A61M 1/262](#) - [A61M 1/267](#), [A61M 1/281](#) - [A61M 1/284](#), [A61M 1/288](#), [A61M 1/301](#) - [A61M 1/309](#), [A61M 1/322](#) - [A61M 1/327](#), [A61M 1/3403](#) - [A61M 1/341](#), [A61M 1/3417](#), [A61M 1/3424](#) - [A61M 1/3437](#), [A61M 1/3444](#) - [A61M 1/3451](#), [A61M 1/3458](#), [A61M 1/3465](#), [A61M 1/3468](#), [A61M 1/3475](#) - [A61M 1/3493](#), [A61M 1/3601](#) - [A61M 1/362](#), [A61M 1/3629](#) - [A61M 1/3632](#), [A61M 1/3635](#) - [A61M 1/3638](#), [A61M 1/3641](#), [A61M 1/3644](#) - [A61M 1/3652](#), [A61M 1/3656](#) - [A61M 1/3661](#), [A61M 1/3667](#), [A61M 1/3673](#), [A61M 1/3676](#), [A61M 1/3678](#), [A61M 1/3683](#), [A61M 1/3686](#), [A61M 1/3689](#), [A61M 1/3692](#), [A61M 1/3695](#) - [A61M 1/3698](#) should be considered in order to perform a complete search.

A61M 3/00 -  
A61M 9/00

**Syringes; Irrigators; Baths for subaquatic intestinal cleaning (other apparatus for introducing medicines into the body [A61M 29/00](#) to-  
[A61M 37/00](#))**

A61M 2202/00

**Special media to be introduced, removed or treated (applying radioactive material [A61N 5/1028](#))**

NOTE

~~The classification symbols [A61M 2202/0007](#) to [A61M 2202/0092](#) are not listed first when assigned to patent documents. They are used only when associated to other subgroups of [A61M 2202/00](#) in combination sets~~  
~~Example: [A61M 2202/0417](#), [A61M 2202/0057](#)~~

*The classification symbols [A61M 2202/0007](#) - [A61M 2202/0092](#) are not listed first when assigned to patent documents.*

*They are used only when associated to other subgroups of [A61M 2202/00](#) in combination sets*

*Example:*

*[A61M 2202/0417](#), [A61M 2202/0057](#)*

Project: N/A (A62C)

U A62C 2/00

**Fire prevention or containment ([A62C 3/00](#) takes precedence; flame traps [A62C 4/00](#))**

U A62C 2/06  
A62C 2/22

- Physical fire-barriers
- • Fire-dampers with provision for the removal of an obstacle, e.g. rails, ~~conveyers~~ [conveyors](#), before closing the opening

**A62C 27/00 -  
A62C 33/00** **Fire-fighting vehicles ([A62C 31/00](#), [A62C 33/00](#), [A62C 37/00](#) take precedence; vehicle aspects, see the appropriate subclasses of [B60](#) ~~to~~-[B64](#), e.g. fire-fighting aircraft [B64D 1/16](#))**

**A62C 37/00** **Control of fire-fighting equipment (heat-sensitive devices [G01K](#))**

WARNING

Groups [A62C 37/04](#) and [A62C 37/28](#) are no longer used for the classification of new documents. Documents of these groups will be systematically transferred to groups [A62C 37/36](#) ~~to~~- [A62C 37/48](#)

**U A62C 99/00** **Subject matter not provided for in other groups of this subclass**

A62C 99/009  
 • {Methods or equipment not provided for in groups [A62C 99/0009](#) ~~to~~-[A62C 99/0081](#)}

**Project: N/A (A62D)**

**A62D** **CHEMICAL MEANS FOR EXTINGUISHING FIRES OR FOR COMBATING OR PROTECTING AGAINST HARMFUL CHEMICAL AGENTS; CHEMICAL MATERIALS FOR USE IN BREATHING APPARATUS**

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[A62D 1/02](#) covered by [A62D 1/0007](#), [A62D 1/0071](#)

[A62D 1/04](#) covered by [A62D 1/0071](#)

[A62D 1/08](#) covered by [A62D 1/0007](#) ~~to~~- [A62D 1/0028](#), [A62D 1/0057](#), [A62D 1/0092](#)

**A62D 2101/00** **Harmful chemical substances made harmless, or less harmful, by effecting chemical change**

NOTES

1. The indexing codes of group [A62D 2101/00](#) are to be used for identifying the origin or chemical nature of the harmful chemical substances which are made harmless or less harmful by processes already classified as such in groups [A62D 3/02](#) ~~to~~- [A62D 3/40](#)

2. When indexing a substance in groups [A62D 2101/02](#) ~~to~~- [A62D 2101/08](#), indexing according to its chemical structure is also made in one or more of groups [A62D 2101/20](#) ~~to~~- [A62D 2101/40](#), if of interest

**U A62D 2203/00** **Aspects of processes for making harmful chemical substances harmless, or less harmful, by effecting chemical change in the substances**

A62D 2203/02  
 • Combined processes involving two or more distinct steps covered by groups [A62D 3/10](#) ~~to~~- [A62D 3/40](#)

A62D 2203/04  
 • Combined processes involving two or more non-distinct steps covered by groups [A62D 3/10](#) ~~to~~- [A62D 3/40](#)

**Project: N/A (A63B)**

**A63B 26/00** **Exercising apparatus not covered by groups [A63B 1/00](#) ~~to~~- [A63B 25/00](#)**

**A63B 31/00** **Swimming aids (teaching swimming [A63B 69/10](#) ~~to~~- [A63B 69/14](#); life-saving in water, {e.g. life-buoys, life-belts} , [B63C 9/00](#))**

**U A63B 47/00** **Devices for handling or treating balls {, e.g. for holding or carrying balls}**

WARNING

Group [A63B 47/00](#) is impacted by reclassification into group [A63B 57/20](#).

Groups [A63B 47/00](#) and [A63B 57/20](#) should be considered in order to perform a complete search.

- U A63B 47/02 · for picking-up {or collecting}
- A63B 47/025 · · {Installations continuously collecting balls from the playing areas, e.g. by gravity, with ~~conveyer~~**conveyor** belts}

**A63B 71/00** **Games or sports accessories not covered in groups [A63B 1/00](#) to-  
[A63B 69/00](#) (starting appliances [A63K 3/02](#))**

**Project: N/A (A63C)**

- U **A63C 17/00** **Roller skates; Skate-boards**
- A63C 17/01 · Skateboards ([A63C 17/02](#) to- [A63C 17/28](#) take precedence; {rolling devices on skis [A63C 5/035](#)})

**Project: N/A (A63F)**

- U **A63F 3/00** **Board games; Raffle games (racing games, traffic games, or obstacle games characterised by figures moved by action of the players [A63F 9/14](#))**
- U A63F 3/00003 · {Types of board games (chess [A63F 3/02](#); educational board games [A63F 3/04](#))}
- A63F 3/00006 · · {Board games played along a linear track, e.g. game of goose, snakes and ladders, along an endless track ([A63F 3/00028](#) to- [A63F 3/00157](#), [A63F 3/04](#) take precedence)}
- U **A63F 7/00** **Indoor games using small moving playing bodies, e.g. balls, discs or blocks (board games, raffle games [A63F 3/00](#); roulette games [A63F 5/00](#); miniature bowling games [A63D 3/00](#); bagatelle or similar games [A63D 13/00](#); billiards, pocket billiards [A63D 15/00](#))**
- U A63F 7/22 · in which the playing bodies are projected through the air {(not used, see subgroups of [A63F 7/06](#))}
- A63F 7/36 · · Constructional details not covered by groups [A63F 7/24](#) to- [A63F 7/34](#), {i.e. constructional details of rolling boards, rims or play tables}, e.g. frame, game boards, guide tracks,

**A63F 11/00** **Game accessories of general use {e.g. score counters, boxes}**

NOTE

Game accessories specially adapted for a particular type of game are classified in one of the groups [A63F 1/00](#) to- [A63F 9/00](#) covering the particular game

**Project: N/A (A63H)**

- U **A63H 33/00** **Other toys**
- U A63H 33/30 · Imitations of miscellaneous apparatus not otherwise provided for, e.g. telephones, weighing-machines, cash-registers (savings boxes [A45C 1/12](#); toy ticket punches [G07B 9/02](#))
- A63H 33/3044 · · {Loading stations, e.g. with ~~conveyers~~**conveyors**, elevators, cranes (cranes, winches or the like per se [A63H 17/12](#))}

**Project: N/A (B)**

**B**

**PERFORMING OPERATIONS; TRANSPORTING**

NOTES

1. The following notes are meant to assist in the use of {classes [B01](#) to- [B09](#)}; they must not be read as modifying in any way the elaborations.

1. In this sub-section, the separation of different materials, e.g. of different matter, size, or state, is predominantly found in the following subclasses:

- [B01D](#)  
[B03B](#), [B03C](#), [B03D](#)  
[B04B](#), [B04C](#)  
[B07B](#), [B07C](#)

2. The classifying characteristics of these subclasses are:

- the physical state of the matter to be separated
- the principle of the process used
- particular kinds of apparatus

The first of these characteristics involves six different aspects, assembled in three groups.

- a. liquid/liquid or liquid/gas and gas/gas
- b. solid/liquid or solid/gas
- c. solid/solid

3. These subclasses are to be used according to the following general rules:

- [B01D](#) is the most general class as far as separation other than solids from solids is concerned.
- Apparatus for separating solids from solids are covered by [B03B](#) when the process concerned is regarded as the equivalent of "washing" in the sense of the mining art, even if such apparatus is a pneumatic one, especially pneumatic tables or jigs. Screens PER SE are not covered by this subclass but are classified in [B07B](#), even if they are being used in a wet process. All other apparatus for the separation of solids from solids according to dry methods are classified in [B07B](#).
- If the separation takes place as a result of the detection or measurement of some feature of the material or articles to be sorted it is classified in [B07C](#).
- It should also be noted that the separation of isotopes of the same chemical element is covered by [B01D 59/00](#), whatever process or apparatus is employed.

2. The following scheme illustrates the classification according to these rules.

- a. LIQUID/LIQUID  
 LIQUID/GAS  
 GAS/GAS

---

Subclasses dealing with Operations Apparatus	Method
---	--------

---

General	<a href="#">B01D</a>
<a href="#">B01D</a> by centrifugal force, using centrifuges or free-vortex apparatus	<a href="#">B01D</a>
<a href="#">B04B</a> , <a href="#">B04C</a> using magnetic or electrostatic effect	<a href="#">B03C</a>
<a href="#">B03C</a>	

---

- b. SOLID/LIQUID  
 SOLID/GAS

---

Subclasses dealing with Operations Apparatus	Method
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General	<a href="#">B01D</a>
<a href="#">B01D</a>	
by centrifugal force	<a href="#">B01D</a>
<a href="#">B01D</a>	
using centrifuges or free-vortex apparatus	<a href="#">B01D</a>
<a href="#">B04B</a> , <a href="#">B04C</a>	
using magnetic or electrostatic effect	<a href="#">B03C</a>
<a href="#">B03C</a>	
<hr/>	
c. SOLID/SOLID	
<hr/>	
Dry Methods	
<hr/>	
Subclasses dealing with Operations Apparatus	Method
<hr/>	
General for material in bulk	<a href="#">B07B</a>
<a href="#">B07B</a>	
Individual sorting	<a href="#">B07C</a>
<a href="#">B07C</a>	
Screening, sifting, pneumatic sorting	<a href="#">B07B</a>
<a href="#">B07B</a>	
using pneumatic tables or jigs	<a href="#">B03B</a>
<a href="#">B03B</a>	
by magnetic or electrostatic effect	<a href="#">B03C</a>
<a href="#">B03C</a>	
by centrifugal force	<a href="#">B07B</a>
<a href="#">B07B</a>	
using centrifuges or free-vortex apparatus	<a href="#">B07B</a>
<a href="#">B04B</a> , <a href="#">B04C</a>	
<hr/>	
Wet Methods	
<hr/>	
Subclasses dealing with Operations Apparatus	Method
<hr/>	
General	<a href="#">B03B</a>
<a href="#">B03B</a>	
flotation, differential sedimentation	<a href="#">B03D</a>
<a href="#">B03D</a>	
screening	<a href="#">B07B</a>
<a href="#">B07B</a>	
<hr/>	
Combinations = dry methods - wet methods:	<a href="#">B03B</a>
<hr/>	

## Project: N/A (B01D)

## B01D

**SEPARATION** (separating solids from solids by wet methods [B03B](#), [B03D](#); by pneumatic jigs or tables [B03B](#); by other dry methods [B07](#); magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high-voltage electric fields [B03C](#); centrifuges, vortex apparatus [B04](#); presses per se for squeezing-out liquid from liquid-containing material [B30B 9/02](#); treatment of water [C02F](#), e.g. softening by ion-exchange [C02F 1/42](#); {arrangements of air intake cleaners in gas turbine plants [F02C 7/05](#)}; arrangements or mounting of filters in air-conditioning, air-humidification or ventilation [F24F 13/28](#))

NOTES

1. This subclass covers:
  - evaporation, distillation, crystallisation, filtration, dust precipitation, gas cleaning, absorption, adsorption;
  - similar processes which are not concerned with, or limited to, separation (except in the case of absorption or adsorption).
2. In this subclass the terms or expressions are used with the meaning indicated:
  - "filtration" and analogous terms include straining solids from fluids;
  - "filter medium" is a porous material or porous arrangement of material used to filter solids from fluids;
  - "filtering element" is a section of filter medium in addition to parts to which the medium is demountably or permanently fixed, including other sections of medium, end caps, peripheral frames or edge strips, but excluding housings;
  - "filter housing" is the fluid-constraining impervious vessel, whether open or closed, which contains, or is adapted to contain, one or more filtering elements or filter media;
  - "filter chamber" is the space within a housing, where filtering elements or filter media are located. Partitions may divide a single housing into a plurality of chambers;
  - "filtering apparatus" consists of filtering elements combined with housings, cleaning arrangements, motor or the like parts, which are characteristic of the particular type of apparatus. Ancillary devices such as pumps or valves are considered part of a filtering apparatus when inside the apparatus. Ancillary devices performing similar or different unit operation such as comminutors, mixers or non-filtering separators, whether or not inside the apparatus, are not considered part of a filtering apparatus. The term does not extend to apparatus, e.g. washing machines, of which the filter forms only a part.
3. For apparatus used in drying or evaporation, [F26](#) takes precedence over [B01D](#).
4. Group [B01D 59/00](#) takes precedence over the other groups of this subclass and over other subclasses in class [B01](#)

WARNINGS

1. The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

<a href="#">B01D 19/0454</a>	covered by	<a href="#">B01D 9/00</a>
<a href="#">B01D 15/04</a>	covered by	<a href="#">B01J 39/00</a> <del>to</del>
<del><a href="#">B01J 49/02</a></del>		
<a href="#">B01D 17/022</a>	covered by	
<a href="#">B01D 17/0202</a>		
<a href="#">B01D 17/025</a>	covered by	
<a href="#">B01D 17/0208</a>		
<a href="#">B01D 17/028</a>	covered by	
<a href="#">B01D 17/0211</a>		

<a href="#">B01D 17/032</a>	covered by	
<a href="#">B01D 17/0214</a>		
<a href="#">B01D 17/035</a>	covered by	
<a href="#">B01D 17/0205</a>		
<a href="#">B01D 17/038</a>	covered by	
<a href="#">B01D 17/0217</a>		
<a href="#">B01D 17/05</a>	covered by	
<a href="#">B01D 17/047</a>		
<a href="#">B01D 17/09</a>	covered by	<a href="#">B01D 17/005</a>
<a href="#">B01D 17/12</a>	covered by	<a href="#">B01D 17/00</a>
<a href="#">B01D 25/133</a>	covered by	<a href="#">B01D 25/285</a>
<a href="#">B01D 25/168</a>	covered by	<a href="#">B01D 25/285</a>
<a href="#">B01D 25/21</a>	covered by	<a href="#">B01D 25/164</a>
<a href="#">B01D 29/075</a>	covered by	<a href="#">B01D 29/62</a> ,
<a href="#">B01D 29/76</a>		
<a href="#">B01D 29/37</a>	covered by	<a href="#">B01D 29/336</a> ,
<a href="#">B01D 29/356</a>		
<a href="#">B01D 33/052</a>	covered by	<a href="#">B01D 33/64</a>
<a href="#">B01D 35/01</a>	covered by	
<a href="#">B01D 36/001</a>		
<a href="#">B01D 61/26</a>	covered by	<a href="#">A61M 1/1656</a>
<a href="#">B01D 61/34</a>	covered by	<a href="#">A61M 1/16</a>

2. 5. The group [B01D 24/00](#) was introduced in March 1989. This group includes subject matter of [B01D 23/00](#), [B01D 25/06](#), [B01D 25/10](#), [B01D 29/0027](#), [B01D 33/0032](#) and [B01D 33/0054](#).

3. 6. Documents from the backlog of the group [B01D 23/00](#), and the subgroups [B01D 25/06](#), [B01D 25/10](#), [B01D 29/0027](#), [B01D 33/0032](#) and [B01D 33/0054](#) are in the process of being revised and also systematically transferred to [B01D 24/00](#).

4. 7. The groups [B01D 29/01](#) ~~to~~ [B01D 29/43](#) and [B01D 29/50](#) ~~to~~ [B01D 29/965](#) were introduced in March 1989; these subgroups include the subject matter of the subgroups of groups [B01D 29/0002](#), which are from this date no longer use for the classification of new documents.

5. 8. The documents from the backlog of the subgroups of group [B01D 29/0002](#) are in the process of being systematically transferred to the other subgroups of group [B01D 29/00](#).

6. 11. The documents from the backlog of the subgroups of group [B01D 33/0003](#) are in the process of being systematically transferred to the other subgroups of group [B01D 33/00](#).

7. 9. Groups [B01D 25/16](#), [B01D 25/18](#) and [B01D 25/20](#) are no longer used for the classification of new. Patent documents are continuously being reclassified to groups [B01D 29/44](#), [B01D 29/46](#) and [B01D 29/48](#).

8. 10. The groups [B01D 25/04](#), [B01D 25/08](#), [B01D 25/121](#), [B01D 25/122](#), [B01D 25/124](#), [B01D 25/125](#), [B01D 25/14](#), are no longer used for classification of new documents from December 1, 2011 onwards. The backlog of those groups are being continuously reclassified to groups [B01D 25/00](#), [B01D 29/00](#) and subgroups.

**U B01D 3/00**

**Distillation or related exchange processes in which liquids are contacted with gaseous media, e.g. stripping (Evaporation in general, e.g. of liquids for gas phase reactions [B01B 1/005](#)) ; gas chromatography [B01D 15/08](#); destructive distillation [C10B](#); preparation of alcoholic beverages by distillation [C12G 3/12](#))**

**U B01D 3/14  
B01D 3/32**

- Fractional distillation {or use of a fractionation or rectification column}
- · Other features of fractionating columns; {Constructional details of fractionating columns not provided for in groups [B01D 3/16](#) ~~to~~ [B01D 3/30](#)}

- U B01D 11/00 Solvent extraction**
- U B01D 11/02
- of solids
- NOTE
- Combinations of characteristics of individual groups, e.g. [B01D 11/0226](#) and [B01D 11/028](#) are expressed as [B01D 11/0226](#) + [B01D 11/028](#)
- U B01D 11/0215
- • {Solid material in other stationary receptacles}
- U B01D 11/0223
- • • {Moving bed of solid material (see also [B01D 11/0261](#))}
- B01D 11/0226
- • • • {with the general transport direction of the solids parallel to the rotation axis of the ~~conveyer~~[conveyor](#), e.g. worm}
- U B01D 11/0269
- • {Solid material in other moving receptacles ([B01D 11/0238](#) takes precedence)}
- U B01D 11/0273
- • • {in rotating drums}
- B01D 11/0276
- • • • {with the general transport direction of the solids parallel to the rotation axis of the ~~conveyer~~[conveyor](#), e.g. spirals}
- U B01D 15/00 Separating processes involving the treatment of liquids with solid sorbents (using liquid sorbents [B01D 11/00](#); ion exchange processes or materials, sorbent materials in general [B01J](#), e.g. sorbents for chromatography [B01J 20/281](#); for investigating or analysing materials [G01N 30/00](#)); Apparatus therefor**
- U B01D 15/08
- Selective adsorption, e.g. chromatography
- NOTE
- In order that group [B01D 15/08](#) may provide a basis for a complete search with respect to chromatography in general, all subject matter of general interest is classified in this group even if it is classified primarily in the application-oriented groups, for example dairy products [A23C 9/148](#), treatment of blood, e.g. [A61M 1/36](#), optically active organic compounds [C07B 57/00](#) or peptides [C07K 1/16](#)
- U B01D 15/26
- • characterised by the separation mechanism
- B01D 15/38
- • • involving specific interaction not covered by one or more of groups [B01D 15/265](#) ~~to~~ [B01D 15/36](#)
- U B01D 19/00 Degasification of liquids**
- B01D 19/0073
- {by a method not covered by groups [B01D 19/0005](#) ~~to~~ [B01D 19/0042](#)}
- U B01D 19/02
- Foam dispersion or prevention (during boiling [B01B 1/02](#); during fermentation [C12](#))
- B01D 19/04
- • by addition of chemical substances
- NOTES
1. Antifoam compositions containing a specific compound as the main substance are only classified in the, for this specific compound, corresponding [B01D 19/0404](#) subgroup (e.g. polysiloxanes receive the classification [B01D 19/0409](#)); when the specific compound(s) is (are) not the main substance, then the attributed classification for this compound(s) is a combination of [B01D 19/0404](#) + the corresponding [B01D 19/0404](#) subgroup(s), (e.g. hydrocarbons containing silica are classified in [B01D 19/0404](#) + [B01D 19/0409](#)).
- If the main substance is a mixture containing more than one specific compound, then the attributed classification is a combination of the corresponding [B01D 19/0404](#) subgroup of the specific compounds, (e.g.

benzene sulfonate and an amide are classified in [B01D 19/0413](#) + [B01D 9/02](#) ).

2. In groups [B01D 19/0404](#) to [B01D 19/0495](#), in the absence of an indication to the contrary, an invention is classified in the last appropriate place].

#### B01D 21/00

**Separation of suspended solid particles from liquids by sedimentation** ({separation of ores or the like by sedimentation [B03B 5/48](#) to [B03B 5/60](#) } ; differential sedimentation [B03D 3/00](#); {purification of water, waste water, sewage or sludge [C02F](#), e.g.} devices for separating or removing fatty or oily substances or similar floating material from water, waste water or sewage [C02F 1/40](#))

#### WARNING

The following groups are not complete: [B01D 21/0006](#), see also [B01D 21/00](#)  
[B01D 21/0018](#), see also [B01D 21/00](#)  
[B01D 21/0054](#), see also [B01D 21/00](#)  
[B01D 21/0057](#), see also [B01D 21/00](#)  
[B01D 21/003](#), see also [B01D 21/00](#)  
[B01D 21/0036](#), see also [B01D 21/00](#)  
[B01D 21/0087](#), see also [B01D 21/00](#)  
[B01D 21/2416](#), see also [B01D 21/2405](#)  
[B01D 21/2422](#), see also [B01D 21/2405](#)  
[B01D 21/2427](#), see also [B01D 21/24](#)  
[B01D 21/2433](#), see also [B01D 21/24](#)  
[B01D 21/262](#), see also [B01D 21/26](#)  
[B01D 21/265](#), see also [B01D 21/26](#)  
[B01D 21/267](#), see also [B01D 21/26](#)  
[B01D 21/28](#), see also [B01D 21/28](#)  
[B01D 21/302](#), see also [B01D 21/30](#)  
**B01D21/30B**, see also [B01D 21/30](#) ]

#### Project: RP0219 (B01D)

- D B01D 2021/0078 · {Settling tanks provided with contact surfaces, e.g. baffles, particles}
- D B01D 2021/0081 · {Settling tanks provided with vibrators}

#### Project: N/A (B01D)

- U B01D 21/24 · Feed or discharge mechanisms for settling tanks
- U B01D 21/245 · {Discharge mechanisms for the sediments}
- B01D 21/2455 · · · {ConveyerConveyor belts}
- B01D 21/2461 · · · {Positive-displacement pumps; Screw feeders; Trough conveyersconveyors}
- B01D 21/30 · Control equipment

#### WARNING

Groups [B01D 21/302](#) to [B01D 21/34](#) are not complete, see also [B01D 21/30](#)

- U B01D 29/00 **Other filters with filtering elements stationary during filtration, e.g. pressure or suction filters, or filtering elements therefor** {([B01D 24/00](#), [B01D 25/00](#) and [B01D 27/00](#) take precedence)}

#### WARNING

See WARNING after subclass title, particularly items (7), (8), (9), (10), (12) and (14)

- B01D 29/01
- with flat filtering elements ([B01D 29/39](#) takes precedence)
- NOTE  
If the construction of the filtering element itself is of minor importance the document is classified in the subgroups [B01D 29/01](#), [B01D 29/014](#), [B01D 29/016](#) or [B01D 29/018](#); otherwise in the subgroups [B01D 29/03](#) ~~to~~ [B01D 29/07](#)
- B01D 29/11
- with bag, cage, hose, tube, sleeve or like filtering elements
- NOTE  
If the construction of the filtering element itself is of minor importance the document is classified in the subgroups [B01D 29/11](#), [B01D 29/114](#) and [B01D 29/117](#), otherwise in the subgroups [B01D 29/13](#) ~~to~~ [B01D 29/356](#)
- B01D 33/00**
- Filters with filtering elements which move during the filtering operation (filters comprising loose filtering material moving or fluidised during filtration [B01D 24/28](#) ~~to~~ [B01D 24/36](#); centrifuges [B04B](#))**
- WARNING  
See WARNING after subclass title, particularly items (7), (8), (11) and (14)
- U B01D 33/0003
- {Aspects of filters with filtering elements which move during the filtering operation}
- U B01D 33/0006
- • {with rotating filtering surfaces (rotating brush filters [B01D 35/10](#))}
- B01D 33/0058
- • • {with filtering surfaces travelling along ~~conveyers~~ [conveyors](#) (tipping bucket type [B01D 35/08](#); brush filters [B01D 35/10](#))}
- B01D 33/01
- with translationally moving filtering elements, e.g. pistons ([B01D 33/04](#) ~~to~~ [B01D 33/327](#) take precedence)
- U B01D 36/00**
- Filter circuits or combinations of filters with other separating devices**
- WARNING  
See WARNING after subclass title, particularly item (14)
- B01D 36/001
- {Filters in combination with devices for the removal of gas, air purge systems}
- U B01D 39/00**
- Filtering material for liquid or gaseous fluids**
- U B01D 39/14
- Other self-supporting filtering material; {Other filtering material (non-woven fabrics in general [D04H 3/00](#))}
- U B01D 39/20
- • of inorganic material, e.g. asbestos paper, metallic filtering material of non-woven wires (porous ceramic material {[C04B 38/00](#)} ; sintering metals [C22C 1/04](#); {making porous sintered metal bodies [B22F 3/10](#), honeycomb filters [B01D 46/2418](#), materials used for filtering exhaust gases of an internal combustion engine [F01N 3/022](#), ceramic honeycomb structures [C04B 38/0006](#))}
- B01D 39/2055
- • • {Carbonaceous material (solid sorbent compositions comprising free carbon [B01J 20/20](#))}
- WARNING  
Groups [B01D 39/2058](#) ~~to~~ [B01D 39/2065](#) are not complete, see also [B01D 39/20](#)
- B01D 46/00**
- Filters {i.e. particle separators} or filtering processes specially modified for separating dispersed particles from gases or vapours (filtering elements [B01D 23/00](#) ~~to~~ [B01D 35/00](#); filtering material [B01D 39/00](#); their regeneration outside the filters [B01D 41/00](#))**
- U B01D 46/10
- Particle separators, e.g. dust precipitators, using filter plates, sheets, or pads having plane surfaces, {i.e. axial filtering}

- B01D 46/16
- • arranged on non-filtering ~~conveyers~~conveyors {or supports}
- U B01D 46/24
- Particle separators, e.g. dust precipitators, using rigid hollow filter bodies
- U B01D 46/2403
- • {characterised by the physical shape or structure of the filtering element}
- U B01D 46/2418
- • • {Honeycomb filters (used for filtering exhaust gases of an internal combustion engine [F01N 3/022](#); ceramic honeycomb structures per se [C04B 38/0006](#))}
- U B01D 46/2451
- • • • {characterized by the geometrical structure, shape, pattern or configuration or parameters related to the geometry of the structure, e.g. thickness, cell density}
- B01D 2046/2492
- • • • {Other shapes or configurations not covered by groups [B01D 46/2474](#) to- [B01D 2046/2488](#)}
- U B01D 46/30
- Particle separators, e.g. dust precipitators, using loose filtering material
- U B01D 46/32
- • the material moving during filtering
- B01D 46/36
- • • as a substantially horizontal layer, e.g. on rotary tables, drums, ~~conveyer~~conveyor belts
- U B01D 47/00**
- Separating dispersed particles from gases, air or vapours by liquid as separating agent ([B01D 45/10](#) takes precedence; fractionating columns or parts thereof [B01D 3/16](#))**
- B01D 47/02
- by passing the gas or air or vapour over or through a liquid bath
- WARNING
- Groups [B01D 47/021](#) to- [B01D 47/028](#) are not complete pending reclassification; see also this group
- B01D 53/00**
- Separation of gases or vapours; Recovering vapours of volatile solvents from gases; Chemical or biological purification of waste gases, e.g. engine exhaust gases, smoke, fumes, flue gases, aerosols, (recovery of volatile solvents by condensation [B01D 5/00](#); sublimation [B01D 7/00](#); cold traps, cold baffles [B01D 8/00](#); working-up undefined gaseous mixtures obtained by cracking hydrocarbon oils [C10G 70/00](#); cleaning coal gas [C10K](#); working-up of natural gas, or synthetic natural gas, [C10L 3/10](#); separation of difficult-to-condense gases or air by liquefaction [F25J](#); for investigating materials [G01N 30/00](#))**
- NOTE
- Group [B01D 53/34](#) takes precedence over groups [B01D 53/02](#) to- [B01D 53/32](#)
- U B01D 53/02
- by adsorption, e.g. preparative gas chromatography {(solid sorbent compositions [B01J 20/00](#), preparation of inorganic compounds or elements [C01](#))}
- NOTE
- In group [B01D 53/02](#) and subgroups it is desirable to add indexing codes relating to adsorbents, components to be removed, main components in the product gas stream or type of gas or vapour treatment chosen from groups [B01D 2253/00](#), [B01D 2256/00](#), [B01D 2257/00](#) or [B01D 2259/00](#)
- U B01D 53/04
- • with stationary adsorbents {([B01D 53/025](#) takes precedence)}
- B01D 53/0454
- • • {Controlling adsorption (controlling temperature swing adsorption [B01D 53/0462](#), controlling pressure swing adsorption [B01D 53/047](#))}
- NOTE
- In groups [B01D 53/0462](#) and [B01D 53/047](#) to- [B01D 53/0476](#) it is desirable to add indexing codes chosen from [B01D 2259/40007](#) to- [B01D 2259/40081](#) relating to controlling and processing aspects of pressure or temperature swing adsorption

- U B01D 53/34 · Chemical or biological purification of waste gases
- U B01D 53/46 · · Removing components of defined structure
- B01D 53/72 · · · Organic compounds not provided for in groups [B01D 53/48](#) to- [B01D 53/70](#), e.g. hydrocarbons
- U B01D 53/74 · · General processes for purification of waste gases; Apparatus or devices specially adapted therefor ([B01D 53/92](#) takes precedence)
- U B01D 53/86 · · · Catalytic processes
- B01D 53/8668 · · · · {Removing organic compounds not provided for in [B01D 53/8603](#) to- [B01D 53/8665](#)}
- B01D 53/8671 · · · · {Removing components of defined structure not provided for in [B01D 53/8603](#) to- [B01D 53/8668](#)}
- U B01D 53/92 · · of engine exhaust gases (exhaust {or silencing} apparatus {for internal combustion engines, machines or engines in general}, having means for purifying, {rendering innocuous} or otherwise treating exhaust gases [F01N 3/00](#))
- U B01D 53/94 · · · by catalytic processes
- U B01D 53/9404 · · · · {Removing only nitrogen compounds}
- U B01D 53/9409 · · · · · {Nitrogen oxides}
- B01D 53/9413 · · · · · {Processes characterised by a specific catalyst}

WARNING

Groups [B01D 53/9418](#) to- [B01D 53/9427](#) are not complete pending a reorganisation. See also [B01D 53/9413](#)

- B01D 53/9459 · · · · {Removing one or more of nitrogen oxides, carbon monoxide, or hydrocarbons by multiple successive catalytic functions; systems with more than one different function, e.g. zone coated catalysts (layered catalysts with only one function [B01D 53/9413](#), [B01D 53/944](#) or [B01D 53/945](#))}

WARNING

Groups [B01D 53/9459](#) to- [B01D 53/9477](#) are not complete pending a reorganisation. See also [B01D 53/9459](#)

B01D 61/00 -  
B01D 71/00

**Processes of separation using semi-permeable membranes, e.g. dialysis, osmosis, ultrafiltration; Apparatus specially adapted therefor; Semi-permeable membranes or their production (separation of gases or vapours by diffusion [B01D 53/22](#); treatment of milk by dialysis, reverse osmosis or ultrafiltration [A23C 9/142](#), by electro dialysis [A23C 9/144](#); artificial kidneys [A61M 1/14](#); {manufacture of films of plastics [B29](#), [C08J 5/18](#), of ion-exchange membranes [C08J 5/22](#)}; treatment of water by dialysis, osmosis or reverse osmosis [C02F 1/44](#), by electro dialysis [C02F 1/469](#); apparatus for enzymology or microbiology with dialysis means [C12M 1/12](#); production or purification of sugar juices, e.g. by osmosis, [C13D3/16](#); extraction of sugar from molasses, e.g. by osmosis, [C13J1/08](#); diaphragms for electrolysis [C25B 13/00](#), [C25C 7/04](#); osmosis as energy source [F03G 7/00](#))**

NOTE

In groups [B01D 61/00](#) ~~to~~ [B01D 71/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place (in respect of [B01D 71/00](#), see also Note (1) following that group)

WARNING

Attention is drawn to the WARNING after the subclass title of [A61M](#)

B01D 61/00

**Processes of separation using semi-permeable membranes, e.g. dialysis, osmosis, ultrafiltration; Apparatus, accessories or auxiliary operations specially adapted therefor**

NOTE

In groups [B01D 61/00](#) ~~to~~ [B01D 61/58](#) it is desirable to add the indexing codes relating to process operations and control chosen from groups [B01D 2311/00](#) ~~to~~ [B01D 2311/2696](#),

to details relating to membrane modules and apparatus indexing codes chosen from [B01D 2313/00](#) ~~to~~ [B01D 2313/90](#),

to details relating to the membrane module operation indexing codes chosen from [B01D 2315/00](#) ~~to~~ [B01D 2315/16](#),

to details relating to the module arrangement within a plant or an apparatus indexing codes chosen from [B01D 2317/00](#) ~~to~~ [B01D 2317/08](#) and

to details relating to the membrane assembly within one housing indexing codes chosen from [B01D 2319/00](#) ~~to~~ [B01D 2319/06](#)

B01D 61/58

· Multistep processes {(comprising reverse osmosis or hyperfiltration steps [B01D 61/022](#); comprising ultrafiltration or microfiltration steps [B01D 61/142](#))}

NOTE

In group [B01D 61/58](#) specific process steps within the multistep process are indexed by codes chosen from [B01D 61/02](#) ~~to~~ [B01D 61/56](#)

B01D 63/00

**Apparatus in general for separation processes using semi-permeable membranes**

NOTE

In groups [B01D 63/00](#) ~~to~~ [B01D 63/16](#) it is desirable to add the indexing codes relating to membrane modules and apparatus chosen from groups [B01D 2313/00](#) ~~to~~ [B01D 2313/90](#),

to details relating to the membrane module operation indexing codes chosen from [B01D 2315/00](#) ~~to~~ [B01D 2315/16](#),

to details relating to the module arrangement within a plant or an apparatus indexing codes chosen from [B01D 2317/00](#) ~~to~~ [B01D 2317/08](#) and

to details relating to the membrane assembly within one housing indexing codes are chosen from [B01D 2319/00](#) ~~to~~ [B01D 2319/06](#)

- U B01D 65/00** **Accessories or auxiliary operations, in general, for separation processes or apparatus using semi-permeable membranes**
- B01D 65/02 · Membrane cleaning or sterilisation {; Membrane regeneration}
- NOTE  
In group [B01D 65/02](#) it is desirable to add the indexing codes relating to membrane cleaning, regeneration, sterilization and prevention of membrane fouling chosen from groups [B01D 2321/00](#) ~~to~~ [B01D 2321/28](#)
- B01D 65/08 · Prevention of membrane fouling or of concentration polarisation
- NOTE  
In group [B01D 65/08](#) it is desirable to add the indexing codes relating to membrane cleaning, regeneration, sterilization and prevention of membrane fouling chosen from groups [B01D 2321/00](#) ~~to~~ [B01D 2321/28](#)
- B01D 65/10 · Testing of membranes or membrane apparatus; Detecting or repairing leaks
- NOTE  
The documents classified in the groups [B01D 67/00](#) ~~to~~ [B01D 71/00](#) are also searchable in a keyword-based electronic off-line database called "MEMBRANE"
- B01D 67/00** **Processes specially adapted for manufacturing semi-permeable membranes for separation processes or apparatus**
- NOTE  
In group [B01D 67/00](#) it is desirable to add the indexing codes relating to membrane preparation chosen from groups [B01D 2323/00](#) ~~to~~ [B01D 2323/42](#)
- U B01D 69/00** **Semi-permeable membranes for separation processes or apparatus characterised by their form, structure or properties; Manufacturing processes specially adapted therefor**
- NOTES
- In this group, the following term is used with the meaning indicated:
    - "properties" covers those of a mechanical, physical or chemical nature
  - Manufacturing processes, if considered of interest, are also classified in group [B01D 67/00](#)
- WARNING  
The following sub-groups of [B01D 69/00](#) are incomplete. Documents presently classified in the hierarchically higher groups are in the process of reclassification
- [B01D 69/043](#)  
[B01D 69/046](#)  
[B01D 69/081](#)  
[B01D 69/082](#)  
[B01D 69/084](#)  
[B01D 69/085](#)  
[B01D 69/087](#)  
[B01D 69/088](#)  
[B01D 69/105](#)  
[B01D 69/141](#)  
[B01D 69/144](#)  
[B01D 69/145](#)  
[B01D 69/147](#)  
[B01D 69/148](#)

- B01D 69/02
- characterised by their properties
- NOTE  
In group [B01D 69/02](#) it is desirable to add the indexing codes relating to properties of membranes chosen from groups [B01D 2325/00](#) ~~to~~ [B01D 2325/38](#)
- U B01D 71/00**      **Semi-permeable membranes for separation processes or apparatus characterised by the material; Manufacturing processes specially adapted therefor**
- NOTES
1. In this group, if the material is a composition it is classified according to the constituent present in the highest proportion. This constituent is classified according to the last place rule (see Note before group [B01D 61/00](#) ). If there is more than one constituent present in equal highest proportions, then each of these constituents is classified according to the last place rule
  2. Manufacturing processes, if considered of interest, are also classified in group [B01D 67/00](#)
- U B01D 71/06**      • Organic material
- B01D 71/44      • • Polymers obtained by reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of groups [B01D 71/26](#) ~~to~~ [B01D 71/42](#)
- B01D 71/72      • • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of the groups [B01D 71/46](#) ~~to~~ [B01D 71/70](#)
- B01D 71/76      • • Macromolecular material not specifically provided for in a single one of groups [B01D 71/08](#) ~~to~~ [B01D 71/74](#) (rubbers in general [B01D 71/24](#))
- U B01D 2239/00**      **Aspects relating to filtering material for liquid or gaseous fluids**
- U B01D 2239/12**      • Special parameters characterising the filtering material
- B01D 2239/1208      • • Porosity (apparatus incorporating such gas filtering material [B01D 2275/30](#) ~~to~~ [B01D 2275/307](#))
- U B01D 2252/00**      **Absorbents, i.e. solvents and liquid materials for gas absorption**
- U B01D 2252/20**      • Organic absorbents
- B01D 2252/205      • • Other organic compounds not covered by [B01D 2252/00](#) ~~to~~ [B01D 2252/20494](#)
- U B01D 2257/00**      **Components to be removed**
- B01D 2257/70      • Organic compounds not provided for in groups [B01D 2257/00](#) ~~to~~ [B01D 2257/602](#)
- B01D 2257/704      • • Solvents not covered by groups [B01D 2257/702](#) ~~to~~ [B01D 2257/7027](#)
- B01D 2257/90      • Odorous compounds not provided for in groups [B01D 2257/00](#) ~~to~~ [B01D 2257/708](#)
- B01D 2257/93      • Toxic compounds not provided for in groups [B01D 2257/00](#) ~~to~~ [B01D 2257/708](#)
- B01D 2311/00**      **Details relating to membrane separation process operations and control**
- NOTE  
In groups [B01D 2311/02](#) ~~to~~ [B01D 2311/08](#), the nature of specific operations carried out can be indexed by a combination of symbols chosen from [B01D 2311/10](#) ~~to~~ [B01D 2311/2696](#)

## Project: N/A (B01F)

B01F

**MIXING, e.g. DISSOLVING, EMULSIFYING, DISPERSING** ({miscellaneous implements for preparing food, e.g. machines for domestic use for mixing, egg-whisks, cream beaters [A47J 43/00](#)}; mixing paints [B44D 3/06](#); {apparatus specially adapted for mixing radioactively contaminated material [G21F 9/008](#)})

NOTE

In this subclass, the following term or expression is used with the meaning indicated:

- "mixing" covers stirring of a single material.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

[B01F 17/02](#) ~~to~~ [B01F 17/56](#) covered by [B01F 17/00](#) ~~to~~ [B01F 17/0092](#)

U B01F 13/00

**Other mixers; Mixing plant, including combinations of {mixers, e.g. of} dissimilar mixers**

U B01F 13/0016

- {Movable or transportable mixing devices or plants}

U B01F 13/0035

- • {vehicle mounted (mixing devices for cement mounted on vehicles with provisions for mixing during transport [B28C 5/42](#))}

B01F 13/0037

- • • {the vehicle being self-propelled, e.g. truck mounted, provided with a motor, driven by tracks ([B01F 13/0038](#) ~~to~~ [B01F 13/0047](#) take precedence)}

B01F 13/02

- Mixers with gas {or liquid} agitation, e.g. with air supply tubes {([B01F 3/04106](#) takes precedence; supplying ingredients in concrete mixers with a pneumatic or hydraulic ~~conveyer~~ conveyor [B28C 7/062](#); fluidising devices facilitating filling or emptying of containers [B65D 88/72](#))}

NOTE

The agitating fluid is not meant to mix with the material

U B01F 15/00

**Accessories for mixers; {Auxiliary operations or auxiliary devices; Parts or details of general application}**

U B01F 15/04

- Forming a predetermined ratio of the substances to be mixed (controlling ratio of two or more flows of fluid or fluent material [G05D 11/02](#) {; [G05D 11/00](#) takes precedence})

B01F 15/0483

- • {for solid materials, e.g. using belts, vibrations, hoppers with variable outlets or hoppers with rotating elements, e.g. screws, at their outlet ([B01F 15/0408](#) ~~to~~ [B01F 15/0441](#) take precedence)}

U B01F 17/00

**Use of substances as emulsifying, wetting, dispersing or foam-producing agents** {(see for particular applications relevant classes, e.g. lubricant emulsions [C10M](#); fuel emulsions [C10L 1/32](#); detergents [C11D](#); colour and dye dispersions [C09](#); textile applications [D06](#); cosmetics [A61K](#); food [A23L 1/035](#); biocides [A01N](#); petrol winning [E21B](#); hydrometallurgy, metal liquid-liquid extraction [C22B](#); mixers [B01F 3/00](#); polymers mixing; waxes [C08](#); paper [D21H](#); demulsification (anti foam) [B01D 19/04](#))}

NOTE

A compound is always classified in the last appropriate place

B01F 17/0078

- {Organic compounds not provided for in groups [B01F 17/0014](#) ~~to~~ [B01F 17/0071](#)}

**Project: N/A (B01J)**

- B01J 2/00 Processes or devices for granulating materials, {e.g. fertilisers} in general (granulating metals [B22F 9/00](#), {granulating slag [C21B 3/06](#)}, ores or scrap [C22B 1/14](#); mechanical aspects of working of plastics or substances in a plastic state to make granules [B29B 9/00](#); processes for granulating fertilisers characterised by their chemical constitution, see the relevant groups in [C05B](#) ~~to~~ [C05G](#); chemical aspects of powdering or granulating of macromolecular substances [C08J 3/12](#)); Rendering particulate materials free flowing in general, e.g. making them hydrophobic
- B01J 2/26   
  - on endless ~~conveyer~~[conveyor](#) belts
- U** B01J 3/00 Processes of utilising sub-atmospheric or super-atmospheric pressure to effect chemical or physical change of matter; Apparatus therefor (apparatus for compacting or sintering of metal powders [B22F 3/00](#); pressure vessels in general [F16J 12/00](#); pressure vessels for containing or storing compressed, liquefied or solidified gases [F17C](#); pressure vessels for nuclear reactors [G21C](#))
- B01J 3/002   
  - {Component parts of these vessels not mentioned in [B01J 3/004](#), [B01J 3/006](#), [B01J 3/02](#) ~~to~~ [B01J 3/08](#); Measures taken in conjunction with the process to be carried out, e.g. safety measures}
- U** B01J 4/00 Feed {or outlet} devices; Feed or outlet regulating devices (feed or outlet devices for pressure vessels [B01J 3/02](#); {feeding of particles into and evacuation of particles out of the reactor [B01J 8/0015](#)})
- B01J 4/02   
  - for feeding measured ~~{~~[\[](#){i.e. prescribed~~}]~~[}](#) quantities of reagents

**Project: MP0254 (B01J)**B01J 20/00 -  
B01J 38/00**Solid sorbent compositions or filter aid compositions; Sorbents for chromatography; Catalysts****NOTES**

1. In groups [B01J 20/00](#) ~~to~~ [B01J 31/00](#), metal salts having an anion composed of metal and oxygen only, e.g. molybdates, are considered as chemically bound mixtures of the component metal oxides.

~~2.~~ In groups [B01J 21/00](#) to [B01J 38/00](#), the following term is used with the meaning indicated:

- "catalyst" covers also a carrier forming part of the catalyst

~~3-2.~~ Attention is drawn to the definitions of groups of chemical elements following the title of section C.

~~4-3.~~ In group [B01J 20/00](#) and in each set of groups [B01J 21/00](#) ~~to~~ [B01J 31/00](#) and [B01J 32/00](#) ~~to~~ [B01J 38/00](#), *the last place priority rule is applied, i.e. at each hierarchical level*, in the absence of an indication to the contrary, classification is made in the last appropriate place.

~~5.~~ Classification of the:

- carriers;
- forms or physical properties;
- preparation or activation;
- regeneration or reactivation of catalysts according to more than one of main groups [B01J 21/00](#) to [B01J 31/00](#) is made in the following general groups:
  - [B01J 32/00](#) for such carriers;
  - [B01J 35/00](#) for such forms or physical properties;
  - [B01J 37/00](#) for such preparation or activation;
  - [B01J 38/00](#) for such regeneration or reactivation

~~6-4.~~ Pure compounds or elements, or their recovery from solid sorbent compositions, filter aid compositions, or catalysts, are classified in the appropriate subclass for chemical compounds or elements. However, when it is explicitly

stated that the pure compound or element, in a particular form, is especially useful as a solid sorbent, filter aid, or catalyst, it is further classified in group [B01J 20/00](#) or [B01J 35/00](#).

5. {In groups [B01J 21/00](#) - [B01J 38/00](#), the following term is used with the meaning indicated:

- "catalyst" covers also a carrier forming part of the catalyst.

}

6. {Classification of the:

- carriers;
- forms or physical properties;
- preparation or activation;
- regeneration or reactivation of catalysts according to more than one of main groups [B01J 21/00](#) - [B01J 31/00](#) is made in the following general groups:
  - [B01J 32/00](#) for such carriers;
  - [B01J 35/00](#) for such forms or physical properties;
  - [B01J 37/00](#) for such preparation or activation;
  - [B01J 38/00](#) for such regeneration or reactivation.

}

### Project: N/A (B01J)

- U B01J 20/02      • comprising inorganic material
- B01J 20/04      • • comprising compounds of alkali metals, alkaline earth metals or magnesium
- WARNING  
Groups [B01J 20/041](#) ~~to~~ [B01J 20/048](#) are not complete, pending a reorganisation. See also [B01J 20/04](#)
- U B01J 20/22      • comprising organic material
- WARNING  
Groups [B01J 20/223](#) and [B01J 20/226](#) are not complete, pending a reorganisation. See also [B01J 20/22](#)
- B01J 20/26      • • Synthetic macromolecular compounds
- WARNING  
Groups [B01J 20/261](#) ~~to~~ [B01J 20/268](#) are not complete, pending a reorganisation. See also this group
- B01J 20/28      • characterised by their form or physical properties
- WARNING  
Groups [B01J 20/281](#) ~~to~~ [B01J 20/29](#) might be incomplete. A number of documents presently classified in [G01N 30/48](#) and [G01N 30/482](#) still need reclassification to one or more of these groups
- B01J 20/281      • Sorbents specially adapted for preparative, analytical or investigative chromatography
- NOTE  
In groups [B01J 20/281](#) ~~to~~ [B01J 20/292](#) it is desirable to add indexing codes for aspects relating to sorbents specially adapted for preparative, analytical or investigative chromatography. The indexing codes are chosen from groups [B01J 2220/80](#) ~~to~~ [B01J 2220/86](#)
- B01J 20/282      • • Porous sorbents (ion exchange [B01J 39/00](#) ~~to~~ [B01J 41/00](#))

- B01J 20/30
- Processes for preparing, regenerating, or reactivating
- WARNING  
Groups [B01J 20/3007](#) to [B01J 20/3092](#) are not complete, pending a reorganisation. See also [B01J 20/30](#)
- B01J 20/32
- Impregnating or coating; {Solid sorbent compositions obtained from processes involving impregnating or coating}
- WARNING  
Groups [B01J 20/3202](#) to [B01J 20/3297](#) are not complete, pending a reorganization. See also [B01J 20/32](#)
- U B01J 20/34
- Regenerating or reactivating
- B01J 20/3408
- {of aluminosilicate molecular sieves}
- WARNING  
Groups [B01J 20/3416](#) to [B01J 20/3491](#) are not complete, pending a reorganisation. See also [B01J 20/34](#)

**Project: MP0130 (B01J)**

U B01J 23/00 **Catalysts comprising metals or metal oxides or hydroxides, not provided for in group [B01J 21/00](#) ([B01J 21/16](#) takes precedence)**

M B01J 23/002

- {Mixed oxides other than spinels, e.g. perovskite}

NOTE

*In group B01J 23/002, elements constituting the exemplified mixed oxide are further indexed with B01J 2523/00 as base symbol using the relevant classification symbols of B01J 2523/00 to B01J 2523/847, in numerical order without B01J 2523/00 and preceded by the sign "+", e.g. Mo<sub>a</sub>V<sub>b</sub>Te<sub>c</sub>O<sub>x</sub> is classified as B01J 2523/00+/55+/64+/68*

*In group B01J 23/002, elements constituting the exemplified mixed oxide are further indexed under the form of a C-set with B01J 2523/00 as base symbol using the relevant classification symbols of B01J 2523/10 - B01J 2523/847, in numerical order, as further symbols and separated by ",", e.g. the mixed oxide Mo<sub>a</sub>V<sub>b</sub>Te<sub>c</sub>O<sub>x</sub> is classified as (B01J 2523/00, B01J 2523/55, B01J 2523/64, B01J 2523/68).*

**Project: N/A (B01J)**

- U B01J 23/38
- of noble metals
- B01J 23/54
- combined with metals, oxides or hydroxides provided for in groups [B01J 23/02](#) to [B01J 23/36](#)
- U B01J 23/70
- of the iron group metals or copper
- B01J 23/76
- combined with metals, oxides or hydroxides provided for in groups [B01J 23/02](#) to [B01J 23/36](#)
- U B01J 23/84
- with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
- U B01J 23/85
- Chromium, molybdenum or tungsten
- U B01J 23/88
- Molybdenum
- B01J 23/887
- containing in addition other metals, oxides or hydroxides provided for in groups [B01J 23/02](#) to [B01J 23/36](#)
- U B01J 23/89
- combined with noble metals
- B01J 23/8933
- {also combined with metals, or metal oxides or hydroxides provided for in groups [B01J 23/02](#) to [B01J 23/36](#)}

- U B01J 23/90      • Regeneration or reactivation
- B01J 23/92      • • of catalysts comprising metals, oxides or hydroxides provided for in groups [B01J 23/02](#) to- [B01J 23/36](#)

**B01J 29/00      Catalysts comprising molecular sieves {(molecular sieves per se [C01B](#))}**

NOTES

- In this group, the following term is used with the meaning indicated:
  - "zeolites" means:
    - crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;
    - compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.
- If metals are introduced into the framework of the molecular sieve already in the synthesis stage, [B01J 29/86](#) to- [B01J 29/89](#) take precedence.
- Mixtures of molecular sieves are classified in [B01J 29/005](#) or [B01J 29/80](#) and receive indexing codes chosen from groups [B01J 29/03](#) to- [B01J 29/89](#) to identify the individual constituents of these mixtures

- B01J 29/005      • {Mixtures of molecular sieves comprising at least one molecular sieve which is not an aluminosilicate zeolite, e.g. from groups [B01J 29/03](#) to- [B01J 29/049](#) or [B01J 29/82](#) to- [B01J 29/89](#)}

- U B01J 29/04      • having base-exchange properties, e.g. crystalline zeolites {([B01J 29/005](#) takes precedence)}

- U B01J 29/06      • • Crystalline aluminosilicate zeolites; Isomorphous compounds thereof
- B01J 29/70      • • • of types characterised by their specific structure not provided for in groups [B01J 29/08](#) to- [B01J 29/65](#)

**B01J 31/00      Catalysts comprising hydrides, coordination complexes or organic compounds (catalyst compositions used only in polymerisation reactions [C08](#); {catalytic antibodies [C12N 9/0002](#))}**

NOTES

- Group [B01J 31/003](#) takes precedence over groups [B01J 31/02](#) to- [B01J 31/24](#) (catalytic antibodies [C12N 9/0002](#) )
- In this group, the following terms or expressions are used with the meanings indicated:
  - "Organic compound" a compound in which carbon is bonded to
    - a second carbon;
    - at least one atom of hydrogen or halogen; or
    - nitrogen by a single or double bond; except cyanic acid (HOCN), cyanogen (NCCN), cyanamide (H<sub>2</sub>NCN), cyanogen halide (HalCN), hydrocyanic acid (HCN) isocyanic acid (HNCO) fulminic acid (HCNO) and metal carbides (MCCM) (catalysts comprising any of these exceptions or their salts [B01J 27/20](#) to- [B01J 27/26](#).
  - "Organometallic compounds" includes all organic compounds wherein a metal or metalloid atom is bonded directly to a carbon fragment, the latter being formally anionic, no further neutral ligands being coordinated to the metal and the compound requiring no further cations for charge balance; e.g. M(1-CR<sub>3</sub>)<sub>n</sub> with M= main group metal, n= valency of metal and R= H or hydrocarbyl. (Compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments, excluding carboxylates, with a metal bonded to these heteroatoms [B01J 31/02](#) to- [B01J 31/0254](#); unsaturated carbon fragments in combination with transition metals [B01J 31/2282](#).)

- "Coordination complexes" includes any donor-acceptor compounds or complex ions comprising organic or inorganic, anionic or neutral Lewis basic ligands, attached to a Lewis acid central metal or metal ion through one or several complexing donor atoms with at least one lone-pair of electrons, e.g. N, O, S, P, to provide at least a Sigma-bond. Typically the maximum number of same or different ligands according to the coordination number, spatial requirements of the ligand and electronic configuration of the metal is bound in a predictable geometry. Complexes of neutral, cationic or anionic hydrocarbon ligands with delocalised charge and/or bonding site, e.g. Pd-olefin complexes or metallocenes, are also included (the following groups take precedence: simple hydrocarbyl metal compounds, e.g. of main group metal(oids) [B01J 31/12](#); oxoacid salts [B01J 31/04](#) ~~to~~ [B01J 31/10](#); other compounds comprising anionic organonitrogen, organooxygen and organosulfur fragments with a metal bonded to these heteroatoms [B01J 31/02](#) ~~to~~ [B01J 31/0254](#)).
  - "Organometallic complexes" includes all coordination complexes comprising a M-C bond, e.g. metal carbonyls (complex cyanides such as  $M_4[Fe(CN)_6]$  [B01J 27/26](#) ). Included are furthermore complexes which are not strictly organometallic per se, e.g. comprising only N, O, S and/or P coordinated ligands, but are described as involving, or known to involve, organometallic intermediates and/or transition states during use, e.g. Group 8-10 metal complexes for a variety of catalytic reactions or steps thereof, such as oxidative addition, e.g. of ArX, hydrogenation, carbonylation, epoxidation, etc.
  - "Organic complexes" includes all coordination complexes comprising organic ligands (groups [B01J 31/1608](#) ~~to~~ [B01J 31/1895](#) take precedence).
  - "Polymer" includes any macromolecular substance (typically  $M > 10000$  g/mol), which comprises repeating units made up of one or several kinds of atoms or groups of atoms, which are identically connected to one another. Oligomers, i.e. more than two identical repeating units connected to one another and typically  $500 < M < 10000$  g/mol, are grouped with the respective polymers (polymers per se [C08](#)).
3. In this group, if two or more aspects are of equal importance, these are each classified, e.g. two components in a catalyst system such as:
- support and pendant or otherwise immobilised coordination complex; or
  - coordination complex and essential additive.

However, if two components, even if separately added, are described as forming, or known to form, a coordination complex, only the latter is classified, e.g. phosphine and Group 8-10 metal such as rhodium. The groups [B01J 31/26](#) ~~to~~ [B01J 31/38](#) are not to be used for the central metals in coordination complexes but rather for separately added further inorganic ingredients. Each specifically disclosed alternative is separately classified, i.e. specifically disclosed by ways of worked examples, specific claims and/or explicit alternatives therein.

4. When classifying in [B01J 31/00](#), additional information for the catalysts is provided as follows:

- (4-1) the specifically disclosed intended uses are indexed in [B01J 2231/00](#);
- (4-2) general aspects of the complexes of group [B01J 31/16](#) and the specifically disclosed central metal(s) therein, as well as additional information regarding any special solvents used for any catalyst system of this group are indexed in [B01J 2531/00](#);
- (4-3) conceptual articles, e.g. reviews, are separately indexed in [B01J 2231/005](#) and [B01J 2531/001](#);
- (4-4) additional information regarding the complexes or ligands classified in [B01J 31/16](#) ~~to~~ [B01J 31/24](#) and indexed in [B01J 2531/00](#) is indexed in [B01J 2540/00](#), e.g. non-coordinating substituents on the ligand periphery]

- U B01J 31/02                   · containing organic compounds or metal hydrides
- U B01J 31/0215               · · {Sulfur-containing compounds}
- B01J 31/0229               · · · {also containing elements or functional groups covered by [B01J 31/0201](#) ~~to-~~ [B01J 31/0214](#)}
- U B01J 31/0231               · · {Halogen-containing compounds}
- B01J 31/0232               · · · {also containing elements or functional groups covered by [B01J 31/0201](#) ~~to-~~ [B01J 31/0228](#) (perfluorinated sulfonyl compounds or moieties [B01J 31/0224](#); perfluorosulfonic acids [B01J 31/0227](#))}
- U B01J 31/0234               · · {Nitrogen-, phosphorus-, arsenic- or antimony-containing compounds}
- B01J 31/0271               · · · {also containing elements or functional groups covered by [B01J 31/0201](#) ~~to-~~ [B01J 31/0231](#)}
- B01J 31/0272               · · {containing elements other than those covered by [B01J 31/0201](#) ~~to-~~ [B01J 31/0255](#)}
- B01J 31/0275               · · · {also containing elements or functional groups covered by [B01J 31/0201](#) ~~to-~~ [B01J 31/0269](#)}
- U B01J 31/0277               · · {comprising ionic liquids, as components in catalyst systems or catalysts per se, the ionic liquid compounds being used in the molten state at the respective reaction temperature}
- U B01J 31/0278               · · · {containing nitrogen as cationic centre}
- B01J 31/0285               · · · · {also containing elements or functional groups covered by [B01J 31/0201](#) ~~to-~~ [B01J 31/0274](#)}
- U B01J 31/0287               · · · {containing atoms other than nitrogen as cationic centre}
- B01J 31/0291               · · · · {also containing elements or functional groups covered by [B01J 31/0201](#) ~~to-~~ [B01J 31/0274](#)}
- U B01J 31/0292               · · · {immobilised on a substrate}
- U B01J 31/0295               · · · · {by covalent attachment to the substrate, e.g. silica}
- B01J 31/0297               · · · · · {the substrate being a soluble polymer, dendrimer or oligomer of characteristic microstructure of groups [B01J 31/061](#) ~~to-~~ [B01J 31/068](#)}
- B01J 31/04                   · · containing carboxylic acids or their salts {([B01J 31/0277](#) ~~to-~~ [B01J 31/0298](#) take precedence; multi-metal carboxylate complexes like Pd (II) acetate, i.e. Pd<sub>3</sub> (OAc)<sub>6</sub> or Cr(II)acetate, i.e. Cr<sub>2</sub>(OAc)<sub>4</sub> [B01J 31/2226](#))}
- U B01J 31/16                   · containing coordination complexes
- U B01J 31/165                 · · {Polymer immobilised coordination complexes, e.g. organometallic complexes}
- U B01J 31/1658               · · · {immobilised by covalent linkages, i.e. pendant complexes with optional linking groups, e.g. on Wang or Merrifield resins}
- B01J 31/1675               · · · · {the linkage being to an organometallic polymer covered by groups [B01J 31/123](#) ~~to-~~ [B01J 31/127](#), e.g. polyhydrosiloxanes}
- U B01J 31/24                  · · Phosphines {i.e. phosphorus bonded to only carbon atoms, or to both carbon and hydrogen atoms, including sp<sup>2</sup>-hybridised phosphorus compounds such as phosphabenzene, phosphole or anionic phospholide ligands (complexes with parent phosphine PH<sub>3</sub> [B01J 31/1845](#))}
- B01J 31/2495               · · · {Ligands comprising a phosphine-P atom and one or more further complexing phosphorus atoms covered by groups [B01J 31/1845](#) ~~to-~~ [B01J 31/1885](#), e.g. phosphine/phosphinate or phospholyl/phosphonate ligands}
- B01J 31/26                  · containing in addition, inorganic metal compounds not provided for in groups [B01J 31/02](#) ~~to-~~ [B01J 31/24](#)
- U B01J 35/00                 **Catalysts, in general, characterised by their form or physical properties**

- U B01J 35/002  
B01J 35/004
- {Catalysts characterised by their physical properties}
  - · {Photocatalysts}
- WARNING  
Groups [B01J 35/0046](#) to- [B01J 35/0093](#) are not complete, see also [B01J 35/002](#)
- U B01J 35/02  
B01J 35/10
- Solids
  - · characterised by their surface properties or porosity
- WARNING  
Groups [B01J 35/1004](#) to- [B01J 35/1095](#) are not complete, see also [B01J 35/10](#)

**Project: MP0254 (B01J)**B01J 39/00 -  
B01J 49/00

**Ion-exchange (treatment of milk [A23C 9/14](#); separation by liquid ion-exchangers [B01D](#), e.g. [B01D 11/00](#); separation of isotopes [B01D 59/00](#); compounds *er se*, see the relevant classes, e.g. [C01](#), [C07](#), [C08](#); treatment of water [C02F 1/42](#); refining of hydrocarbon oils, in the absence of hydrogen, with solid sorbents [C10G 25/00](#); purification of sugar juices [C13B 20/14](#); extraction of sugar from molasses [C13B 35/06](#); extraction of metal compounds from ores or concentrates by wet processes [C22B 3/00](#); using ion-exchange for investigating or analysing materials [G01N 30/96](#); treating radioactively contaminated material [G21F 9/12](#))**

NOTES

- In groups [B01J 39/00](#) to- [B01J 49/00](#)–:
  - Ion-exchange covers all processes whereby ions are exchanged between the solid exchanger and the liquid to be treated and wherein the exchanger is not soluble in the liquid to be treated
  - Ion-exchange processes cover also ion-exchange in combination with complex or chelate forming reactions.
- In groups [B01J 39/00](#) to- [B01J 49/00](#), *the last place priority rule is applied, i.e. at each hierarchical level*, in the absence of an indication to the contrary, classification is made in the last appropriate place.
- ~~3. After the notation of [B01J 39/00](#) to [B01J 49/00](#), and separated there from by a + sign, notations concerning other constituents may be added. These notations are selected from groups [B01J 39/00](#) and [B01J 41/00](#)~~
- 3. {In groups [B01J 39/00](#) - [B01J 49/00](#), it is desirable to classify other constituents by using Combination sets with symbols chosen from [B01J 39/00](#) and subgroups and [B01J 41/00](#) and subgroups.}*

**Project: N/A (B01J)**

B01J 2531/00

**Additional information regarding catalytic systems classified in [B01J 31/00](#)**NOTE

In this group the term "Metals" refers to the central metal in the coordination complexes ( [B01J 31/16](#) to- [B01J 31/24](#)), as used for the respective catalytic reaction, excluding carboxylates (see [B01J 31/04](#) ) and other simple salts or organometallic compounds (see [B01J 31/12](#) ). As to components, only those metals or solvents are indexed which are explicitly mentioned in the claims or the worked examples. As to compositional aspects, only those are provided for in the scheme below and are intended to be indexed, which provide additional information regarding the complexes and/or ligands classified in [B01J 31/16](#) to- [B01J 31/24](#); indexing codes [B01J 2531/0286](#) to- [B01J 2531/0297](#) are only used if these aspects are described as essential. Indexing codes [B01J 2531/0213](#) to- [B01J 2531/0277](#) characterise the complexes on the basis of bond-type

(linkage-type) thereby specifying the structural geometry of the complexes, while classification entries [B01J 31/16](#) ~~to~~ [B01J 31/24](#) are purely compositional subdivisions. The individual metals, the compositional aspects of complexes used and the solvents are indexed for each explicit alternative, according to the guideline above

- B01J 2531/001
- General concepts, e.g. reviews, relating to catalyst systems and methods of making them, the concept being defined by a common material or method/theory

NOTE

When indexing in this group, only the focus is indexed in [B01J 2531/004](#) ~~to~~ [B01J 2531/007](#) and only if groups with closely related members are concerned, e.g. N-heterocyclic carbenes ( [B01J 2531/004](#) ), Pd-complexes ( [B01J 2531/005](#) ), added halide ( [B01J 2531/007](#) ). Otherwise the main code [B01J 2531/002](#) is used.

**Project: N/A (B01L)**

- U B01L 3/00      **Containers or dishes for laboratory use, e.g. laboratory glassware (bottles [B65D](#); apparatus for enzymology or microbiology {specially adapted for culturing} [C12M 1/00](#)); Droppers (receptacles for volumetric purposes [G01F](#))**

- U B01L 3/02      · Burettes; Pipettes
- U B01L 3/021     · · {Pipettes, i.e. with only one conduit for withdrawing and redistributing liquids}
- U B01L 3/0217   · · · {of the plunger pump type (medical syringes [A61M](#))}
- B01L 3/022      · · · · {Capillary pipettes, i.e. having very small bore ([B01L 3/0224](#) ~~to~~ [B01L 3/0237](#) take precedence)}

**Project: N/A (B03B)**

- B03B 4/00      **Separating by pneumatic tables or by pneumatic jigs (sink-float separation using dry heavy media [B03B 5/46](#))**

NOTE

Group [B03B 4/005](#) takes precedence over groups [B03B 4/02](#) ~~to~~ [B03B 4/065](#)

- U B03B 13/00    **Control arrangements specially adapted for wet-separating apparatus or for dressing plant, using physical effects (detecting, measuring, or analysing devices [G01](#); control devices in general [G05](#))**

- B03B 13/005    · {Methods or arrangements for controlling the physical properties of heavy media (in relation with groups [B03B 5/30](#) ~~to~~ [B03B 5/46](#)), e.g. density, concentration, viscosity}

**Project: N/A (B03C)**

- U B03C 3/00      **Separating dispersed particles from gases or vapour, e.g. air, by electrostatic effect {(use of electrostatic separators in combination with exhausts of machines or internal combustion machines [F01N 3/01](#))}**

- U B03C 3/34      · Constructional details or accessories or operation thereof
- U B03C 3/88      · · Cleaning-out collected particles
- B03C 3/885      · · · {by travelling or oscillating electric fields, e.g. electric field curtains (electrostatic non-mechanical ~~conveyers~~ [conveyors](#) in general [B65G 54/02](#))}

**Project: MP0178 (B03D)**

**M B03D 1/00 Flotation (conditioning for flotation, general arrangement of plan [B03B](#))**

**NOTE**

In groups [B03D 1/001](#) to [B03D 1/018](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.

M B03D 1/001 • Flotation agents (conditioners [B03B 1/00](#))

**NOTES**

1. In this group, the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.

2. In this group, it is desirable to add the appropriate indexing code(s) from each of groups [B03D 2201/00](#) or [B03D 2203/00](#).

**Project: N/A (B04B)**

**U B04B 1/00 Centrifuges with rotary bowls provided with solid jackets for separating predominantly liquid mixtures with or without solid particles**

U B04B 1/20 • discharging solid particles from the bowl by a conveying screw coaxial with the bowl axis and rotating relatively to the bowl

B04B 1/2008 • {with an abrasion-resistant ~~conveyer~~[conveyor](#) or drum}

**Project: N/A (B05B)**

**U B05B 7/00 Spraying apparatus for discharge of liquids or other fluent materials from two or more sources, e.g. of liquid and air, of powder and gas ([B05B 3/00](#), [B05B 5/00](#) {[B05B 11/06](#)} take precedence; outlets not specially modified for two media [B05B 1/00](#))**

U B05B 7/24 • with means, e.g. a container, for supplying liquid or other fluent material to a discharge device ([B05B 7/14](#), [B05B 7/16](#), [B05B 11/00](#) take precedence)

U B05B 7/2402 • {Apparatus to be carried on or by a person, e.g. by hand; Apparatus comprising containers fixed to the discharge device ([B05B 7/0012](#) takes precedence)}

B05B 7/2405 • • {using an atomising fluid as carrying fluid for feeding, e.g. by suction or pressure, a carried liquid from the container to the nozzle ([B05B 7/2459](#) ~~to~~- [B05B 7/247](#) take precedence)}

B05B 7/244 • • {using carrying liquid for feeding, e.g. by suction, pressure or dissolution, a carried liquid from the container to the nozzle ([B05B 7/2459](#) ~~to~~- [B05B 7/247](#) take precedence)}

**B05B 13/00 Machines or plants for applying liquids or other fluent materials to surfaces of objects or other work by spraying, not covered by groups [B05B 1/00](#) ~~to~~- [B05B 11/00](#) ([B05B 5/08](#) takes precedence) ; means for supplying or discharging liquid or other fluent material for this purpose, see the relevant preceding groups; processes for applying liquids or other fluent materials to surfaces in general [B05D](#))**

U B05B 13/02 • Means for supporting work; Arrangement or mounting of spray heads; Adaptation or arrangement of means for feeding work ([B05B 13/06](#) takes precedence)

B05B 13/0221 • {characterised by the means for moving or conveying the objects or other work, e.g. ~~conveyer~~[conveyor](#) belts ([B05B 13/0207](#) takes precedence; ~~conveyers in general~~ [B65G](#); [conveyors in general](#) [B65G](#))}

- B05B 13/06
- specially designed for treating the inside of hollow bodies (spray heads [B05B 1/00](#) ~~to~~ [B05B 7/00](#); {devices for covering leaks in pipes or hoses, e.g. hose-menders, from inside the pipe [F16L 55/162](#); sprayed layers of rubber or plastics for internal protection of pipes or pipe fittings against corrosion or incrustation [F16L 58/1027](#)})
- U B05B 15/00** **Details of spraying plant or apparatus not otherwise provided for; Accessories (accessories applicable to other methods of applying liquids or other fluent materials to surfaces [B05C](#))**
- U B05B 15/12
- Spray booths
- U B05B 15/1225
- · {Arrangements for collecting, recovering, recycling or eliminating the surplus material}
- B05B 15/1229
- · · {the surplus material being particulate material ([B05B 15/1237](#) ~~to~~ [B05B 15/1262](#) take precedence)}
- B05B 15/1233
- · · {Recovering or eliminating solvents ([B05B 15/1237](#) ~~to~~ [B05B 15/1262](#) take precedence)}

**Project: N/A (B05C)**

- U B05C 9/00** **Apparatus or plant for applying liquid or other fluent material to surfaces by means not covered by any preceding group, or in which the means of applying the liquid or other fluent material is not important**
- B05C 9/02
- for applying liquid or other fluent material to surfaces by single means not covered by groups [B05C 1/00](#) ~~to~~ [B05C 7/00](#), whether or not also using other means
- B05C 11/00** **Component parts, details or accessories not specifically provided for in groups [B05C 1/00](#) ~~to~~ [B05C 9/00](#) (means for manipulating or holding work [B05C 13/00](#); enclosures for apparatus, booths [B05C 15/00](#); spray booths [B05B 15/12](#))**
- B05C 21/00** **Accessories or implements for use in connection with applying liquids or other fluent materials to surfaces, not provided for in groups [B05C 1/00](#) ~~to~~ [B05C 19/00](#) (accessories or implements for use in connection with painting or artistic drawing and fully provided for in [B44D 3/02](#) ~~to~~ [B44D 3/38](#), see subgroups of [B44D 3/00](#))**

**Project: N/A (B05D)**

- U B05D 1/00** **Processes for applying liquids or other fluent materials ([B05D 5/00](#), [B05D 7/00](#) take precedence)**
- B05D 1/007
- {using an electrostatic field ([B05D 1/02](#) ~~to~~ [B05D 1/16](#) take precedence)}
- B05D 2400/00** **Indexing scheme for single layers or multilayers:**
- U B05D 2401/00** **Form of the coating product, e.g. solution, water dispersion, powders or the like**
- B05D 2401/20
- Aqueous dispersion or solution:
- U B05D 2401/30
- the coating being applied in other forms than involving eliminable solvent, diluent or dispersant
- B05D 2401/33
- · applied as vapours polymerising in situ:
- NOTE**
- A process should be classified or coded in [B05D 1/60](#) or [B05D 1/62](#)
- B05D 2430/00** **Component used as a filler in the composition:**

**Project: N/A (B07B)**

- U B07B 13/00 **Grading or sorting solid materials by dry methods, not otherwise provided for; Sorting articles otherwise than by indirectly controlled devices (grading eggs [A01K 43/04](#))**
- U B07B 13/04
- B07B 13/05
- B07B 13/065
- U B07B 13/10
- U B07B 13/11
- B07B 13/116
- according to size
  - using material mover cooperating with retainer, deflector or discharger ([B07B 13/065](#) ~~to~~ [B07B 13/075](#) take precedence)
  - Apparatus for grading or sorting using divergent ~~conveyer~~[conveyor](#) belts or cables
  - using momentum effects
  - involving travel of particles over surfaces which separate by centrifugal force or by relative friction between particles and such surfaces, e.g. helical sorters
  - {stratification of dry granular material on a continuously travelling surface, e.g. belt ~~conveyer~~[conveyor](#) (vanner for wet separation [B03B 5/08](#))}

**Project: N/A (B07C)**

- U B07C 3/00 **Sorting according to destination {(collating the pages of a book [B42C 1/00](#))}**
- U B07C 3/02
- B07C 3/08
- Apparatus characterised by the means used for distribution
  - using arrangements of ~~conveyers~~[conveyors](#) {(transport of sheets [B65H](#); transport in general [B65G](#))}

**Project: N/A (B08B)****B08B**

**CLEANING IN GENERAL; PREVENTION OF FOULING IN GENERAL (brushes [A46](#); devices for domestic or like cleaning [A47L](#); {cleaning golf-clubs or golf accessories [A63B 57/60](#); cleaning grips of bats on rackets [A63B 60/36](#)}; separation of particles from liquids or gases [B01D](#); separation of solids [B03](#), [B07](#); spraying or applying liquids or other fluent materials to surfaces in general [B05](#); cleaning devices for ~~conveyers~~[conveyors](#) [B65G 45/10](#); concurrent cleaning, filling and closing of bottles [B67C 7/00](#); inhibiting corrosion or incrustation in general [C23](#); cleaning streets, permanent ways, beaches or land [E01H](#); parts, details or accessories of swimming or splash baths or pools, specially adapted for cleaning [E04H 4/16](#); preventing or removing electrostatic charges [H05F](#))**

**NOTE**

This subclass covers only inventions relating to cleaning which are usually classified according to one (or more) of the aspects mentioned below if they are not fully classifiable in a subclass a subclass providing for any of the following aspects:

- the articles cleaned, e.g. bed-pans, urinal or other sanitary devices for bed-ridden persons [A61G 9/02](#), filters, semi-permeable membranes [B01D](#), castings and moulds [B22D 29/00](#), vehicles [B60S](#), coke ovens [C10B 43/00](#), building forms [E04G](#), boilers [F22](#), combustion apparatus [F23](#), furnaces [F27](#); the general nature of the cleaning, e.g. preparing for sugar manufacture [A23N](#), domestic cleaning [A47L](#), treatment of textiles [D06](#), laundry [D06F](#), air-conditioning [F24F](#);
- the particular operation performed, e.g. filtering [B01D](#), separating of solids [B03](#), [B07](#), sand-blasting [B24C](#);
- the particular apparatus or device, e.g. brushes [A46B](#), mops [A47L](#), centrifuges [B04](#), hand tools [B25](#){ devices for cleaning paint-applying hand tools after use [B44D 3/006](#)};
- the substance cleaned, e.g. metals [B21C](#), [C23](#), water [C02](#), glass [C03B](#), leather [C14B](#), textile fibres [D01](#);

- the substance removed (or prevented from depositing or forming) e.g. { removing paint [B44D 3/00](#), e.g. } implements or apparatus for removing dry paint from surfaces [B44D 3/16](#);
- chemical paint-removers [C09D 9/00](#);
- preventing rust [C23F](#);
- the substance used, e.g. macromolecular compounds or compositions [C08](#), anti-icing materials [C09K](#), detergents [C11D](#);
- the operation in connection with which cleaning is done, e.g. metal rolling [B21B](#), metal boring [B23B](#), soldering [B23K](#), textile fabrication [D01G](#), [D01H](#), [D03J](#), [D04B](#);
- the surroundings of a surface to be cleaned or kept clean, e.g. water in a boiler [C02F](#), air in a room [F24F](#).

- U B08B 1/00** **Cleaning by methods involving the use of tools, brushes, or analogous members ([B08B 3/12](#), [B08B 6/00](#), {[B08B 7/02](#)} , [B08B 9/00](#) take precedence)**
- B08B 1/02
- Cleaning travelling work, e.g. a web, articles on a ~~conveyer~~[conveyor](#)
- U B08B 3/00** **Cleaning by methods involving the use or presence of liquid or steam ([B08B 9/00](#) takes precedence)**
- U B08B 3/04
- Cleaning involving contact with liquid
- U B08B 3/10
- • with additional treatment of the liquid or of the object being cleaned, e.g. by heat, by electricity, by vibration
- U B08B 3/12
- • • by sonic or ultrasonic vibrations (washing or rinsing machines for crockery or tableware using sonic or ultrasonic waves [A47L 15/13](#); of natural teeth, of prostheses using ultrasonic techniques similar to those used for natural teeth [A61C 17/20](#); application of ultrasonic vibrations to chemical, physical, or physico-chemical processes in general [B01J 19/10](#))
- B08B 3/123
- • • {Cleaning travelling work, e.g. webs, articles on a ~~conveyer~~[conveyor](#) (~~conveyers~~ [B65G](#); [conveyors](#) [B65G](#); handling webs [B65H](#))}
- U B08B 9/00** **Cleaning hollow articles by methods or apparatus specially adapted thereto ([B08B 3/12](#), [B08B 6/00](#) take precedence)**
- U B08B 9/02
- Cleaning pipes or tubes or systems of pipes or tubes (apparatus for cleaning metal pipes by chemical methods [C23G 3/04](#); {removing obstructions in waste pipes or sinks [E03C 1/30](#); cleaning sewer pipes [E03F 9/00](#); cleaning boreholes or wells [E21B 37/00](#); cleaning furnace tubes, flues, chimneys [F23J 3/02](#); cleaning heat-transfer conduits, e.g. water tubes of boilers [F28G](#)})
- U B08B 9/027
- • Cleaning the internal surfaces; Removal of blockages
- U B08B 9/04
- • • using cleaning devices introduced into and moved along the pipes
- WARNING**  
Group [B08B 9/04](#) and subgroups are not complete. See also [B08B 9/02](#) and subgroups
- U B08B 9/043
- • • • moved by externally powered mechanical linkage, e.g. pushed or drawn through the pipes
- B08B 9/047
- • • • • the cleaning devices having {internal} motors ~~{e.g. turbines}~~ for powering cleaning tools
- U B08B 9/049
- • • • • having self-contained propelling means for moving the cleaning devices along the pipes {i.e. self-propelled}
- B08B 9/051
- • • • • the cleaning devices having {internal} motors ~~{e.g. turbines}~~ for powering cleaning tools
- U B08B 9/08
- Cleaning containers, e.g. tanks
- U B08B 9/20
- • by using apparatus into or on to which containers e.g. bottles, jars, cans are brought {(washing or rinsing crockery or tableware [A47L 15/00](#))}

- U B08B 9/22 . . . the apparatus cleaning by soaking alone  
 B08B 9/24 . . . . and having ~~conveyers~~conveyors  
 B08B 9/26 . . . . . Rotating ~~conveyers~~conveyors
- U B08B 9/28 . . . the apparatus cleaning by splash, spray, or jet application, with or without soaking  
 B08B 9/30 . . . . and having ~~conveyers~~conveyors  
 B08B 9/32 . . . . . Rotating ~~conveyers~~conveyors
- B08B 17/00 Methods preventing fouling {(preventing accumulation of deposits in pneumatic ~~conveyers~~conveyors B65G 53/521)}**

**Project: N/A (B09B)****B09B****DISPOSAL OF SOLID WASTE**NOTES

1. This subclass covers only single or combined, e.g. multistage, operations not fully classifiable in a single other subclass
2. In this subclass the following terms or expressions are added with the meanings indicated :
  - "disposal" means the discarding, e.g. dumping, or destroying of waste or its transformation into something useful or harmless;
  - "solid waste" includes waste which, although it has liquid content, is for practical purposes handled as solid
3. Attention is drawn to the following places:

[A23J 1/16](#) Obtaining proteins from waste water of starch manufacturing plants of like wastes

~~A23K 1/06~~[A23K 10/38](#) Animal feeding-stuffs from distillers' or brewers' waste

~~A23K 1/08~~[A23K 10/28](#) Animal feeding-stuffs from waste products of dairy ~~plants~~

~~A23K 1/10~~[A23K 10/20](#) Animal feeding-stuffs from kitchen waste

[A43B 1/12](#) Footwear made of rubber waste

[A61L 11/00](#) Disinfection or sterilisation methods specially adapted for refuse

[A62D 3/00](#) Chemical means for combatting harmful chemical agents; processes for making harmful chemical agents harmless

[B01D 53/34](#) Chemical purification of smoke or fumes, e.g. flue gas

[B02C 18/0084](#) Disintegrating by knives or other cutting or tearing members, which chop material into fragments, specially adapted for disintegrating garbage, waste or sewage

[B03B 7/00](#) Combinations of wet processes or apparatus with other processes or apparatus, e.g. for dressing ores or garbage

[B03B 9/06](#) General arrangement of separating plant, e.g. flow sheets, specially adapted for refuse

[B05B 15/04](#) Control of spray area of spraying plant, e.g. masking, side shields; Means for collection or re-use of excess material

[B08B 15/00](#) Prevent escape of dirt or fumes from the area where they are produced; Collecting or removing dirt or fumes from that area

[B23D 25/14](#) Machines or arrangements for shearing stock

while the latter is travelling otherwise than in the direction of the cut without regard to the exact dimensions of the resulting material, e.g. for cutting up scrap

[B27B 33/20](#) Edge trimming saw blades or tools combined with means to disintegrate waste

[B29B 17/00](#) Recovery of plastics or other constituents of waste material containing plastics

[B30B 9/32](#) Presses for consolidating scrap metal or for compacting used cars

[B63B 17/06](#) Refuse discharge from vessels, e.g. for ash {[B63J 4/006](#)} Arrangements of installation for treating waste water or sewage on vessels

[B65F 1/00](#) Refuse receptacles

[B65F 3/00](#) Vehicles particularly adapted for collecting refuse

[B65F 5/00](#) Gathering or removal of refuse otherwise than by receptacles or vehicles

[B65F 7/00](#) Cleaning or disinfecting devices combined with refuse receptacles or refuse vehicles

[C03C 1/00](#) Ingredients generally applicable to manufacture of glasses, glazes or vitreous enamels

[C04B 7/24](#) Hydraulic cements from oil shales, residues or waste other than slag

[C04B 11/26](#) Calcium sulfate cements from phosphogypsum or from waste, e.g. purification products of smoke

[C04B 18/04](#) Waste materials or refuse used as fillers for mortars, concrete, artificial stone or the like

[C04B 22/0006](#) Waste inorganic materials used as active ingredients for mortars, concrete, artificial stone or the like

[C04B 24/001](#) Waste organic materials used as active ingredients for mortars, concrete, artificial stone or the like

[C05F 9/00](#) Fertilisers made from household or town refuse

[C08J 11/00](#) Recovery of waste materials of macromolecular substances

[C08L 17/00](#) Compositions of reclaimed rubber

[C10B 53/00](#) Destructive distillation, specially adapted for particular solid raw materials or solid raw materials in special form

[C10B 57/00](#) Other processes not covered before; Features of destructive distillation processes in general

[C10G 1/10](#) Production of liquid hydrocarbon mixtures from rubber or rubber waste

[C10L 5/46](#) Solid fuels essentially based on sewage, house or town refuse

[C10L 5/48](#) Solid fuels essentially based on industrial residues and waste materials

[C10M 175/02](#) Working-up used lubricants based on mineral oils

[C11B 13/00](#) Recovery of fats, fatty oils, or fatty acids from waste materials

[C11D 19/00](#) Recovery of glycerol from a saponification liquor

[C12F 3/00](#) Recovery of by-products

[C12F 3/08](#) Recovery of alcohol from press residues or other waste material

[C12P 7/08](#) Biochemical production of ethanol from waste

[C22B 7/00](#) Working-up raw materials other than ores, e.g.

scrap, to produce non-ferrous metals or compounds thereof

[C22B 19/28](#) Obtaining zinc or zinc oxide from muffle furnace residues

[C22B 19/30](#) Obtaining zinc or zinc oxide from metallic residues or scrap

[C22B 25/06](#) Obtaining tin from scrap

[D01B](#) Mechanical treatment of natural fibrous or filamentary material to obtain fibres or filaments, e.g. for spinning

[D01C 5/00](#) Carbonising rags to recover animal fibres

[D01F 13/00](#) Recovery of starting material, waste material or solvents during the manufacture of artificial filaments or the like

[D01G 11/00](#) Disintegrating fibre-containing articles to obtain fibres for re-use

[D01H 11/00](#) Arrangements for confining or removing dust, fly, or the like

[D06L 1/10](#) Regeneration of used chemical baths used for dry-cleaning or washing fibres, fabrics or the like

[D21B 1/08](#) Dry treatment of waste paper or rags for making paper or for the production of cellulose

[D21B 1/32](#) Defibrating waste paper

[D21C 5/02](#) Processes for obtaining cellulose by working-up waste paper

[D21C 11/14](#) Regeneration of pulp liquors by wet combustion

[D21F 1/66](#) Re-use of pulp-water in wet end machines for making continuous webs of paper

[D21H 17/01](#) Waste products added to the pulp or used in paper-impregnating material

[E03F](#) Sewers, Cesspools

[E04F 17/10](#) Arrangements in building for the disposal of refuse

[F23B 5/00](#) Combustion apparatus arrangements for burning uncombusted material from primary combustion

[F23G](#) Consuming waste products by combustion

[F23J](#) Removal or treatment of combustion products or combustion residues

[G03C 11/24](#) Removing emulsion from waste photographic material

[H01B 15/00](#) Apparatus or processes for salvaging material from electric cables

[H01M 6/52](#) Reclaiming serviceable parts of waste cells or batteries

[H01M 10/54](#) Reclaiming serviceable parts of waste accumulators

**Project: RP0332 (B09B)**

- U B09B 5/00 Operations not covered by single other subclass or by a single other group in this subclass**
- D B09B 2020/00 Dummy title**

**Project: N/A (B21B)**

- B21B 1/00** **Metal-rolling methods or mills for making semi-finished products of solid or profiled cross-section (B21B 17/00 to- B21B 23/00 take precedence; with respect to composition of material to be rolled B21B 3/00; extending closed shapes of metal bands by simultaneous rolling at two or more zones B21B 5/00; metal-rolling stands as units B21B 13/00; continuous casting into moulds having walls formed by moving rolls B22D 11/06); Sequence of operations in milling trains; Layout of rolling-mill plant, e.g. grouping of stands; Succession of passes or of sectional pass alternations**
- U B21B 1/08 · for rolling {structural sections, i.e.} work of special cross-section, e.g. angle steel (rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects [B21H 8/00](#))
- B21B 1/10 · · in a single two-high or universal rolling mill {stand ([B21B 1/085 to-](#) [B21B 1/098](#) take precedence)}
- B21B 1/12 · · in a continuous process, {i.e. without reversing stands ([B21B 1/085 to-](#) [B21B 1/098](#) take precedence)}
- B21B 1/14 · · in a non-continuous process, {i.e. at least one reversing stand ([B21B 1/085 to-](#) [B21B 1/098](#) take precedence)}
- B21B 13/00** **Metal-rolling stands, i.e. an assembly composed of a stand frame, rolls, and accessories (B21B 17/00 to- B21B 23/00 take precedence; details, component parts, accessories, auxiliary means, procedures in connection with metal rolling, see the relevant groups)**
- U B21B 39/00 **Arrangements for moving, supporting, or positioning work, or controlling its movement, combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills (guiding, conveying, or accumulating easily-flexible work in loops or curves B21B 41/00; specially associated with cooling-beds B21B 43/00; conveying or transporting in general B65G)**
- B21B 39/008 · {Rollers for roller [conveyersconveyors](#) (roller-ways in general [B65G 13/00](#), [B21B 39/00](#))}
- U B21B 43/00 **Cooling beds, whether stationary or moving; Means specially associated with cooling beds, e.g. for braking work or for transferring it to or from the bed (conveying means in general B65G)**
- B21B 43/12 · Devices for positioning workpieces "flushed", i.e. with all their axial ends arranged in line on cooling beds or on co-operating [conveyersconveyors](#), {e.g. before cutting}
- U B21B 45/00 **Devices for surface {or other} treatment of work, specially combined with or arranged in, or specially adapted for use in connection with, metal-rolling mills (B21B 15/00, {B21B 1/227 and B21B 27/005} take precedence; technical features of scaling-off devices B21C 43/00)**
- U B21B 45/02 · for lubricating, cooling, or cleaning {(in particular in combination with forging or pressing devices [B21B 15/005](#), control of flatness or profile using lubricating or cooling [B21B 37/44](#))}
- B21B 2045/0236 · · {Laying heads for overlapping rings on cooling [conveyerconveyor](#)}

**Project: N/A (B21C)**

- B21C 51/00** **Measuring, gauging, indicating, counting, or marking devices specially adapted for use in the production or manipulation of material in accordance with subclasses [B21B to-](#) [B21F](#)**

**Project: N/A (B21D)**

- B21D 5/00 Bending sheet metal along straight lines, e.g. to form simple curves ([B21D 11/06](#) ~~to~~ [B21D 11/18](#) take precedence; corrugating sheet metal [B21D 13/00](#); as edge treatment [B21D 19/00](#))
- B21D 7/00 Bending rods, profiles, or tubes ([B21D 11/02](#) ~~to~~ [B21D 11/18](#) take precedence; using mandrels or the like [B21D 9/00](#))
- B21D 9/00 Bending tubes using mandrels or the like ([B21D 11/02](#) ~~to~~ [B21D 11/18](#) take precedence)
- B21D 11/00 Bending not restricted to forms of material mentioned in only one of groups [B21D 5/00](#), [B21D 7/00](#), [B21D 9/00](#); Bending not provided for in groups [B21D 5/00](#) ~~to~~ [B21D 9/00](#) (corrugating or bending into wave form [B21D 13/00](#), [B21D 15/00](#); flanging [B21D 19/00](#)); Twisting
- B21D 21/00 Combined processes according to methods covered by groups [B21D 1/00](#) ~~to~~ [B21D 19/00](#)
- U B21D 22/00 Shaping without cutting, by stamping, spinning, or deep-drawing (otherwise than using rigid devices or tools or yieldable or resilient pads [B21D 26/00](#))
- U B21D 22/20 · Deep-drawing (special deep-drawing arrangements in, or in connection with, presses [B21D 24/00](#))
- B21D 22/22 · · with devices for holding the edge of the blanks ([B21D 22/24](#) ~~to~~ [B21D 22/30](#) take precedence; shaping over a die without external former [B21D 11/02](#))
- U B21D 31/00 Other methods for working sheet metal, metal tubes, metal profiles (deforming one surface of tubes helically by rolling [B21H 3/00](#); upsetting [B21J 5/08](#); working metal by removing material therefrom [B23](#); embossing [B44B](#))
- B21D 31/04 · Expanding other than provided for in groups [B21D 1/00](#) ~~to~~ [B21D 28/00](#), e.g. for making expanded metal ([B21D 47/00](#) takes precedence; enlarging tube ends [B21D 41/02](#))
- B21D 35/00 Combined processes according to {or processes combined with} methods covered by groups [B21D 1/00](#) ~~to~~ [B21D 31/00](#) ([B21D 21/00](#) takes precedence)
- B21D 35/002 · {Processes combined with methods covered by groups [B21D 1/00](#) ~~to~~ [B21D 31/00](#)}
- U B21D 43/00 Feeding, positioning or storing devices combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal, metal tubes or metal profiles; Associations therewith of cutting devices (cutting devices associated with the tool, see the relevant group for the tool)
- U B21D 43/02 · Advancing work in relation to the stroke of the die or tool
- B21D 43/026 · · {Combination of two or more feeding devices provided for in [B21D 43/04](#) ~~to~~ [B21D 43/18](#)}

**Project: N/A (B21G)**

- U B21G 1/00 Making needles used for performing operations (forming heads on pin-like needles [B21G 3/12](#); making U-shaped hairpins [B21G 7/04](#))
- B21G 1/12 · Securing, cleaning-off burrs, reconditioning polishing, grinding (takes precedence over [B21G 1/02](#) ~~to~~ [B21G 1/10](#))

- U B21G 3/00** Making pins, nails, or the like (of pins with individual caps [B21G 5/00](#); of U-like shape [B21G 7/00](#); of split-pins [B21G 7/08](#))
- B21G 3/18 · by operations not restricted to one of the groups [B21G 3/12](#) ~~to~~ [B21G 3/16](#) ([B21G 3/06](#) ~~to~~ [B21G 3/10](#) take precedence)

**Project: N/A (B21H)**

- B21H 1/00** Making articles shaped as bodies of revolution (rolling tubes [B21B 17/00](#) ~~to~~ [B21B 25/00](#))

**Project: N/A (B21L)**

- U B21L 11/00** Making chains or chain links of special shape
- B21L 11/005 · {Making ornamental chains ([B21L 11/02](#) ~~to~~ [B21L 11/14](#) take precedence; ornamental chains [A44C](#))}

**Project: N/A (B22C)**

- B22C** **FOUNDRY MOULDING (moulding refractory materials in general [B28B](#))**

NOTE

This subclass covers:

- the making of moulds for casting metals or of other refractory moulds;
- selection or preparation of materials therefor;
- the necessary patterns, processes, machines, accessory devices or tools.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B22C 3/02](#) covered by [B22C 3/00](#)  
[B22C 5/13](#) covered by [B22C 5/12](#)  
[B22C 7/05](#) covered by [B22C 7/04](#)  
[B22C 9/11](#) covered by [B22C 9/10](#)  
[B22C 9/14](#) covered by [B22C 9/12](#)  
[B22C 9/16](#) covered by [B22C 9/12](#)  
[B22C 15/264](#) ~~to~~ [B22C 15/276](#) covered by [B22C 15/23](#)  
[B22C 19/01](#) covered by [B22C 19/00](#)

- U B22C 5/00** **Machines or devices specially designed for dressing or handling the mould material so far as specially adapted for that purpose (of general applicability, see the relevant places, e.g. for material with water-setting properties [B28C](#))**
- B22C 5/12 · for filling flasks (in combination with compacting [B22C 15/20](#) ~~to~~ [B22C 15/28](#))
- U B22C 5/14** · Equipment for storing or handling the dressed mould material, forming part of a plant for preparing such material
- B22C 5/16 · · with ~~conveyers~~ [conveyors](#) or other equipment for feeding the material

**Project: N/A (B22D)**

- B22D** **CASTING OF METALS; CASTING OF OTHER SUBSTANCES BY THE SAME PROCESSES OR DEVICES (shaping of plastics or substances in a plastic state [B29C](#); metallurgical processing, selection of substances to be added to metal [C21](#), [C22](#));**

- B22D 2/00** Arrangement of indicating or measuring devices, e.g. for temperature or viscosity of the fused mass.

- B22D 7/00** Casting ingots, {e.g. from ferrous metals} (equipment for conveying molten metal [B22D 35/00](#));
- U B22D 11/00** Continuous casting of metals, i.e. casting in indefinite lengths (metal drawing, metal extruding [B21C](#))
- U B22D 11/04** · into open-ended moulds ([B22D 11/06](#), [B22D 11/07](#) take precedence; plants for continuous casting, e.g. for upwardly drawing the strand [B22D 11/14](#))
- B22D 11/041** · · for vertical casting ([B22D 11/043](#), [B22D 11/049](#) ~~to~~ [B22D 11/059](#) take precedence)
- B22D 11/043** · · Curved moulds ([B22D 11/049](#) ~~to~~ [B22D 11/059](#) take precedence)
- B22D 11/045** · · for horizontal casting ([B22D 11/049](#) ~~to~~ [B22D 11/059](#) take precedence)
- B22D 23/00** Casting processes not provided for in groups [B22D 1/00](#) ~~to~~ [B22D 21/00](#) (making metallic powder by casting [B22F 9/08](#); alumino-thermic welding [B23K 23/00](#); remelting metals [C22B 9/16](#))
- B22D 35/00** Equipment for conveying molten metal into beds or moulds ([B22D 37/00](#) ~~to~~ [B22D 41/00](#) take precedence; specially adapted to particular processes or machines, see the relevant groups)
- U B22D 39/00** Equipment for supplying molten metal in rations (specially adapted to particular processes or machines, see the relevant groups of this subclass)
- U B22D 39/003** · {using electromagnetic field}
- B22D 39/006** · · {Electromagnetic ~~conveyers~~ [conveyors](#)}
- U B22D 41/00** Casting melt-holding vessels, e.g. ladles, tundishes, cups or the like ([B22D 39/00](#), [B22D 43/00](#) take precedence)
- U B22D 41/14** · Closures
- U B22D 41/22** · · sliding-gate type, i.e. having a fixed plate and a movable plate in sliding contact with each other for selective registry of their openings
- B22D 41/24** · · · characterised by a rectilinearly movable plate ([B22D 41/38](#) ~~to~~ [B22D 41/42](#) take precedence)
- B22D 41/26** · · · characterised by a rotatively movable plate ([B22D 41/38](#) ~~to~~ [B22D 41/42](#) take precedence)
- B22D 41/28** · · · Plates therefor ([B22D 41/38](#) ~~to~~ [B22D 41/42](#) take precedence)

**Project: N/A (B23B)**

- U B23B 27/00** Tools for turning or boring machines (for drilling machines [B23B 51/00](#)); Tools of a similar kind in general; Accessories therefor
- NOTE  
all subgroups except [B23B 27/12](#) relate to tools with a shank
- B23B 27/02** · Cutting tools with straight main part and cutting edge at an angle ([B23B 27/04](#) ~~to~~ [B23B 27/08](#) take precedence)
- U B23B 27/14** · Cutting tools of which the bits or tips {or cutting inserts} are of special material
- U B23B 27/16** · · with exchangeable cutting bits {or cutting inserts}, e.g. able to be clamped
- B23B 27/1603** · · · {with specially shaped plate-like exchangeable cutting inserts, e.g. chip-breaking groove ([B23B 27/1614](#) ~~to~~ [B23B 27/1655](#) take precedence)}
- B23B 27/1659** · · · {with plate-like exchangeable cutting inserts ([B23B 27/1662](#) ~~to~~ [B23B 27/1681](#) take precedence)}
- U B23B 29/00** Holders for non-rotary cutting tools ([B23B 27/12](#) takes precedence); Boring bars or boring heads; Accessories for tool holders

- U B23B 29/03 · Boring heads
- U B23B 29/034 · · with tools moving radially, e.g. for making chamfers or undercuttings
- U B23B 29/03432 · · · {radially adjustable during manufacturing}
- B23B 29/03489 · · · · {Adjustment means not specified or not covered by the groups  
[B23B 29/03435](#) ~~to~~- [B23B 29/03478](#)}
- U B23B 31/00 Chucks {(allowing axial oscillation of percussion tool bits [B25D 17/08](#)); Expansion mandrels; Adaptations thereof for remote control (faceplates [B23Q 1/50](#); devices for securing work or tools to spindles in general [B23Q 3/12](#); rotary devices holding by magnetic and/or electrical force acting directly on work [B23Q 3/152](#))}**
- U B23B 31/02 · Chucks
- B23B 31/10 · · characterised by the retaining or gripping devices or their immediate operating means
- NOTE**  
Group [B23B 31/12](#) takes precedence over groups {[B23B 31/101](#),  
[B23B 31/102](#),}~~B23B 31/103~~ ~~to~~- [B23B 31/117](#)
- U B23B 2200/00 Details of cutting inserts**
- B23B 2200/36 · Other features of cutting inserts not covered by [B23B 2200/04](#) ~~to~~-  
[B23B 2200/32](#)

**Project: N/A (B23C)**

- U B23C 2200/00 Details of milling cutting inserts**
- B23C 2200/36 · Other features of the milling insert not covered by [B23C 2200/04](#) ~~to~~-  
[B23C 2200/32](#)

**Project: N/A (B23D)**

- B23D 31/00 **Shearing machines or shearing devices covered by none or more than one of the groups [B23D 15/00](#) ~~to~~- [B23D 29/00](#); Combinations of shearing machines**
- B23D 45/00 **Sawing machines or sawing devices with circular saw blades or with friction saw discs (shearing machines with rotary discs [B23D 19/00](#) ~~to~~-  
[B23D 25/00](#))**
- B23D 57/00 **Sawing machines or sawing devices not covered by one of the preceding groups [B23D 45/00](#) ~~to~~- [B23D 55/00](#)**

**Project: N/A (B23F)**

- B23F 15/00 **Methods or machines for making gear wheels of special kinds not covered by groups [B23F 7/00](#) ~~to~~- [B23F 13/00](#)**

**Project: N/A (B23K)**

- U B23K 3/00 Tools, devices, or special appurtenances for soldering, e.g. brazing, or unsoldering, not specially adapted for particular methods (materials used for soldering [B23K 35/00](#))**
- U B23K 3/06 · Solder feeding devices; Solder melting pans
- U B23K 3/0646 · · {Solder baths}
- U B23K 3/0669 · · · {with dipping means}
- B23K 3/0676 · · · · {~~Conveyers~~~~Conveyors~~ therefor}

**U B23K 20/00** **Non-electric welding by applying impact or other pressure, with or without the application of heat, e.g. cladding or plating**

- U B23K 20/12 · the heat being generated by friction; Friction welding
- U B23K 20/122 · · {using a non-consumable tool, e.g. friction stir welding}
- B23K 20/1225 · · · {Particular aspects of welding with a non-consumable tool}

WARNING

This group only contains recent documents which are in the process of being reclassified into groups [B23K 20/123](#) ~~to-~~ [B23K 20/1265](#)

**Project: N/A (B23P)**

**B23P 23/00**

**Machines or arrangements of machines for performing specified combinations of different metal-working operations not covered by a single other subclass (if the particular kinds of operation are not essential [B23Q 37/00](#) ~~to-~~ [B23Q 41/00](#); {working by laser beam combined with other working of metal [B23K 26/0093](#)})**

**Project: N/A (B23Q)**

**U B23Q 1/00** **Members which are comprised in the general build-up of a form of machine, particularly relatively large fixed members ([B23Q 37/00](#) takes precedence)**

- U B23Q 1/25 · Movable or adjustable work or tool supports
- U B23Q 1/26 · · characterised by constructional features relating to the co-operation of relatively movable members; Means for preventing relative movement of such members {(bearings for linearly moving parts [F16C 29/00](#))}
- B23Q 1/42 · · · using T-, V-, dovetail-section or like guides ([B23Q 1/40](#) takes precedence)

NOTES

1. In groups [B23Q 1/44](#) ~~to-~~ [B23Q 1/62](#), the following expressions are used with the meaning indicated:
  - "sliding pair" means a pair consisting of two elements operating in such a way that only straight line movement between both elements is possible;
  - "rotating pair" means a pair consisting of two elements operating in such a way that only rotary movement between both elements is possible;
  - "screw pair" means a pair consisting of two elements operating in such a way as to produce simultaneous rotation and axial translation between both elements.
2. In groups [B23Q 1/44](#) ~~to-~~ [B23Q 1/62](#), where more than one pair of elements is provided on the same axis for the same kind of movement, the pairs are regarded as a single pair for the purposes of classification.

**U B23Q 7/00** **Arrangements for handling work specially combined with or arranged in, or specially adapted for use in connection with, machine tools, e.g. for conveying, loading, positioning, discharging, sorting (incorporated in working-spindles [B23B 13/00](#))**

- B23Q 7/002 · {Screw or rotary spiral ~~conveyers~~~~conveyors~~ ([B23Q 7/1426](#) takes precedence)}
- B23Q 7/003 · {Cyclically moving ~~conveyers~~~~conveyors~~ ([B23Q 7/1426](#) takes precedence)}
- B23Q 7/03 · by means of endless chain ~~conveyers~~~~conveyors~~ ({[B23Q 7/1447](#)}, [B23Q 7/16](#) take precedence)
- U B23Q 7/14 · co-ordinated in production lines
- U B23Q 7/1426 · · {with work holders not rigidly fixed to the transport devices ([B23Q 7/005](#), [B23Q 7/035](#) take precedence)}

- B23Q 7/1447
  - U B23Q 7/1463
  - B23Q 7/1473
  - B23Q 7/1478
  - B23Q 7/16
  - B23Q 7/18
- · · {using endless conveyersconveyors}
  - · · {using rotary driving means}
  - · · · {comprising screw conveyersconveyors}
  - · · {using a conveyerconveyor comprising cyclically-moving means}
  - Loading work on to conveyersconveyors; Arranging work on conveyersconveyors, e.g. varying spacing between individual workpieces
  - · Orientating work on conveyersconveyors

**Project: N/A (B24B)****B24B**

**MACHINES, DEVICES, OR PROCESSES FOR GRINDING OR POLISHING (grinding of gear teeth B23F, of screw-threads B23G 1/36; by electro-erosion B23H; abrasive or related blasting B24C; tools for grinding, buffing or sharpening B24D; polishing compositions C09G 1/00; abrasives C09K 3/14; electrolytic etching or polishing C25F 3/00; grinding arrangements for use on assembled railway tracks E01B 31/17); DRESSING OR CONDITIONING OF ABRADING SURFACES; FEEDING OF GRINDING, POLISHING, OR LAPPING AGENTS**

**NOTES**

1. In this subclass, the following term is used with the meaning indicated:  
"polishing" means the smoothing of a surface, i.e. a surface improvement but no improvement of the dimensional accuracy as would occur in a "grinding" operation.
2. Attention is drawn to Notes (1) and (2) following the title of subclass B23F.
3. In groups B24B 1/00 ~~to~~ B24B 27/00, in connection with glass the terms "grinding " and "polishing" are treated as being equivalent.

**B24B 5/00**

**Machines or devices designed for grinding surfaces of revolution on work, including those which also grind adjacent plane surfaces; Accessories therefor (B24B 11/00 ~~to~~ B24B 21/00 take precedence; honing machines or devices using abrading blocks performing axial and rotary movements superimposed on one another B24B 33/00)**

**U B24B 7/00**

**Machines or devices designed for grinding plane surfaces on work, including polishing plane glass surfaces; Accessories therefor (B24B 21/00 takes precedence; honing of plane surfaces on work B24B 33/055)**

## B24B 7/06

- involving conveyerconveyor belts, a sequence of travelling work-tables or the like

**U B24B 31/00**

**Machines or devices designed for polishing or abrading surfaces on work by means of tumbling apparatus or other apparatus in which the work and/or the abrasive material is loose; Accessories therefor (abrasive blasting machines B24C 3/26)**

## B24B 31/05

- involving a container formed as a conveyerconveyor belt

**Project: N/A (B25D)****U B25D 1/00**

**Hand hammers {(handles therefor B25G 1/00; attachment of handles to the hammer head B25G 3/00)}; Hammer heads of special shape or materials**

## B25D 1/02

- Inserts or attachments forming the striking part of hammer heads (B25D 1/08 ~~to~~ B25D 1/14 take precedence)

**U B25D 2250/00**

**General details of portable percussive tools; Components used in portable percussive tools**

## B25D 2250/115

- Foldable parts of the tool, e.g. in order to reduce its size;

B25D 2250/245

- Spatial arrangement of components of the tool relative to each other;

**Project: N/A (B25J)**

B25J

**MANIPULATORS; CHAMBERS PROVIDED WITH MANIPULATION DEVICES** ({manipulators specially adapted for use in surgery [A61B 34/70](#); manipulators used in cleaning hollow articles [B08B 9/04](#)}; manipulators associated with rolling mills [B21B 39/20](#); manipulators associated with forging machines [B21J 13/10](#); {manipulators associated with picking-up and placing mechanisms [B23P 19/007](#)}; means for holding wheels or parts thereof [B60B 30/00](#); {vehicles with ground-engaging propulsion means, e.g. walking members [B62D 57/02](#), [B62D 57/032](#); devices for picking-up and depositing articles or materials between ~~conveyers~~[conveyors](#) [B65G 47/90](#), [B65G 47/91](#); manipulators with gripping or holding means for transferring packages [B65H 67/065](#)}; cranes [B66C](#); {manipulators used in the protection or supervision of pipe-line installations [F17D 5/00](#); walking equipment adapted for nuclear steam-generators [F22B 37/006](#)}; manipulators specially adapted for, or associated with, nuclear reactors [G21C](#); {apparatus used for handling wafers during manufacture or treatment of semiconductor [H01L 21/68](#)})

NOTE

In this subclass, the following term is used with the meaning indicated :

- "manipulator" covers handling tools, devices, or machines having a gripping or work head capable of bodily movement in space and of change of orientation, such bodily movement and change of orientation being controlled, at will, by means remote from the head.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[B25J 9/18](#) covered by [B25J 9/16](#)  
[B25J 9/22](#) " " [B25J 9/1656](#), [G05B 19/42](#)

**U B25J 9/00**

B25J 9/0093

**Programme-controlled manipulators**

- {co-operating with ~~conveyer~~[conveyor](#) means}

**Project: N/A (B26B)****U B26B 19/00****Clippers or shavers operating with a plurality of cutting edges, e.g. hair clippers, dry shavers**

U B26B 19/38

- Details of, or accessories for, hair clippers, or dry shavers, e.g. housings, casings, grips, guards (cutters, cutting heads [B26B 19/04](#), [B26B 19/12](#), [B26B 19/14](#); cleaning or disinfecting devices [A45D 27/46](#); drying devices [A45D 27/48](#); casings for electric apparatus in general [H05K](#))

B26B 19/48

- • Accessory implements for carrying out a function other than cutting hair, e.g. attachable appliances for manicuring (massage means per se [A61H 7/00](#) ~~to-~~ [A61H 23/00](#))

**U B26B 21/00****Razors of the open or knife type; Safety razors or other shaving implements of the planing type; Hair-trimming devices involving a razor-blade; Equipment therefor**

U B26B 21/08

- involving changeable blades

U B26B 21/14

- • Safety razors with one or more blades arranged transversely to the handle

B26B 21/16

- • involving blades with only one cutting edge ([B26B 21/22](#) ~~to-~~ [B26B 21/38](#) take precedence)

- B26B 21/18
- • • involving blades with two cutting edges ([B26B 21/22](#) ~~to~~ [B26B 21/38](#) take precedence)
- B26B 21/20
- • • involving blades with more than two cutting edges; involving disc blades ([B26B 21/22](#) ~~to~~ [B26B 21/38](#) take precedence)

**Project: N/A (B26D)**

- U B26D 1/00** **Cutting through work characterised by the nature or movement of the cutting member {or particular materials not otherwise provided for}; Apparatus or machines therefor; Cutting members therefor**
- U B26D 1/01
- involving a cutting member which does not travel with the work
- U B26D 1/12
- • having a cutting member moving about an axis ([B26D 1/547](#) takes precedence; cup or like cutting members [B26D 1/44](#))
- U B26D 1/14
- • • with a circular cutting member, e.g. disc cutter
- B26D 1/143
- • • • rotating about a stationary axis ([B26D 1/20](#) ~~to~~ [B26D 1/24](#) take precedence)
- B26D 1/157
- • • • rotating about a movable axis ([B26D 1/20](#) ~~to~~ [B26D 1/24](#) take precedence)
- U B26D 3/00** **Cutting work characterised by the nature of the cut made; Apparatus therefor**
- B26D 3/16
- Cutting rods or tubes transversely {(cutting tubes longitudinally [B26D 3/001](#))}
- NOTE  
[B26D 3/161](#) takes precedence over groups [B26D 3/162](#) ~~to~~ [B26D 3/168](#)
- U B26D 5/00** **Arrangements for operating and controlling machines or devices for cutting, cutting-out, stamping-out, punching, perforating, or severing by means other than cutting**
- U B26D 5/08
- Means for actuating the cutting member to effect the cut
- B26D 5/18
- • Toggle-link means ([B26D 5/10](#) ~~to~~ [B26D 5/16](#) take precedence)
- U B26D 7/00** **Details of apparatus for cutting, cutting-out, stamping-out, punching, perforating, or severing by means other than cutting (cutters [B26D 1/00](#); arrangements for guiding hand cutting tools [B26B 29/06](#); punching tools or dies, cutting-out knives or dies [B26F](#))**
- U B26D 7/06
- Arrangements for feeding or delivering work of other than sheet, web, or filamentary form (feeding or discharging sheets, webs, or filaments [B65H](#))
- B26D 7/0625
- • {by endless ~~conveyers~~[conveyors](#), e.g. belts}
- B26D 7/0666
- • {by screw or rotary spiral ~~conveyers~~[conveyors](#)}
- U B26D 11/00** **Combinations of several similar cutting apparatus**
- B26D 2011/005
- {in combination with different kind of cutters, e.g. two serial slitters in combination with a transversal cutter;}

**Project: N/A (B26F)**

- U B26F 1/00** **Perforating; Punching; Cutting-out; Stamping-out; Apparatus therefor (subjecting the grinding tools or the abrading medium to vibration, e.g. grinding with ultrasonic frequency [B24B 1/04](#), perforating by sand-blasting [B24C](#); {e.g. abrasive blasting used for cutting [B24C 1/045](#)}; punching cards or tapes for statistical and record purposes [G06K 1/00](#))**
- B26F 1/0092
- {Perforating means specially adapted for printing machines ([B26F 1/02](#) ~~to~~ [B26F 1/46](#) take precedence)}

**Project: N/A (B27B)**

- U B27B 27/00 **Guide fences or stops for timber in saw mills or sawing machines; Measuring equipment thereon (safety guards or devices specially designed for wood saws [B27G 19/00](#); constructional features of measuring devices [G01B](#))**
- B27B 27/08 · arranged adjustably, not limited to only one of the groups [B27B 27/02](#) to- [B27B 27/06](#)

**Project: N/A (B27K)**

- U B27K 3/00 **Impregnating wood, {e.g. impregnation pretreatment, for example puncturing; Wood impregnation aids not directly involved in the impregnation process}(dyeing, staining [B27K 5/00](#))**
- U B27K 3/02 · Processes; Apparatus
- B27K 3/15 · · Impregnating involving polymerisation {including use of polymer-containing impregnating agents (macromolecular compounds derived from lignocellulosic materials [C08H](#); compositions of lignin-containing materials [C08L 97/02](#))}
- NOTES
1. When classifying in group [B27K 3/15](#), classification is additionally made in the groups of subclass [C08L](#) for defining the chemical polymeric structure
  2. In groups [B27K 3/16](#) to- [B27K 3/50](#), in the absence of an indication to the contrary, impregnating agents are classified in the last appropriate place

**Project: N/A (B27M)**

- B27M **WORKING OF WOOD NOT PROVIDED FOR IN SUBCLASSES [B27B](#) TO- [B27L](#); MANUFACTURE OF SPECIFIC WOODEN ARTICLES**
- B27M 1/00 **Working of wood not provided for in subclasses [B27B](#) to- [B27L](#), e.g. by stretching**
- B27M 1/06 · by burning or charring, e.g. cutting with hot wire (as surface treatment [B44B](#) {cutting synthetic materials with heated tools [B26F 3/06](#) to- [B26F 3/12](#)})

**Project: N/A (B28B)**

- B28B 1/00 **Producing shaped {prefabricated} articles from the material (using presses [B28B 3/00](#); shaping on moving [conveyersconveyors](#) [B28B 5/00](#); producing tubular articles [B28B 21/00](#); {producing articles with embedded elements [B28B 23/00](#)})**
- U B28B 1/26 · by slip-casting, i.e. by casting a suspension or dispersion of the material in a liquid-absorbent or porous mould, the liquid being allowed to soak into or pass through the walls of the mould; Moulds therefor ([B28B 1/52](#) takes precedence); {specially for manufacturing articles starting from a ceramic slip; Moulds therefor (of tubular articles [B28B 21/08](#))}
- B28B 1/267 · · {in moulds or on moulding surfaces supported by, or formed in or by, [conveyersconveyors](#)}
- U B28B 1/52 · specially adapted for producing articles from mixtures containing fibres, {e.g. asbestos cement}(by wrapping on +o mandrels [B28B 1/42](#))
- B28B 1/526 · · {by delivering the materials on a [conveyerconveyor](#) of the endless-belt type}
- B28B 3/00 **Producing shaped articles from the material by using presses (shaping on moving [conveyersconveyors](#) [B28B 5/00](#)); Presses specially adapted therefor (presses in general [B30B](#))**

- U B28B 5/00** **Producing shaped articles from the material in moulds or on moulding surfaces, carried or formed by, in, or on conveyers irrespective of the manner of shaping (shaping aspects see the relevant groups)**
- B28B 5/02 · on **conveyersconveyors** of the endless-belt or chain type (in combination with pressing rollers [B28B 3/12](#))
- U B28B 5/021 · · {the shaped articles being of definite length}
- U B28B 5/022 · · · {the moulds or the moulding surfaces being individual independent units and being discontinuously fed (feeding [B28B 13/0215](#) and sub-groups)}
- B28B 5/023 · · · · {Moulds mounted on an endless chain **conveyerconveyor** for making pottery ware}
- U B28B 5/04 · in moulds moved in succession past one or more shaping stations (on turntables [B28B 5/06](#))
- B28B 2005/048 · · {in moulds carried on a **conveyerconveyor** of the endless-belt type}
- B28B 7/00** **Moulds; Cores; Mandrels (specially adapted for the production of the tubular articles [B28B 21/00](#); {for casting metals [B22C 9/00](#); moulds for plastic materials in general [B29C 33/00](#); falsework, forms or shutterings for forming buildings or parts thereof in situ [E04G 9/00](#) ~~to~~ [E04G 15/00](#)})**
- B28B 7/0029 · {Moulds or moulding surfaces not covered by [B28B 7/0058](#) ~~to~~ [B28B 7/36](#) and [B28B 7/40](#) ~~to~~ [B28B 7/465](#), e.g. moulds assembled from several parts}

**Project: N/A (B28C)**

**B28C 3/00 -  
B28C 9/00**

**Mixing clay or cement with other material (general arrangement or layout of plant [B28C 9/00](#); mixers in general [B01F](#); concrete paving mixers combined with distributing devices [E01C 19/00](#); machines for preparing mixtures of road-metal with bitumen [E01C 19/10](#))**

**NOTE**

In groups [B28C 3/00](#) ~~to~~ [B28C 7/00](#), the following term is used with the meaning indicated:

- "mixing" includes preliminary mixing, e.g. of some of the ingredients final mixing, and agitating the mixture to prevent segregation thereof

- U B28C 5/00** **Apparatus or methods for producing mixtures of cement with other substances, e.g. slurries, mortars, porous or fibrous compositions (controlling the mixing apparatus and supplying the ingredients [B28C 7/00](#) {separating cement from waste concrete [B03B 9/063](#)})**
- U B28C 5/08 · using driven mechanical means affecting the mixing ([B28C 5/40](#), [B28C 5/42](#), [B28C 5/48](#) take precedence; in combination with the action of a fluid [B28C 5/38](#))
- B28C 5/34 · · Mixing on or by **conveyersconveyors** {e.g. by belts or chains provided with mixing elements}
- U B28C 5/42 · Apparatus specially adapted for being mounted on vehicles with provision for mixing during transport ({[B28C 5/1893](#) takes precedence; mounted on a wheelbarrow [B28C 5/1215](#), [B28C 5/1818](#), [B28C 5/2018](#); } vehicle aspect [B60P 3/16](#))
- U B28C 5/4203 · · {Details; Accessories}
- U B28C 5/4234 · · · {Charge or discharge systems therefor}
- B28C 5/4244 · · · · {Discharging; Concrete **conveyerconveyor** means, chutes or spouts therefor (in general [B28C 7/168](#))}

- U B28C 7/00** **Controlling the operation of apparatus for producing mixtures of clay or cement with other substances; Supplying or proportioning the ingredients for mixing clay or cement with other substances; Discharging the mixture** {(B28C 5/42 takes precedence; feeding material in general [B65G](#); proportioning in general [G01F](#), [G01G](#); controlling in general [G05](#))}
- U B28C 7/04 · Supplying or proportioning the ingredients {(B28C 7/022 takes precedence; forming a predetermined ratio of the components to be mixed, in general [B01F 15/04](#))}
- U B28C 7/0454 · {Volumetric measuring devices, e.g. for consecutively delivering predetermined volumes of ingredients}
- B28C 7/0477 · · {by using [conveyerconveyor](#) screws}
- B28C 7/06 · Supplying the solid ingredients, e.g. by means of endless [conveyersconveyors](#) or jiggling [conveyersconveyors](#)
- B28C 7/062 · · {with a pneumatic or hydraulic [conveyerconveyor](#)}
- U B28C 7/16 · Discharge means, {e.g. with intermediate storage of fresh concrete}
- B28C 7/162 · {by means of [conveyersconveyors](#), other than those comprising skips or containers, e.g. endless belts, screws, air under pressure}
- B28C 7/167 · · {by means of a screw [conveyerconveyor](#)}
- U B28C 9/00** **General arrangement or layout of plant** {(B28C 7/0061, B28C 7/0481 take precedence)}
- U B28C 9/04 · the plant being mobile, {e.g. mounted on a carriage or a set of carriages} ([B28C 5/42](#), {[B28C 9/004](#), [B28C 9/006](#)} take precedence)
- B28C 9/0481 · {with means for loading the material from ground level to the mixing device, e.g. with an endless [conveyerconveyor](#) or a charging skip ([B28C 9/0436](#) takes precedence)}

**Project: N/A (B29B)**

- B29B 15/00** **Pretreatment of the material to be shaped, not covered by groups [B29B 7/00](#) to- [B29B 13/00](#)**
- U B29B 17/00** **Recovery of plastics or other constituents of waste material containing plastics; ({volume reduction of waste plastics, e.g. by mechanical compacting or melting disposal of solid waste [B09B](#);} chemical recovery [C08J 11/00](#))**
- U B29B 17/0026 · {by agglomeration or compacting}
- U B29B 17/0047 · · {Compacting complete waste articles}
- U B29B 17/0052 · · · {Hollow articles, e.g. bottles}
- B29B 2017/0084 · · · · {Deflating the hollow articles by vacuum; Details of the nozzles used in the vacuum generating devices:}
- U B29B 2911/00** **Indexing scheme related to making preforms for blow-moulding bottles or the like (not used)**
- U B29B 2911/14 · Layer configuration, geometry, dimensions or physical properties of preforms for blow-moulding bottles or the like (not used)
- U B29B 2911/14006 · · layer configuration (not used)
- U B29B 2911/14046 · · · multilayered
- B29B 2911/1424 · · · · having at least one layer being applied using techniques not covered by [B29B 2911/14133](#) to- [B29B 2911/14213](#)
- B29B 2911/14266 · · · · · Type of said techniques not covered by [B29B 2911/14133](#) to- [B29B 2911/14213](#)

## Project: N/A (B29C)

B29C	<p><b>SHAPING OR JOINING OF PLASTICS; SHAPING OF SUBSTANCES IN A PLASTIC STATE, IN GENERAL; AFTER-TREATMENT OF THE SHAPED PRODUCTS, e.g. REPAIRING</b> ({moulding devices for producing toilet or cosmetic sticks <a href="#">A45D 40/16</a> } ; working in the manner of metal <a href="#">B23</a>; grinding, polishing <a href="#">B24</a>; cutting <a href="#">B26D</a>, <a href="#">B26F</a>; making preforms <a href="#">B29B 11/00</a>; making laminated products by combining previously unconnected layers which become one product whose layers will remain together <a href="#">B32B 37/00</a> - <a href="#">B32B 41/00</a>)</p> <p><u>NOTES</u></p> <p>1. Attention is drawn to Note (3) following the title of class <a href="#">B29</a>.</p> <p>2. In this subclass:</p> <ul style="list-style-type: none"> <li>• repairing of articles made from plastics or substances in a plastic state, e.g. of articles shaped or produced by using techniques covered by this subclass or subclass <a href="#">B29D</a>, is classified in group <a href="#">B29C 73/00</a>;</li> <li>• component parts, details, accessories or auxiliary operations which are applicable to more than one moulding technique a reclassified in groups <a href="#">B29C 31/00</a> <del>to</del> <a href="#">B29C 37/00</a>;</li> <li>• component parts, details, accessories or auxiliary operations which are only of use for one specific shaping technique a reclassified only in the relevant subgroups of groups <a href="#">B29C 39/00</a> <del>to</del> <a href="#">B29C 71/00</a>.</li> </ul>
U B29C 31/00	<p><b>Handling, e.g. feeding of the material to be shaped, {storage of plastics material before moulding; Automation, i.e. automated handling lines in plastics processing plants, e.g. using manipulators or robots (discharging moulded articles from the mould <a href="#">B29C 37/0003</a>; storage of prepregs or SMC after impregnation or during ageing <a href="#">B29C 70/54</a>; baling of rubber <a href="#">B29B 15/02</a>; in general <a href="#">B65G</a>)}</b></p>
U B29C 31/04	<ul style="list-style-type: none"> <li>• Feeding {of the material to be moulded}, e.g. into a mould cavity ({<a href="#">B29C 39/08</a> takes precedence; using a material distribution system to two or more fixed injection moulds <a href="#">B29C 45/125</a> } ; to presses in general <a href="#">B30B 15/30</a>)</li> </ul>
B29C 31/042	<ul style="list-style-type: none"> <li>• {using dispensing heads, e.g. extruders, placed over or apart from the moulds (positioning extruded preforms on <del>conveyers</del><a href="#">conveyors</a> <a href="#">B29C 31/085</a>)}</li> </ul>
B29C 31/08	<ul style="list-style-type: none"> <li>• of preforms {to be moulded, e.g. tablets, fibre reinforced preforms, extruded ribbons, tubes or profiles; Manipulating means specially adapted for feeding preforms, e.g. supports <del>conveyers</del><a href="#">conveyors</a> (<a href="#">B29C 31/066</a>, <a href="#">B29C 37/001</a>, <a href="#">B29C 43/085</a> take precedence)}</li> </ul> <p><u>NOTE</u></p> <p>Documents describing feeding preforms, e.g. parisons, tubes, sheets in connection with shaping techniques described in groups <a href="#">B29C 49/00</a> <del>to</del> <a href="#">B29C 65/00</a> are not classified in group <a href="#">B29C 31/08</a>, but in the relevant groups of these techniques</p>
B29C 31/085	<ul style="list-style-type: none"> <li>• • {combined with positioning the preforms according to predetermined patterns, e.g. positioning extruded preforms on <del>conveyers</del><a href="#">conveyors</a> (<a href="#">B29C 70/30</a> takes precedence; for building tyres <a href="#">B29D 30/08</a>)}</li> </ul>
U B29C 33/00	<p><b>Moulds or cores; Details thereof or accessories therefor</b></p>
B29C 33/76	<ul style="list-style-type: none"> <li>• Cores (<a href="#">B29C 33/02</a> <del>to</del> <a href="#">B29C 33/70</a>, {<a href="#">B29C 41/40</a>, <a href="#">B29C 53/74</a>, <a href="#">B29C 53/82</a> take precedence)</li> </ul>
U B29C 45/00	<p><b>Injection moulding, i.e. forcing the required volume of moulding material through a nozzle into a closed mould; Apparatus therefor (injection blow-moulding <a href="#">B29C 49/06</a>)</b></p>
U B29C 45/17	<ul style="list-style-type: none"> <li>• Component parts, details or accessories; Auxiliary operations</li> </ul>

- B29C 45/76
- • Measuring, controlling or regulating {(measuring in general [G01](#); controlling or regulating in general [G05](#))}
- NOTE  
In groups [B29C 45/76](#) ~~to~~ [B29C 45/80](#) it is desirable to add the indexing codes of [B29C 2945/76](#) relating to measuring, controlling or regulating in injection moulding
- U B29C 47/00 Extrusion moulding, i.e. expressing the moulding material through a die or nozzle which imparts the desired form; Apparatus therefor (extrusion blow-moulding [B29C 49/04](#); extrusion presses in general [B30B 11/22](#))**
- U B29C 47/08
- Component parts, details or accessories; Auxiliary operations
- B29C 47/34
- • ~~Conveyers~~ **Conveyors** for extruded material {([B29C 47/0898](#) takes precedence)}
- U B29C 47/36
- • Means for plasticising or homogenising the moulding material or forcing it through the nozzle or die
- U B29C 47/58
- • • Details
- U B29C 47/60
- • • • Screws {(screws characterized by the material or by their manufacturing process [B29C 47/0844](#))}
- B29C 47/64
- • • • • having incorporated mixing devices {([B29C 47/6006](#) ~~to~~ [B29C 47/627](#) take precedence)}
- U B29C 49/00 Blow-moulding, i.e. blowing a preform or parison to a desired shape within a mould; Apparatus therefor {(extrusion moulding of tubular films [B29C 47/0026](#); enlarging tube ends using pressure difference [B29C 57/08](#))}**
- U B29C 49/02
- Combined blow-moulding and manufacture of the preform or the parison
- U B29C 49/06
- • Injection blow-moulding {(introducing a fluid into the interior of the injected material which is still in a molten state [B29C 45/1704](#))}
- B29C 2049/065
- • • {Means to compensate or avoid the shrinking of the preforms, e.g. in the injection mould or outside the injection mould.}
- B29C 65/00 Joining {or sealing} of preformed parts, {e.g. welding of plastics materials}; Apparatus therefor {(general aspects of processes or apparatus for joining preformed parts [B29C 66/00](#); using porous material formed by internal pressure generated therein for joining preformed parts [B29C 44/1228](#), [B29C 44/326](#); } for making boxes, cartons, envelopes or bags [B31B](#); for sealing or securing package folds or closures [B65B 51/00](#); joining constructional elements in general [F16B](#); splicing of light guides [G02B 6/255](#))**
- WARNING  
Groups [B29C 65/00](#) ~~to~~ [B29C 65/70](#) are not complete, mainly for documents published before the year 1995, pending reclassification; see also [B29C 65/74](#) and its subgroups
- U B29C 65/02
- by heating, with or without pressure
- WARNING  
Group [B29C 65/02](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/48](#) and its subgroups
- U B29C 65/06
- • using friction, e.g. spin welding {(non-plastics elements to plastic elements [B29C 65/645](#))}
- WARNING  
Subgroups of [B29C 65/06](#) are not complete, pending a reorganisation; see also this group and its subgroups

- U B29C 65/0609 . . . {characterised by the movement of the parts to be joined ([B29C 65/0672](#) takes precedence)}
- U B29C 65/0636 . . . . {Orbital}
- B29C 65/0663 . . . . {Other specific orbital movements not provided for in [B29C 65/0645](#) ~~to-~~ [B29C 65/0654](#), e.g. Lissajous}
- B29C 65/14 . . using wave energy {, i.e. electromagnetic radiation,} or particle radiation {(using mechanical waves [B29C 65/06](#); using ultrasonic waves [B29C 65/08](#); pressing means transparent to electromagnetic radiation [B29C 66/81267](#))}
- WARNING  
Subgroups [B29C 65/1403](#) ~~to-~~ [B29C 65/1496](#) are not complete pending a reorganisation; see also this group and its subgroups
- U B29C 65/18 . . using heated tools
- B29C 65/24 . . . characterised by the means for heating the tool {(by impulse heating [B29C 65/38](#))}
- NOTES
1. Classification is made in groups [B29C 65/24](#) ~~to-~~ [B29C 65/32](#) only if the details or adaptations of the heating means are of interest.
  2. When classifying in this group, heated tools are additionally classified in groups [B29C 65/18](#), [B29C 65/20](#) or [B29C 65/22](#)
- U B29C 65/30 . . . . Electrical means {([B29C 65/38](#) takes precedence)}
- B29C 65/305 . . . . {involving the use of cartridge heaters}
- WARNING  
Not complete, pending a reorganisation; see also [B29C 65/18](#) ~~to-~~ [B29C 65/2092](#)
- B29C 65/34 . . using heated elements which remain in the joint, e.g. "verlorenes Schweisselement"
- WARNING  
Subgroups [B29C 65/3404](#) ~~to-~~ [B29C 65/3472](#) are not complete, pending a reorganisation; see also [B29C 65/34](#)
- B29C 65/48 . . using adhesives {, i.e. using supplementary joining material} (heat-activated {to be additionally classified in} [B29C 65/02](#) {and subgroups}; {applying molten plastics, e.g.} hot melts {to be additionally classified in} [B29C 65/40](#); non-mechanical parts of adhesive processes, in general [C09J 5/00](#)); {solvent bonding}
- NOTE  
When classifying in this group, heat-activated adhesives are further classified in group [B29C 65/02](#). When classifying in this group, applying molten plastics is further classified in group [B29C 65/40](#).
- WARNING  
Subgroups [B29C 65/4805](#) ~~to-~~ [B29C 65/4895](#) are not complete, pending a reorganisation; see also this group and [B29C 65/4895](#)
- B29C 65/52 . . {characterised by the way of} applying the adhesive {([B29C 65/50](#) takes precedence; apparatus for applying liquids in general [B05C](#); processes for applying liquids in general [B05D](#))}
- WARNING  
Subgroups [B29C 65/521](#) ~~to-~~ [B29C 65/528](#) are not complete, pending a reorganisation; see also this group

- B29C 65/56
- using mechanical means {or mechanical connections, e.g. form-fits}
- WARNING  
Subgroups [B29C 65/561](#) to [B29C 65/568](#) are not complete, pending a reorganisation; see also this group and its subgroups
- U B29C 65/78
- Means for handling the parts to be joined, e.g. for making containers or hollow articles {e.g. means for handling sheets, plates, web-like materials, tubular articles, hollow articles or elements to be joined therewith; Means for discharging the joined articles from the joining apparatus}
- WARNING  
Subgroups of [B29C 65/78](#) are not complete, pending a reorganisation; see also this group and its subgroups and [B29C 65/20](#) and its subgroups
- U B29C 65/7858
- • {characterised by the feeding movement of the parts to be joined}
- U B29C 65/7861
- • • {In-line machines, i.e. feeding, joining and discharging are in one production line ([B29C 65/7879](#), [B29C 65/7888](#) take precedence)}
- B29C 65/787
- • • • {using [conveyerconveyor](#) belts or [conveyerconveyor](#) chains ([B29C 66/83421](#), [B29C 66/83521](#), [B29C 66/83531](#) take precedence)}
- B29C 65/7873
- • • • • {using cooperating [conveyerconveyor](#) belts or cooperating [conveyerconveyor](#) chains ([B29C 66/83423](#), [B29C 66/83523](#), [B29C 66/83533](#) take precedence)}
- B29C 65/80
- • Rotatable transfer means {for loading or unloading purposes, i.e. turret transfer means ([B29C 65/7879](#) takes precedence; in-line machines using carriers, provided with holding means, said carriers moving in a closed path [B29C 65/7867](#); in-line machines using [conveyerconveyor](#) belts or [conveyerconveyor](#) chains [B29C 65/787](#))}
- U B29C 66/00
- {General aspects of processes or apparatus for joining preformed parts (means for handling the parts to be joined [B29C 65/78](#); testing the joint [B29C 65/82](#))}**
- U B29C 66/01
- {General aspects dealing with the joint area or with the area to be joined ([B29C 65/76](#), [B29C 65/82](#) take precedence)}
- U B29C 66/02
- • {Preparation of the material, in the area to be joined, prior to joining or welding ([B29C 66/32](#) takes precedence)}
- B29C 66/028
- • • {Non-mechanical surface pre-treatments, i.e. by flame treatment, electric discharge treatment, plasma treatment, wave energy or particle radiation ([B29C 65/14](#) takes precedence; non-mechanical surface treatment of plastics in general [B29C 59/08](#) to [B29C 59/16](#))}
- WARNING  
Not complete, pending a reorganisation; see also [B29C 66/02](#)
- U B29C 66/05
- • {Particular design of joint configurations}
- NOTE  
In this group the possible supplementary joining material, e.g. adhesive or adhesive tape, is not taken into account for the joint configuration. The use of supplementary joining material, e.g. adhesive or adhesive tape, has to be additionally classified as such, e.g. in [B29C 65/48](#) and subgroups or [B29C 65/50](#) and subgroups
- WARNING  
Group [B29C 66/05](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups

- U B29C 66/10 . . . {particular design of the joint cross-sections}
- NOTE  
The scope of the subgroups is defined by the drawings in the Definitions
- U B29C 66/12 . . . . {Joint cross-sections combining only two joint-segments; Tongue and groove joints; Tenon and mortise joints; Stepped joint cross-sections}
- U B29C 66/124 . . . . . {Tongue and groove joints}
- U B29C 66/1242 . . . . . {comprising interlocking undercuts}
- B29C 66/12425 . . . . . {Other specific interlocking undercuts not provided for in [B29C 66/12421](#) ~~to~~ [B29C 66/12423](#)}
- B29C 66/13 . . . . {Single flanged joints; Fin-type joints; Single hem joints; Edge joints; Interpenetrating fingered joints; Other specific particular designs of joint cross-sections not provided for in groups [B29C 66/11](#) ~~to~~ [B29C 66/12](#)}
- U B29C 66/20 . . . {particular design of the joint lines, e.g. of the weld lines}
- NOTE  
The scope of the subgroups is defined by the drawings in the Definitions
- U B29C 66/22 . . . . {said joint lines being in the form of recurring patterns ([B29C 66/234](#) takes precedence)}
- U B29C 66/227 . . . . . {being in the form of repetitive interlocking undercuts, e.g. in the form of puzzle cuts (tongue and groove joints or tenon and mortise joints comprising interlocking undercuts [B29C 66/1242](#))}
- B29C 66/2276 . . . . . {Other specific local geometries of interlocking undercuts not provided for in [B29C 66/2272](#) ~~to~~ [B29C 66/2274](#) (tongue and groove joints or tenon and mortise joints comprising other specific interlocking undercuts [B29C 66/12425](#))}
- B29C 66/229 . . . . . {Other specific patterns not provided for in [B29C 66/221](#) ~~to~~ [B29C 66/227](#)}
- U B29C 66/24 . . . . {said joint lines being closed or non-straight}
- U B29C 66/242 . . . . . {said joint lines being closed, i.e. forming closed contours}
- U B29C 66/2424 . . . . . {being a closed polygonal chain}
- B29C 66/24249 . . . . . {forming a specific polygon not provided for in [B29C 66/24241](#) ~~to~~ [B29C 66/24243](#)}
- U B29C 66/70 . {characterised by the composition, physical properties or the structure of the material of the parts to be joined; Joining with non-plastics material (chemical aspects [C08J 5/12](#), [C09J](#))}
- WARNING  
Group [B29C 66/70](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups
- U B29C 66/72 . . {characterised by the structure of the material of the parts to be joined}
- U B29C 66/723 . . . {being multi-layered ([B29C 66/7292](#), [B29C 66/72941](#) take precedence)}
- U B29C 66/7232 . . . . {comprising a non-plastics layer}
- B29C 66/72324 . . . . . {consisting of inorganic materials not provided for in [B29C 66/72321](#) ~~to~~ [B29C 66/72322](#)}
- B29C 66/72327 . . . . . {consisting of natural products or their composites, not provided for in [B29C 66/72321](#) ~~to~~ [B29C 66/72324](#)}

- U B29C 66/74
- • {Joining plastics material to non-plastics material}
- NOTE  
When classifying in this group, joining techniques are additionally classified in the relevant groups, i.e. in [B29C 65/44](#) and subgroups or in [B29C 65/64](#) and subgroups
- WARNING  
Group [B29C 66/74](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups
- B29C 66/746
- • • {to inorganic materials not provided for in groups [B29C 66/742](#) ~~to~~- [B29C 66/744](#)}
- B29C 66/748
- • • {to natural products or their composites, not provided for in groups [B29C 66/742](#) ~~to~~- [B29C 66/746](#)}
- U B29C 66/80
- {General aspects of machine operations or constructions and parts thereof}
- WARNING  
Group [B29C 66/80](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups
- U B29C 66/81
- • {General aspects of the pressing elements, i.e. the elements applying pressure on the parts to be joined in the area to be joined, e.g. the welding jaws or clamps (holding or clamping means for handling purposes [B29C 65/7841](#))}
- WARNING  
Group [B29C 66/81](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups
- U B29C 66/812
- • • {characterised by the composition, by the structure, by the intensive physical properties or by the optical properties of the material constituting the pressing elements, e.g. constituting the welding jaws or clamps}
- B29C 66/8122
- • • • {characterised by the composition of the material constituting the pressing elements, e.g. constituting the welding jaws or clamps}
- WARNING  
Not complete, pending a reorganisation; see also [B29K 2801/00](#) ~~to~~- [B29K 2911/14](#)
- U B29C 66/90
- {Measuring or controlling the joining process}
- WARNING  
Group [B29C 66/90](#) and subgroups are not complete, pending a reorganisation; see also this group and its subgroups
- B29C 66/95
- • {by measuring or controlling specific variables not covered by groups [B29C 66/91](#) ~~to~~- [B29C 66/94](#)}
- B29C 67/00**
- Shaping techniques not covered by groups [B29C 39/00](#) ~~to~~- [B29C 65/00](#), [B29C 70/00](#) or [B29C 73/00](#)**
- U B29C 67/20
- for porous or cellular articles, e.g. of foam plastics, coarse-pored {(chemical aspects of working up macro-molecular substances to porous or cellular articles [C08J 9/00](#))}
- B29C 67/22
- • by internal pressure generated in the material, e.g. swelling, foaming {not used}
- WARNING  
From 1st April 1995 on the groups [B29C 67/22](#) ~~to~~- [B29C 67/2295](#) are no longer used for the classification of new documents. Documents from the

backlog of these groups are in the process of being systematically transferred to [B29C 44/00](#)

**B29C 69/00** Combinations of shaping techniques not provided for in a single one of main groups [B29C 39/00](#) to [B29C 67/00](#), e.g. associations of moulding and joining techniques; Apparatus therefore {([B29C 47/0038](#) takes precedence)}

**U B29C 70/00** Shaping composites, i.e. plastics material comprising reinforcements, fillers or preformed parts, e.g. inserts (chemical aspects [C08](#), e.g. [C08J 5/00](#))

NOTE

In this group, the following terms or expressions are used with the meanings indicated:

- "reinforcement" means a structure in the form of fibres, wires, rods, bars, sections, plates or blocks, which improves the strength of an article;
- "filler" means a relatively inert substance in the form of particles, powder, beads, flakes or spheres, which improves the physical properties or increases the bulk or weight of an article;
- "preformed part" means a part made of any material, being completely shaped to have a determined form and which is not used as a reinforcement, e.g. wires or nets forced only into the surface of an article;
- "insert" means a preformed part incorporated in an article during moulding.

**U B29C 70/04** • comprising reinforcements only, e.g. self-reinforcing plastics

**U B29C 70/28** • Shaping operations therefor

NOTES

1. This group covers:

- the shaping of a coherent fibrous reinforcements which are pre-impregnated or without binder; or of non-coherent reinforcements of fibres in a mould or on a support;
- the impregnation or introduction of a plastics matrix in reinforcements during shaping;

2. This group does not cover:

- the moulding by a single technique of plastics matrix material mixed with and containing reinforcing fibres of short length, which is covered by the appropriate place for that technique;
- the pretreatment, e.g. impregnation, of reinforcements per se, i.e. independently of their shaping, which is covered by group [B29B 15/08](#)

**U B29C 70/30** • • Shaping by lay-up, i.e. applying fibres, tape or broadsheet on a mould, former or core; Shaping by spray-up, i.e. spraying of fibres on a mould, former or core {(by winding and joining, e.g. filament winding [B29C 53/56](#); for building tyres [B29D 30/08](#))}

**B29C 70/34** • • • and shaping or impregnating by compression {, [i.e. combined with compressing after the lay-up operation]}

**Project: N/A (B29D)**

**U B29D 11/00** Producing optical elements, e.g. lenses or prisms (grinding or polishing of optical elements [B24B](#); constructional form of optical elements [G02B](#); {optical parts of spectacles [G02C 7/00](#)})

**U B29D 11/00009** • {Production of simple or compound lenses}

**B29D 11/00413** • • {made by moulding between two mould parts which are not in direct contact with one another, e.g. comprising a seal between or on the edges ([B29D 11/00019](#) to [B29D 11/00355](#), [B29D 11/00423](#), [B29D 11/00432](#) take precedence)}

- U B29D 29/00 Producing belts or bands  
 B29D 29/06 · ~~Conveyer~~ Conveyor belts

## Project: RP0173 (B29D)

- U B29D 30/00 Producing pneumatic or solid tyres or parts thereof (producing inner tubes [B29D 23/24](#); constructional form of tyres or parts thereof [B60C](#); connection of valves to inflatable elastic bodies [B60C 29/00](#); testing of tyres [G01M 17/02](#))
- E B29D 30/02 · Solid tyres {; *Moulds therefor*}
- U B29D 30/06 · Pneumatic tyres or parts thereof {(e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting)}
- U B29D 30/0601 · · {Vulcanising tyres; Vulcanising presses for tyres}
- C B29D 30/0606 · · · {Vulcanising moulds not integral with vulcanising presses (*for solid tyres B29D 30/02*)}

## Project: N/A (B29K)

- B29K 2019/00 Use of rubber not provided for in a single one of main groups [B29K7/00](#) ~~to-~~ [B29K 2011/00](#), as moulding material
- B29K 2055/00 Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups [B29K23/00](#) ~~to-~~ [B29K49/00](#), e.g. having a vinyl group}, as moulding material {(as such [C08L 55/00](#))}
- B29K 2079/00 Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain {not provided for in groups [B29K61/00](#) ~~to-~~ [B29K77/00](#)}, as moulding material {(as such [C08L 79/00](#))}
- B29K 2086/00 Use of specific polymers obtained by polycondensation or polyaddition, not provided for in a single one of main groups [B29K59/00](#) ~~to-~~ [B29K85/00](#), as moulding material
- B29K 2219/00 Use of rubber not provided for in a single one of main groups [B29K207/00](#) ~~to-~~ [B29K 2211/00](#), as reinforcement
- B29K 2255/00 Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups [B29K223/00](#) ~~to-~~ [B29K 2249/00](#), e.g. having a vinyl group}, as reinforcement {(as such [C08L 55/00](#))}
- B29K 2279/00 Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain {not provided for in groups [B29K261/00](#) ~~to-~~ [B29K277/00](#)}, as reinforcement {(as such [C08L 79/00](#))}
- B29K 2286/00 Use of specific polymers obtained by polycondensation or polyaddition, not provided for in a single one of main groups [B29K259/00](#) ~~to-~~ [B29K285/00](#), as reinforcement
- B29K 2419/00 Use of rubber not provided for in a single one of main groups [B29K407/00](#) ~~to-~~ [B29K 2411/00](#), as filler
- B29K 2455/00 Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups [B29K23/00](#) ~~to-~~ [B29K49/00](#), e.g. having a vinyl group}, as filler {(as such [C08L 55/00](#))}

- B29K 2479/00** Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain {not provided for in groups **B29K461/00 to- B29K477/00**}, as filler {(as such [C08L 79/00](#))}
- B29K 2486/00** Use of specific polymers obtained by polycondensation or polyaddition, not provided for in a single one of main groups **B29K459/00 to- B29K485/00**, as filler
- B29K 2619/00** Use of rubber not provided for in a single one of main groups **B29K607/00 to- {B29K 2611/00}**, for preformed parts, e.g. inserts
- B29K 2655/00** Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups **B29K623/00 to- {B29K 2649/00**, e.g. having a vinyl group}, for preformed parts, e.g. inserts {(as such [C08L 55/00](#))}
- B29K 2679/00** Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain {not provided for in groups **B29K661/00 to- B29K677/00**}, for preformed parts, e.g. inserts {(as such [C08L 79/00](#))}
- B29K 2686/00** Use of specific polymers obtained by polycondensation or polyaddition, not provided for in a single one of main groups **B29K659/00 to- B29K685/00**, for preformed parts, e.g. inserts
- B29K 2819/00** {Use of rubber not provided for in a single one of main groups [B29K 2807/00 to- B29K 2811/00](#), as mould material}
- B29K 2855/00** {Use of specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of main groups [B29K 2823/00 to- B29K 2849/00](#), e.g. having a vinyl group , as mould material (as such [C08L 55/00](#))}
- B29K 2879/00** {Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain not provided for in groups [B29K 2861/00 to- B29K 2877/00](#)}, as mould material {(as such [C08L 79/00](#))}
- B29K 2886/00** {Use of specific polymers obtained by polycondensation or polyaddition, not provided for in a single one of main groups [B29K 2859/00 to- B29K 2885/00](#), as mould material}

**Project: N/A (B29L)**

- U B29L 2031/00** **Other particular articles**
- U B29L 2031/34 · Electrical apparatus, e.g. sparking plugs or parts thereof
- B29L 2031/345 · · {Accessories for radios, record players or the like ([B29L 2031/3406 to- B29L 2031/3443](#) take precedence, cabinets [B29L 2031/445](#))}

**Project: N/A (B30B)**

- U B30B 9/00** **Presses specially adapted for particular purposes**
- U B30B 9/02 · for squeezing-out liquid from liquid-containing material, e.g. juice from fruits, oil from oil-containing material (kitchen equipment [A47J](#); filtering, e.g. straining solids from liquids, using presses in combination with filtering elements [B01D](#); expelling water from textile fabrics or laundry [D06C](#), [D06F](#); drying [F26](#) {clothes presses [D06F 69/00](#), [D06F 71/00](#))}
- U B30B 9/04 · · using press rams
- U B30B 9/10 · · · without use of a casing
- B30B 9/105 · · · · {using a press ram co-operating with an intermittently moved endless [conveyerconveyor](#)}

B30B 12/00 Presses not provided for in groups [B30B 1/00](#) ~~to~~ [B30B 11/00](#)

**Project: N/A (B31B)**

B31B 1/00 **Box, carton, envelope or bag making machinery characterised by performing specific operations (machinery for performing operations of general application, see the appropriate subclasses)**

NOTE

Envelope or bag making machinery characterised by performing specific operations is classified in the respective subgroups of group [B31B 19/00](#) (or of groups [B31B 23/00](#) ~~to~~ [B31B 29/00](#), [B31B 37/00](#) ~~to~~ [B31B 41/00](#))

B31B 19/00 - **Machinery for making envelopes or bags**  
B31B 49/00

NOTE

Machinery for making boxes or cartons as well as envelopes or bags are classified in groups [B31B 3/00](#) ~~to~~ [B31B 17/00](#).

B31B 29/00 **Machinery characterised by making envelopes or bags with structural provision at the base for thickness or contents ([B31B31/00](#) ~~to~~ [B31B 37/00](#) take precedence; {[B31B31/00](#),[B31B33/00](#),[B31B35/00](#) takes precedence})**

B31B 49/00 **Machinery, accessories or processes not provided for in [B31B 1/00](#) ~~to~~ [B31B 47/00](#) (forms or constructions of boxes, cartons, envelopes or bags [B65D](#))**

NOTE

Processes dependent on the use of specific machinery provided for in groups [B31B 1/00](#) ~~to~~ [B31B 45/00](#) are classified in those groups.

**Project: N/A (B31D)**

U B31D 1/00 **Multiple-step processes for making flat articles; {Making flat articles}**

B31D 1/0075 · {by assembling, e.g. by laminating ([B31D 1/0012](#) ~~to~~ [B31D 1/0068](#) take precedence)}

**Project: N/A (B32B)**

U B32B 5/00 **Layered products characterised by the non- homogeneity or physical structure {, i.e. comprising a fibrous, filamentary, particulate or foam layer; Layered products characterised by having a layer differing constitutionally or physically in different parts}**

NOTE

In this group, fibres, filaments, granules, or powder forming or included in a layer may be impregnated, bonded together, or embedded in a substance such as synthetic resin. If the substance of the fibres, or the like, or the impregnating, bonding, or embedding substance, is important it is classified in the relevant group for the substance.

B32B 5/22 · characterised by the presence of two or more layers which {are next to each other and are fibrous, filamentary, formed of particles or foamed ([B32B 19/06](#), [B32B 19/048](#) [B32B 19/047](#), [B32B 29/005](#) ~~to~~ [B32B 29/04](#) take precedence)}

B32B 9/00 - **Layered products characterised by particular substances used**

B32B 33/00

NOTE

In groups [B32B 9/00](#) ~~to~~ [B32B 29/00](#), the following expressions are used with the meanings indicated:

- "specific substance" covers specified alternative substances if they are all covered by a single main group;
- "particulate layer" means a layer of particles, e.g. chips, chopped fibres, powder;
- {"essentially" means that if an alteration or removal of such a layer occurred it would alter the scope of the invention}

**B32B 9/00** **Layered products comprising a particular substance not covered by groups [B32B 11/00](#) to [B32B 29/00](#)**

**U B32B 17/00** **Layered products essentially comprising sheet glass, or glass, slag, or like fibres**

U B32B 17/06 • comprising glass as the main or only constituent of a layer, next to another layer of a specific {material (coating on glass [C03C 17/00](#); safety glazings [B32B 17/08](#) or [B32B 17/10](#); fire protective glazing with intumescent layers [B32B 17/069](#))}

B32B 17/10 • • of synthetic resin {(producing optical elements from plastics [B29D 11/00](#); constructional form of optical elements [G02B](#))}

#### NOTES

1. In this group a layer of organic glass is not considered as a glass layer but as a synthetic resin layer];
2. [N: Inventions related to safety glazings (laminated glazings) are classified in all appropriate subgroups [B32B 17/10009](#) to [B32B 17/10807](#), whereby transparent polymeric layers other than the interlayer ( [B32B 17/1055](#) ) are classified using indexing codes

**B32B 18/00** **Laminated products composed mainly of ceramics, e.g. refractory materials {(semi-permeable membranes made of inorganic material [B01D 71/02](#); ceramic coatings on glass [C03C 17/00](#); joining of ceramic layers [C04B 37/00](#); coating of ceramics [C04B 41/45](#); applying ceramic coatings on metallic materials [C23](#); applying ceramic coatings on silicon for semi-conductor purposes [H01L](#))}**

#### NOTE

In group [B32B 18/00](#), from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further processing are indexed with codes chosen from [C04B 2237/00](#) to [C04B 2237/88](#)

**U B32B 27/00** **Layered products comprising {a layer of} synthetic resin {([B32B 5/02](#), [B32B 5/16](#), [B32B 5/18](#) take precedence; thermoplastic elastomer [B32B 2274/00](#))}**

#### NOTE

This group covers all synthetic resins except those covered by [B32B 25/00](#) or [B32B 23/00](#)

U B32B 27/06 • as the main or only constituent of a layer, {which is next to another layer of the same or of a different material ([B32B 17/064](#) takes precedence; next to a layer of a particular substance [B32B 9/045](#); next to a bituminous or tarry layer [B32B 11/046](#); next to a water setting substance layer [B32B 13/12](#); next to a metal layer [B32B 15/08](#); next to a layer formed of natural mineral fibres or particles [B32B 19/045](#); next to a wood layer [B32B 21/08](#); next to a cellulosic plastic layer [B32B 23/08](#); next to a natural or synthetic rubber layer [B32B 25/08](#))}

B32B 27/08 • • of synthetic resin {(all layers being polymeric, made of polymers belonging to those covered by [B32B 27/32](#), by [B32B 27/36](#), or by [B32B 27/30](#) and [B32B 27/32](#), [B32B 2250/24](#) to [B32B 2250/246](#))}

- B32B 27/28
- comprising synthetic resins not wholly covered by any one of the sub-groups {[B32B 27/30](#) to- [B32B 27/42](#)}

**Project: MP0252 (B32B)****M B32B 2255/00 Coating on the layer surface****NOTE**

*This group is for classification of coatings on a layered product. Specific details of coatings or processes thereof can be found in [C08J 7/00](#), [B05D](#), [C09D](#), [C09J](#), [C23C](#) or [D06M](#).*

**Project: N/A (B32B)**

- B32B 2315/00
- Other materials containing non-metallic inorganic compounds not provided for in groups [B32B 2311/00](#) to- [B32B 2313/04](#)

- B32B 2318/00 -  
B32B 2318/00
- Other natural products or their composites used for the layers, laminate or apparatus components not provided for in groups [B32B 2311/00](#) to- [B32B 2315/12](#) and [B32B 2319/00](#) to- [B32B 2398/20](#)**

- B32B 2355/00
- Specific polymers obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in a single one of index codes [B32B 2323/00](#) to- [B32B 2333/00](#)

- B32B 2386/00
- Specific polymers obtained by polycondensation or polyaddition not provided for in a single one of index codes [B32B 2363/00](#) to- [B32B 2383/00](#)

- B32B 2413/00
- Belts (~~conveyer belts~~ [B32B 2433/02](#); ~~conveyor belts~~ [B32B 2433/02](#); drive belts [B32B 2433/04](#))

- U B32B 2433/00** Closed loop articles
- B32B 2433/02
- ~~Conveyer~~ [Conveyor](#) belts

**Project: N/A (B41B)**

- U B41B 11/00** Details of, or accessories for, machines for mechanical composition using matrices for individual characters which are selected and assembled for type casting or moulding

- U B41B 11/18
- Devices or arrangements for assembling matrices and space bands (control devices therefor [B41B 27/44](#))

- B41B 11/24
- Belt ~~conveyers~~ [conveyors](#) co-operating with assembler guides

- U B41B 11/90
- Arrangements or devices for distributing matrices or space bands after casting or moulding

- B41B 11/94
- Screw ~~conveyers~~ [conveyors](#)

**Project: N/A (B41C)**

- U B41C 1/00** **Forme preparation**

- U B41C 1/10
- for lithographic printing; Master sheets for transferring a lithographic image to the forme {(chemical or electrical pretreatment [B41N 3/03](#))(neutralising or similar differentiation treatments of lithographic printing formes [B41N 3/08](#))}

- B41C 1/1075
- {Mechanical aspects of on-press plate preparation ([B41C 1/1008](#) to- [B41C 1/1066](#) take precedence)}

- B41C 1/1083
- {Mechanical aspects of off-press plate preparation ([B41C 1/1008](#) to- [B41C 1/1066](#) take precedence)}

**Project: N/A (B41F)**

- U B41F 23/00 **Devices for treating the surfaces of sheets, webs, or other articles in connection with printing (cleaning in general [B08B](#); as a final step in the manufacture of such articles, see appropriate subclasses, e.g. [B29C 71/00](#), [D21H 23/00](#) or [D21H 25/00](#); {in manifolding apparatus or the like [B41L 23/00](#)} ; surface treatment in general [B44D](#), of metal [C23G](#))**
- U B41F 23/04 · by heat drying, by cooling, by applying powders {([B41F 23/005](#) takes precedence)}
- U B41F 23/044 · {Drying sheets, e.g. between two printing stations ([B41F 23/0486](#) takes precedence)}
- U B41F 23/0443 · · · {after printing}
- B41F 23/0446 · · · · {Wicket ~~conveyers~~[conveyors](#)}

**Project: N/A (B41J)**

- U B41J 2/00 **Typewriters or selective printing mechanisms characterised by the printing or marking process for which they are designed (mounting, arrangement, or disposition of types or dies [B41J 1/00](#); marking methods [B41M 5/00](#); structure or manufacture of heads, e.g. inductive, for recording by magnetisation or demagnetisation of a record carrier [G11B 5/127](#); heads for reproducing capacitive information [G11B 9/07](#))**

NOTES

1. This group covers devices reproducing only a discrete number of tones, whereas group [H04N 1/00](#) covers devices used for the reproduction of documents or the like, which devices are capable of reproducing continuous tone value scales.
2. In this group, the following expressions are used with the meanings indicated:
  - "ink jet" involves the projection of ink on to the printing material, e.g. paper, through a nozzle as a stream of droplets or particles of colouring matter
  - "continuous ink jet" means a jet of ink transformed into a continuous stream of droplets or particles of colouring matter after having left the nozzle
  - "ink spray" means a spray of ink transported by a stream of charged particles or air on to the printing material

- U B41J 2/22 · characterised by selective application of impact or pressure on a printing material or impression-transfer material
- U B41J 2/23 · · using print wires
- B41J 2/305 · · · Ink supply apparatus (ink ribbons, ink-ribbon mechanisms [B41J 31/00](#) to-[B41J 35/00](#))
- U B41J 5/00 **Devices or arrangements for controlling character selection ({interpreting [G06K 3/00](#);} methods or arrangements for sensing record carriers [G06K 7/00](#))**
- B41J 5/08 · Character or syllable selected by means of keys or keyboards of the typewriter type

WARNING

Groups [B41J 5/08](#) to-[B41J 5/28](#) are no longer used for the classification of new documents. See [G06F 3/00](#)

**Project: N/A (B41K)**

- U B41K 3/00 **Apparatus for stamping articles having integral means for supporting the articles to be stamped (means for printing on articles of special shape or having a surface of particular configuration [B41F 17/00](#))**

- B41K 3/005 · {Cheque stamping machines ([B41K 3/02](#) to- [B41K 3/62](#) take precedence)}

**Project: N/A (B41L)**

**B41L 47/00** **Details of addressographs or like series-printing machines (common details of printing machines [B41F 21/00](#) to- [B41F 35/00](#))**

- U B41L 47/24 · Mechanisms for conveying copy material through addressographs or like series-printing machines (in general [B65](#));
- B41L 47/36 · · for conveying sheets or webs for tabulating purposes; Tabulating mechanisms combined with sheet or web ~~conveyers~~[conveyors](#)

**Project: RP0150 (B41M)**

- U B41M 5/00 **Duplicating or marking methods; Sheet materials for use therein (by using light-sensitive materials [G03](#); electrography, magnetography [G03G](#); {repeatedly usable boards or tablets for writing or drawing [B43L 1/00](#)})**
- U B41M 5/26 · Thermography ([B41M 5/20](#), [B41M 5/24](#) take precedence); {Marking by high energetic means, e.g. laser otherwise than by burning, and characterised by the material used ([B23K](#) takes precedence; thermographic or photothermographic systems using noble metal compounds [G03C 1/494](#))}
- U B41M 5/36 · · using a polymeric layer, which may be particulate and which is deformed or structurally changed with modification of its' properties, e.g. of its' optical hydrophobic-hydrophilic, solubility or permeability properties {([B41C 1/10](#) takes precedence)}
- D B41M 2005/365 · · · {Marking of plastic artifacts, e.g. with a laser}

**Project: N/A (B41M)**

- U B41M 5/382 · · Contact thermal transfer or sublimation processes (sublistatic printing using a pre-formed image [B41M 5/035](#); ink-, dye- or pigment-receptive coatings [B41M 5/52](#))
- B41M 5/38207 · · · {characterised by aspects not provided for in groups [B41M 5/385](#) to- [B41M 5/395](#)}
- U B41M 5/385 · · · characterised by the transferable dyes or pigments {(infra-red absorbing dyes [B41M 5/465](#))}
- B41M 5/3858 · · · · {Mixtures of dyes, at least one being a dye classifiable in one of groups [B41M 5/385](#) to- [B41M 5/39](#)}

**Project: N/A (B42B)**

**B42B 9/00** **Devices common to machines for carrying out the processes according to more than one of the preceding main groups (auxiliary equipment in making paper articles [B31F](#); auxiliary equipment in printing machines [B41](#); ~~conveyers in general B65G~~; ~~conveyors in general B65G~~; {handling sheets in general [B65H](#)})**

**Project: N/A (B42C)**

- U B42C 19/00 **Multi-step processes for making books**
- B42C 19/08 · Conveying between operating stations in machines (~~conveyers in general B65G~~[conveyors in general B65G](#))

**Project: N/A (B43K)**

- U B43K 23/00 **Holders or connectors for writing implements; Means for protecting the writing-points {([B43K 27/003](#) takes precedence)}**

- B43K 23/016      · Holders for crayons or chalks ([B43K 23/004](#) ~~to~~ [B43K 23/012](#), [B43K 23/02](#) take precedence)
- B43K 23/02      · with means for preventing rolling ([B43K 23/004](#) ~~to~~ [B43K 23/012](#) take precedence)

**Project: N/A (B60)****B60****VEHICLES IN GENERAL**NOTE

In this class, the following term is used with the meaning indicated:

- "vehicle" means all vehicles except those restricted to one of the following types of vehicles: rail vehicles, waterborne vessels, aircraft, space vehicles, hand carts, cycles, animal-drawn vehicles, and sledges, which are covered by the relevant subclasses of [B61](#) ~~to~~ [B64](#).

Thus, the term "vehicle" includes:

- vehicular characteristics which are common to more than one of the above listed types;
- certain characteristics restricted to automobiles, road or cross-country trailers
- The following exceptions to the above should be noted:
  - a. Subclass [B60B](#) or [B60C](#) embrace all vehicle wheels and tyres, except wheels for roller skates [A63C 17/22](#), wheels for model railway vehicles [A63H 19/22](#), and special adaptations of wheels or tyres for aircraft [B64C 25/36](#)
  - b. Subclass [B60C](#) embraces the connection of valves to inflatable elastic bodies in general, and in this respect it is not limited to vehicles
  - c. Subclass [B60L](#) embraces certain electric equipment of all electrically-propelled vehicles
  - d. Subclass [B60M](#) embraces certain power supply for, but external to, any kind of electrically-propelled vehicle
  - e. Subclass [B60R](#) embraces safety belts or body harnesses used in all types of land vehicles
  - f. Subclass [B60S](#) relates to all kinds of vehicles, except the servicing of rail locomotives [B61K 11/00](#), ground equipment for aircraft [B64F](#), or cleaning apparatus peculiar to waterborne vessels [B63B 57/00](#), [B63B 59/00](#)
  - g. Subclass [B60T](#) includes brake control systems of general applicability, and in this respect it is not limited to vehicles. It also includes rail-vehicle power-brake systems and some other features of rail-vehicle brake systems

**Project: N/A (B60B)****B60B 23/00**

**Attaching rim to wheel body (attaching spokes to rim [B60B 1/04](#), [B60B 1/14](#); attaching rims resiliently to wheel body [B60B 9/00](#); {devices for fastening or securing constructional elements or machine parts together [F16B](#)})**

NOTE

Group [B60B 23/12](#) takes precedence over groups [B60B 23/02](#) ~~to~~ [B60B 23/10](#)

**Project: N/A (B60C)****B60C 5/00**

**Inflatable pneumatic tyres or inner tubes ([B60C 1/00](#), [B60C 9/00](#) ~~to~~ [B60C 17/00](#) take precedence)**

**Project: N/A (B60D)**

- U B60D 1/00** **Traction couplings; Hitches; Draw-gear; Towing devices (devices specially adapted for connection between tractors and agricultural machines or implements [A01B 59/00](#); fifth-wheel couplings [B62D](#))**
- U B60D 1/24 · characterised by arrangements for particular functions
- U B60D 1/30 · · for sway control, {e.g. stabilising or anti-fishtail devices; Sway alarm means}
- U B60D 1/32 · · · involving damping devices
- B60D 1/325 · · · · {using friction dampers (friction dampers per se [F16F 7/02](#) ~~to-~~ [F16F 7/08](#))}

**Project: N/A (B60G)****B60G****VEHICLE SUSPENSION ARRANGEMENTS (air-cushion vehicles [B60V](#); {cycle suspensions [B62K 25/00](#)})**NOTES

- Attention is drawn to the explanatory note following the class title [B60](#)
- Indexing codes [B60G 2200/00](#) ~~to-~~ [B60G 2800/00](#) are dedicated to particular aspects of suspension arrangements:
  - [B60G 2200/00](#) refers to the type of suspension arrangement;
  - [B60G 2202/00](#) refers to the suspension elements used (springs, dampers and actuators);
  - [B60G 2204/00](#) refers to mounting features of suspension elements;
  - [B60G 2206/00](#) refers to constructional and manufacturing details of suspension elements;
  - [B60G 2300/00](#) refers to the type of vehicle;
  - [B60G 2400/00](#) ~~to-~~ [B60G 2800/00](#) refer to the electronic control of suspension arrangements, whereby:
    - [B60G 2400/00](#) refers to input parameters of the control;
    - [B60G 2401/00](#) refers to types of sensors used;
    - [B60G 2500/00](#) refers to the controlled action or device;
    - [B60G 2600/00](#) refers to particular details of the control system;
    - [B60G 2800/00](#) refers to the result to be achieved by the control action.
- Groups [B60G 2200/00](#) ~~to-~~ [B60G 2800/00](#) are to be used in multi-aspect classification, so that subject matter characterised by aspects covered by more than one of these groups, which is considered to represent information of interest for search, should be classified in a combination of at least one relevant "invention information" symbol in association with indexing codes from each of these groups.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [B60G 23/00](#) covered by [B60G 17/0165](#)

**U B60G 11/00**

**Resilient suspensions characterised by arrangement, location or kind of springs (single wheel suspension by pivoted arm resilient in itself [B60G 3/00](#); adjusting spring characteristic [B60G 17/00](#); springs per se [F16F](#))**

NOTE

The term "torsion bar" includes torsion tube or the like. The term "rubber" includes synthetic substitutes of a similar nature.

- B60G 11/18
- having torsion-bar springs only {(B60G 11/006 takes precedence; having rubber springs of the torsional-energy-absorption type B60G 11/23)}

**NOTE**

[B60G 11/184](#) takes precedence over [B60G 11/181](#) ~~to~~ [B60G 11/183](#)

- U B60G 17/00** **Resilient suspensions having means for adjusting the spring or vibration-damper characteristics, for regulating the distance between a supporting surface and a sprung part of vehicle or for locking suspension during use to meet varying vehicular or surface conditions, e.g. due to speed or load {(levelling or stabilising systems for tippers B60P 1/045)}**
- U B60G 17/02
- Spring characteristics {e.g. mechanical springs and mechanical adjusting means}(B60G 17/005, B60G 17/015 take precedence)
- U B60G 17/04
- • fluid spring characteristics
- B60G 17/056
- • • Regulating distributors or valves {for hydropneumatic systems} (B60G 17/044 ~~to~~ B60G 17/048, {B60G 17/0416} take precedence; {Fluid interconnection systems to control vehicle inclination B60G 21/06, B60G 21/10}; valves per se F16K)
- U B60G 17/06
- Characteristics of dampers {e.g. mechanical dampers}(B60G 17/015 takes precedence)
- B60G 17/08
- • Characteristics of fluid dampers (adjusting fluid dampers in general F16F 9/44 ~~to~~ F16F 9/53)

**Project: N/A (B60J)**

- U B60J 5/00** **Doors (B60J 10/00 takes precedence; window aspects B60J 1/00; {side board or tailgate structures for open load compartments B62D 33/023})**
- U B60J 5/04
- arranged at the vehicle sides {(panel mounted arm-rests B60N 2/466; wall liners B60R 13/02; door edge guards B60R 13/043; padded linings associated with the side doors B60R 21/0428)}
- U B60J 5/042
- • {Reinforcement elements}
- U B60J 5/0422
- • • {Elongated type elements, e.g. beams, cables, belts or wires}
- U B60J 5/0423
- • • • {characterised by position in the lower door structure}
- B60J 5/0425
- • • • • {the elements being arranged essentially horizontal in the centre of the lower door structure (B60J 5/0426 ~~to~~ B60J 5/0448 take precedence)}
- U B60J 7/00** **Non-fixed roofs; Roofs with movable panels {e.g. rotary sunroofs} (B60J 10/00 takes precedence; window aspects B60J 1/00; fixed roofs B62D 25/06; mechanisms for operating wings E05F 11/00, E05F 15/00)**
- U B60J 7/02
- of sliding type {e.g. comprising guide shoes}
- B60J 7/024
- • {characterised by the height regulating mechanism of the sliding panel (B60J 7/043 ~~to~~ B60J 7/053 take precedence)}
- U B60J 7/04
- • with rigid plate-like element or elements {e.g. open roofs with harmonica-type folding rigid panels (B60J 7/061 takes precedence)}
- B60J 7/043
- • • Sunroofs (B60J 7/047 ~~to~~ B60J 7/053 take precedence){e.g. sliding above the roof}
- B60J 7/057
- • • Driving or actuating arrangements (B60J 7/047 ~~to~~ B60J 7/053 take precedence){e.g. manually operated levers or knobs}
- U B60J 7/185
- Locking arrangements (locks in general E05B)
- B60J 7/19
- • for rigid panels {(B60J 7/1851 ~~to~~ B60J 7/1856 take precedence)}
- B60J 9/00** **Devices not provided for in one of main groups B60J 1/00 ~~to~~ B60J 7/00 (B60J 10/00 takes precedence)**

**Project: RP0298 (B60K)**

- C B60K 16/00** Arrangements in connection with power supply *of propulsion units in vehicles* from force of nature, e.g. sun; *or* wind (electric propulsion with power supply from force of nature, e.g. sun; *or* wind, [B60L 8/00](#); effecting propulsion by wind motors driving water-engaging propulsive elements [B63H 13/00](#); *wind motors specially adapted for installation on vehicles* [F03D 9/32](#))

**WARNING**

*Group B60K 16/00 is impacted by reclassification into group F03D 9/32. Groups B60K 16/00 and F03D 9/32 should be considered in order to perform a complete search.*

**Project: N/A (B60K)**

- U B60K 17/00** Arrangement or mounting of transmissions in vehicles (clutches per se, e.g. construction thereof, [F16D](#); gearing per se, e.g. construction thereof, [F16H](#))
- U B60K 17/04** · characterised by arrangement, location, or kind of gearing (electric equipment or propulsion of electrically-propelled vehicles [B60L](#))
- B60K 17/06** · · of change-speed gearing ([B60K 17/10](#) ~~to~~ [B60K 17/16](#) take precedence)
- U B60K 20/00** Arrangement or mounting of change-speed gearing control devices in vehicles (movable cabs having special adaptations of vehicle control devices [B62D 33/06](#); such control devices per se [F16H](#))
- U B60K 20/02** · of initiating means (control mechanisms in general [G05G](#))
- B60K 20/08** · · Dashboard means

**WARNINGS**

- The groups [F16H 59/00](#) ~~to~~ [F16H 63/00](#) were introduced on 1 May, 1988. These groups include the subject matter of [B60K 20/14](#), which from this date is no longer used for the classification of new documents
- Documents from the backlog of group [B60K 20/14](#) are in the process of being systematically transferred to groups [F16H 59/00](#) ~~to~~ [F16H 63/00](#)

**Project: N/A (B60L)**

- U B60L 2200/00** **Type of vehicles**
- U B60L 2200/40** · Working vehicles
- B60L 2200/44** · · Industrial trucks or floor ~~conveyers~~ *conveyors*

**Project: N/A (B60P)**

- U B60P 1/00** Vehicles predominantly for transporting loads and modified to facilitate loading, consolidating the load, or unloading (vehicles for carrying harvested crops with means for self-loading or self-unloading [A01D 90/00](#); peculiar to refuse collecting-vehicles [B65F](#); loading or unloading vehicles by means not incorporated therein [B65G](#))
- B60P 1/48** · using pivoted arms raisable above load-transporting element (for refuse collecting vehicles [B65F 3/041](#)); load engaging elements [B66C 1/00](#) ~~to~~ [B66C 3/00](#))

**Project: N/A (B60Q)**

- B60Q 11/00** Arrangements of monitoring devices for devices provided for in groups [B60Q 1/00](#) ~~to~~ [B60Q 9/00](#) (testing of electric installations on road vehicle [G01R 31/00](#))

**Project: RP0001-F (B60R)**

- U B60R 21/00 Arrangements or fittings on vehicles for protecting or preventing injuries to occupants or pedestrians in case of accidents or other traffic risks (safety belts or body harnesses in vehicles [B60R 22/00](#); devices, apparatus or methods for life-saving in general [A62B](#); safety devices for propulsion unit control specially adapted for, or arranged in, vehicles [B60K 28/00](#); seats constructed to protect the occupant from the effect of abnormal g-forces, e.g. crash or safety seats, [B60N 2/42](#); energy-absorbing arrangements for hand wheels for steering vehicles [B62D 1/11](#); energy-absorbing arrangements for vehicle steering columns [B62D 1/19](#); harnessing in aircraft [B64D 25/00](#))
- U B60R 21/01 · Electrical circuits for triggering {passive} safety arrangements, {e.g. airbags, safety belt tighteners,} in case of vehicle accidents or impending vehicle accidents {(electrical circuits for transmission of signals between steering wheel and the vehicle itself [B60R 16/027](#); for electrically actuating belt retractor locking means [B60R 22/343](#))}
- M B60R 21/015 · including means for detecting the presence or position of passengers, passenger seats or child seats {, and the related safety parameters therefor, e.g. speed or timing of airbag inflation in relation to occupant position or seat belt use}

**WARNING**

Group(s) [B60R 21/01504](#) – [B60R 21/01566](#) is/are incomplete pending reclassification of documents from group(s) [B60R 21/015](#).

Until reclassification is complete, group [B60R 21/015](#) should be considered in order to perform a complete search.

**Project: N/A (B60R)**

- U B60R 22/00 Safety belts or body harnesses in vehicles (safety belts or body harnesses in general [A62B 35/00](#))
- B60R 22/10 · specially adapted for children or animals (children's seats [B60N 2/24](#))
- NOTE  
Groups [B60R 22/02](#){[B60R 22/022](#)} to [B60R 22/08](#), [B60R 22/18](#) to [B60R 22/48](#) take precedence over group [B60R 22/10](#)

**Project: N/A (B60S)**

- U B60S 1/00 Cleaning of vehicles (by apparatus not integral with vehicle [B60S 3/00](#); cleaning in general [B08B](#); de-icing of aircraft [B64D](#); heating arrangements specially adapted for transparent or reflecting areas [H05B 3/84](#))
- U B60S 1/02 · Cleaning windscreens, windows or optical devices {(wind deflectors specially adapted for preventing soiling of windows or windscreens [B60J 1/2002](#))}
- U B60S 1/04 · Wipers or the like, e.g. scrapers
- U B60S 1/32 · characterised by constructional features of wiper blade arms {or blades}
- U B60S 1/40 · Connections between blades and arms
- B60S 1/4003 · {Multi-purpose connections for two or more kinds of arm ends}

NOTE

Multi-aspect classification is applied for technical subjects relating to the arms and covered by subgroups [B60S 1/4006](#) to [B60S 1/4083](#)

- U B60S 3/00** Vehicle cleaning apparatus not integral with vehicles (cleaning in general [B08B](#); cleaning peculiar to waterborne vessels [B63B 57/00](#), [B63B 59/00](#); ground equipment for cleaning aircraft [B64F 5/00](#); {multistage treatment applied to waste water from vehicle wash installations [C02F 9/00](#)})
- B60S 3/004 · {[ConveyersConveyors](#) for vehicle cleaning apparatus}

**Project: N/A (B60T)**

- U B60T 8/00** Arrangements for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions, e.g. limiting or varying distribution of braking force (by changing number of effective brake cylinders in power brake systems [B60T 17/10](#))
- B60T 8/18 · responsive to vehicle weight or load, e.g. load distribution ({using electrical circuitry on regulation means [B60T 8/17](#); } [B60T 8/30](#) takes precedence; responsive to weight and speed condition [B60T 8/58](#))
- NOTE  
[B60T 8/1887](#) and [B60T 8/1893](#) take precedence over [B60T 8/1806](#) ~~te-~~ [B60T 8/1881](#)
- U B60T 11/00** Transmitting braking action from initiating means to ultimate brake actuator without power assistance or drive or where such assistance or drive is irrelevant (the power assistance or drive being essential [B60T 13/00](#))
- U B60T 11/10 · transmitting by fluid means, e.g. hydraulic
- B60T 11/12 · · the transmitted force being varied therein ([B60T 11/16](#) ~~te-~~ [B60T 11/26](#) take precedence)

**Project: N/A (B60W)**

- B60W 2560/00** Other vehicle related input parameters not covered by groups [B60W 2510/00](#) ~~te-~~ [B60W 2550/00](#)

**Project: N/A (B60Y)**

- U B60Y 2200/00** Type of vehicle (not used; see subgroups)
- B60Y 2200/80 · Other vehicles not covered by groups [B60Y 2200/10](#) ~~te-~~ [B60Y 2200/60](#)

**Project: N/A (B61)****B61 RAILWAYS**NOTE

In this class, the following expression is used with the meaning indicated:

- "railway systems" covers:
  - a. systems in which trains or individual passenger vehicles or load carriers run on or are guided by ground or elevated tracks defined by rails, ropes, cables, or other guiding elements for wheels, rollers, or sliding anti-friction devices ({load carriers} permanently attached to a continuous traction element [B65G 17/00](#));
  - b. systems in which carriers or impellers for persons or loads are attached to, e.g. suspended from, a guided traction rope or cable which determines their path of movement (chain [conveyersconveyors](#), scraper [conveyersconveyors](#) [B65G 17/00](#), [B65G 19/00](#));
  - c. power and free systems of either of the above types in which vehicles, load carriers or loads may be selectively coupled to, or uncoupled from, continuous traction members, e.g. cables, chains

**Project: N/A (B61B)**

- U B61B 5/00** **Elevated railway systems without suspended vehicles (with monorail [B61B 13/04](#); tracks therefor [E01B 25/00](#))**
- U B61B 5/02**  
**B61B 5/025**
  - with two or more rails
  - {Sub-floor ~~conveyer~~[conveyor](#) systems, e.g. where the vehicle is above the ground and where the running gear and the propulsion device are located underground or in a tube. (tunnel systems: [B61B 13/10](#); funicular systems [B61B 9/00](#))}
- B61B 12/00** **Component parts, details or accessories not provided for in groups [B61B 7/00](#) ~~to~~ [B61B 11/00](#) (railway brakes [B61H](#); turntables [B61J 1/06](#))**
- U B61B 13/00** **Other railway systems**
- B61B 13/10**
  - Tunnel systems (pneumatic tubes ~~conveyers~~[conveyors](#) [B65G](#) {; [B61C 15/045](#) takes precedence)}

**Project: N/A (B61D)**

- B61D 11/00** **Mine cars ([B61D 5/00](#) ~~to~~ [B61D 9/00](#) take precedence)**
- B61D 15/00** **Other railway vehicles, e.g. scaffold cars; Adaptations of vehicles for use on railways (~~conveyor frames mounted for movement on rail tracks~~ [B65G 41/02](#); ~~conveyor frames mounted for movement on rail tracks~~ [B65G 41/02](#); wheeled machines used in permanent way construction or maintenance [E01B](#))**

**Project: N/A (B61H)**

- B61H** **BRAKES OR OTHER RETARDING APPARATUS PECULIAR TO RAIL VEHICLES; ARRANGEMENTS OR DISPOSITIONS OF BRAKES OR OTHER RETARDING APPARATUS IN RAIL VEHICLES (electrodynamic braking of vehicles [B60L](#), in general [H02K](#); arrangements in rail vehicles for adjusting wheel-braking force to meet varying vehicular or permanent-way conditions [B60T 8/00](#); transmitting braking action from initiating means to ultimate brake actuator with power assistance or drive, brake systems incorporating such transmitting means, e.g. air-pressure brake systems, [B60T 13/00](#) ~~to~~ [B60T 17/00](#); brakes per se [F16D](#))**

**Project: N/A (B62D)**

- B62D 6/00** **Arrangements for automatically controlling steering depending on driving conditions sensed and responded to, e.g. control circuits (means for initiating a change in direction [B62D 1/00](#); steering valves [B62D 5/06](#); combined with means for inclining the vehicle body or wheels on bends [B62D 9/00](#))**
- NOTE**
- When classifying in this group, classification is also made in the appropriate one of groups [B62D 1/00](#) ~~to~~ [B62D 5/00](#) or [B62D 7/00](#) ~~to~~ [B62D 19/00](#) if other aspects of the steering system are of interest

- U B62D 11/00** **Steering non-deflectable wheels; Steering endless tracks or the like**
- NOTE**
- Gearings of interest apart from this application are also classified in the relevant group of subclass [F16H](#) covering gearings per se

- B62D 11/001 · {control systems ([B62D 11/183](#) takes precedence)}

NOTE

When classifying in this group, classification is also made in the appropriate one of groups [B62D 11/02](#) ~~to~~ [B62D 11/24](#) if other aspects of the steering system are of interest

- U B62D 21/00 Understructures, i.e. chassis frame on which a vehicle body may be mounted (combined frame and vehicle body [B62D 23/00](#); {characterised by the material thereof [B62D 29/00](#)})**
- B62D 21/18 · characterised by the vehicle type and not provided for in groups [B62D 21/02](#) ~~to~~ [B62D 21/17](#)
- U B62D 53/00 Tractor-trailer combinations; Road trains (traction couplings other than fifth wheel coupling [B60D](#) {tracked vehicles comprising at least two articulated parts [B62D 55/0655](#)})**
- U B62D 53/04 · comprising a vehicle carrying an essential part of the other vehicle's load by having supporting means for the front or rear part of the other vehicle
- B62D 53/045 · · {with rigid linkage in the horizontal plane (luggage trailers [B62D 63/064](#) ~~to~~ [B62D 63/067](#))}  
}
- U B62D 65/00 Designing, manufacturing, e.g. assembling, facilitating disassembly, or structurally modifying motor vehicles or trailers, not otherwise provided for**
- U B62D 65/02 · Joining sub-units or components to, or positioning sub-units or components with respect to, body shell or other sub-units or components
- B62D 65/04 · · Joining preassembled modular units composed of sub-units performing diverse functions, e.g. engine and bonnet ([B62D 65/06](#) ~~to~~ [B62D 65/16](#) take precedence)
- B62D 65/18 · · Transportation, conveyor or haulage systems specially adapted for motor vehicle or trailer assembly lines {(conveyers and haulage in general [B65G](#) conveyors and haulage in general [B65G](#))}

**Project: N/A (B62J)**

- U B62J 99/00 Subject matter not provided for in other groups of this subclass**
- B62J 2099/004 · {Other electrical equipment specially adapted for use on a cycle not provided for in groups [B62J 2099/0006](#) ~~to~~ [B62J 2099/0026](#) e.g. solar cells}
- U B62J 2300/00 Aspects relating to cycles not covered by the other groups of this subclass**
- B62J 2300/004 · Other electrical equipment specially adapted for use on a cycle not provided for in groups [B62J 2300/0006](#) ~~to~~ [B62J 2300/0026](#), e.g. solar cells

**Project: N/A (B62K)**

**B62K CYCLES; CYCLE FRAMES; CYCLE STEERING DEVICES; RIDER-OPERATED TERMINAL CONTROLS SPECIALLY ADAPTED FOR CYCLES; CYCLE AXLE SUSPENSIONS; CYCLE SIDE-CARS, FORECARS, OR THE LIKE**

NOTE

In this subclass, each of the main groups [B62K 7/00](#) ~~to~~ [B62K 15/00](#) takes precedence over all the preceding main groups, e.g. a child's bicycle is classified in [B62K 9/00](#) and not in [B62K 3/00](#)

- U B62K 7/00 Freight- or passenger-carrying cycles**
- U B62K 7/02 · Frames

- B62K 7/04 · · having a carrying platform (article-carrying accessories [B62J 7/00](#) ~~to-~~ [B62J 11/00](#))
- B62K 19/00 **Cycle frames (cycle frames specially adapted for one particular kin of cycle specified in groups [B62K 1/00](#) ~~to-~~ [B62K 17/00](#), see the relevant group)**
- B62K 21/00 **Steering devices (steering devices specially adapted for one particular kind of cycle specified in groups [B62K 1/00](#) ~~to-~~ [B62K 17/00](#), see the relevant group)**

## Project: N/A (B63B)

**B63B SHIPS OR OTHER WATERBORNE VESSELS; EQUIPMENT FOR SHIPPING ({amphibious vehicles [B60F 3/00](#); } air-cushion vehicles [B60V](#); arrangements of vessel ventilation, heating, cooling or air conditioning [B63J 2/00](#))**

NOTE

In this subclass, the indexing codes [B63B 2201/00](#) ~~to-~~ [B63B 2241/00](#) are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

- U B63B 17/00 Vessel parts, details, or accessories, not otherwise provided for {(vehicle fittings for preventing or indicating unauthorised use or theft of vehicles in general [B60R 25/00](#); propeller guards, line cutters or other means for protecting propellers or rudders [B63H 5/165](#); protection of power legs of outboard propulsion units [B63H 20/36](#); locking devices for boats, surfboards or parts or accessories thereof [E05B 73/007](#))}**

WARNING

Not complete pending a reorganisation; for documents concerning protective caps, or anti-theft devices other than using keys, see [B63J 99/00](#)

- B63B 17/0018 · {Arrangements or devices specially adapted for facilitating access to underwater elements, e.g. to propellers (retractable propellers [B63H 5/125](#); tilting outboard propulsion units [B63H 20/08](#)); Externally attached cofferdams or the like (caissons adapted to laying foundations [E02D 23/00](#) ~~to-~~ [E02D 27/00](#))}

WARNING

Documents concerning "externally attached cofferdams or the like" are not complete, pending a reorganisation; see also [B63B 9/00](#)

- U B63B 27/00 Loading or unloading cargo or passengers (self-discharging barges or lighters [B63B 35/30](#); shore-based [B65G](#) {elevators, escalators or moving walkways per se [B66B](#); floating cranes [B66C 23/52](#); loading or unloading devices per se, see the relevant subclasses, e.g. [B65G](#), [B66C](#), [B67D](#))}**

WARNING

The scope of this group is broader than the scope of the corresponding IPC group, and includes the scope of the IPC2 subgroups [B63B 27/02](#), [B63B 27/06](#), and [B63B 27/20](#)

- U B63B 27/20 · {with continuous action}
- B63B 27/22 · · of **conveyers conveyors**, e.g. of endless-belt or screw-type (arrangements of devices with throwing action [B63B 27/26](#); arrangements of chutes [B63B 27/28](#); ~~conveyers per se [B65G](#)~~; **conveyors per se [B65G](#)**)

- U B63B 35/00** Vessels or like floating structures adapted for special purposes (vessels characterised by load-accommodating arrangements [B63B 25/00](#); fire-fighting vessels [A62C 29/00](#); submarines, mine-layers or mine-sweepers [B63G](#); large containers for use in or under water [B65D 88/78](#); {Advertising on ships or other floating means [G09F 21/18](#)})
- B63B 35/14 · Fishing vessels (fishing [A01K 69/00](#) ~~to~~ [A01K 97/00](#))

**Project: N/A (B63C)****B63C**

**LAUNCHING, HAULING-OUT, OR DRY-DOCKING OF VESSELS; LIFE-SAVING IN WATER; EQUIPMENT FOR DWELLING OR WORKING UNDER WATER; MEANS FOR SALVAGING OR SEARCHING FOR UNDERWATER OBJECTS (floating nets, floating slipways, or the like for recovering aircraft from the water [B63B 35/52](#))**

NOTE

In this subclass, the indexing codes [B63B 2201/00](#) ~~to~~ [B63B 2241/00](#) are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

**B63C 11/00**

**Equipment for dwelling or working underwater; Means for searching for underwater objects (composition of chemical substances for use in breathing apparatus [A62D 9/00](#); swimming aids or equipment [A63B 31/00](#) ~~to~~ [A63B 35/00](#); submarines [B63G 8/00](#))**

B63C 11/34

- Diving chambers {or underwater vessels, e.g. unmanned,} with mechanical link, e.g. cable, to a base (manipulators [B25J](#); {externally attached cofferdams and the like [B63B 17/0018](#); } diving chambers without mechanical link to a base [B63G 8/00](#); caissons adapted to laying foundations [E02D 23/00](#) ~~to~~ [E02D 27/00](#))

**Project: N/A (B63G)****B63G**

**OFFENSIVE OR DEFENSIVE ARRANGEMENTS ON VESSELS; MINE-LAYING; MINE-SWEEPING; SUBMARINES; AIRCRAFT CARRIERS (means of attack or defence in general e.g. turrets [F41H](#))**

NOTE

In this subclass, the indexing codes [B63B 2201/00](#) ~~to~~ [B63B 2241/00](#) are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

**U B63G 8/00**

**Underwater vessels, e.g. submarines; {Equipment specially adapted therefor}(submarine hulls [B63B 3/13](#); diving chambers with mechanical link, e.g. cable, to a base [B63C 11/34](#); divers' sleds [B63C 11/46](#); torpedoes [F42B 19/00](#))**

B63G 8/08

- Propulsion ({schnorkels [B63G 8/36](#); marine propulsion or steering in general [B63H](#); } nuclear propulsion [B63H 21/18](#); propulsion power plants or units per se {[F01](#) ~~to~~ [F04](#)}; submerged exhausting apparatus [F01N 13/12](#))

B63G 8/36

- Adaptations of ventilation, ~~{~~{(e.g. schnorkels,~~)} cooling, heating, or air-conditioning (reconditioning air in sealed chambers [A62B 11/00](#); for vessels in general [B63J 2/00](#); air-conditioning in general [F24F](#))~~}

**Project: N/A (B63H)****B63H**

**MARINE PROPULSION OR STEERING** ({arrangement of propulsion or steering means on amphibious vehicles [B60F 3/0007](#); } propulsion of air-cushion vehicles [B60V 1/14](#); peculiar to submarines, other than nuclear propulsion, [B63G](#); peculiar to torpedoes [F42B 19/00](#))

NOTE

In this subclass, the indexing codes [B63B 2201/00](#) ~~to~~ [B63B 2241/00](#) are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means

**U B63H 16/00**

**Effecting propulsion by muscle power (swimming frameworks, {i.e. apparatus fixed to or held by the swimmer or diver} with swimmer-operated driving mechanism [A63B 35/00](#); land-based training equipment for rowing or sculling [A63B 69/06](#))**

U B63H 16/08

- Other apparatus for converting muscle power into propulsive effort (general features of propulsion elements, see the relevant groups)

B63H 16/12

- · {using hand levers, cranks, pedals, or the like, e.g. water cycles, boats propelled by boat-mounted pedal cycles}

WARNING

This group is no longer used for classification of new documents as from 01.01.2012. The backlog of this group is being continuously reclassified to groups [B63H 16/16](#) ~~to~~ [B63H 16/20](#)

B63H 16/14

- · · {for propelled drive}

WARNING

This group is no longer used for classification of new documents as from 01.01.2012. The backlog of this group is being continuously reclassified to groups [B63H 16/16](#) ~~to~~ [B63H 16/20](#)

**U B63H 21/00**

**Use of propulsion power plant or units on vessels (use of outboard propulsion units [B63H 20/00](#); hull reinforcements for carrying propulsion power plant or units [B63B 3/70](#); {propulsion of submarines [B63G 8/08](#); } propulsion power plant or units per se, see the relevant classes)**

NOTE

This group comprises arrangements of propulsion power plant or units on vessels and to some extent it includes adaptations of such plant or units to facilitate such arrangements

WARNING

this group is pending a reorganisation; also documents covered by group [B63H 21/36](#) are within this group

B63H 21/38

- Apparatus or methods specially adapted for use on marine vessels, for handling power plant or unit liquids, e.g. lubricants, coolants, fuels or the like ({in outboard drives [B63H 20/001](#); } lubricating or cooling machines or engines in general [F01](#) ~~to~~ [F04](#))

WARNING

This group and its subgroups are

- systematically used for classification of documents published from 01.06.2010 onwards
- not complete; for documents published before 01.06.2010, see [B63B 2770/00](#)

**Project: N/A (B63J)****B63J****AUXILIARIES ON VESSELS**NOTES

1. In this subclass, the following term is used with the meaning indicated:
  - "auxiliaries" means only apparatus specially arranged for rendering vessels, in general, habitable or operative, insofar as such apparatus is not specifically provided for in another subclass of class [B63](#)
2. In this subclass, the indexing codes [B63B 2201/00](#) ~~to~~ [B63B 2241/00](#) are to be used for relevant technical information concerning particular or unusual use, materials, design, methods or means.

**Project: N/A (B64C)****U B64C 23/00**

B64C 23/005

**Influencing air-flow over aircraft surfaces, not otherwise provided for**

- {by other means not covered by groups [B64C 23/02](#) ~~to~~ [B64C 23/08](#), e.g. by electric charges, magnetic panels, piezoelectric elements, static charges or ultrasounds}

**U B64C 25/00**

B64C 25/001

**Alighting gear (air-cushion alighting gear [B60V 3/08](#))**

- {Devices not provided for in the groups [B64C 25/02](#) ~~to~~ [B64C 25/68](#)}

**Project: N/A (B64D)****U B64D 37/00**

B64D 37/005

**Arrangements in connection with fuel supply for power plant (refuelling during flight [B64D 39/00](#))**

- {Accessories not provided for in the groups [B64D 37/02](#) ~~to~~ [B64D 37/28](#)}

**Project: N/A (B64G)****U B64G 1/00**

B64G 1/16

**Cosmonautic vehicles**

- Extraterrestrial cars (land vehicle aspects [B60](#) ~~to~~ [B62](#))

**Project: N/A (B65B)****U B65B 19/00****Packaging rod-shaped or tubular articles susceptible to damage by abrasion or pressure, e.g. cigarettes, cigars, macaroni, spaghetti, drinking straws, welding electrodes (final treatment of cigars or cigarettes after manufacture [A24C 1/38](#), [A24C 5/60](#))**

U B65B 19/02

- Packaging cigarettes {(auxiliary devices for drying glued or sealed packages [B65B 61/002](#))}

U B65B 19/22

- • Wrapping the cigarettes; Packaging the cigarettes in containers formed by folding wrapping material around formers

B65B 19/223

- • • {in a curved path; in a combination of straight and curved paths, e.g. on rotary tables or other endless [conveyersconveyors](#) ([B65B 19/24](#) takes precedence)}

B65B 19/225

- • • • {the [conveyersconveyors](#) having continuous movement}

B65B 19/226

- • • • {using endless [conveyersconveyors](#) having pockets, each pocket being provided with separate members, e.g. folders ([B65B 19/225](#) takes precedence)}

U B65B 19/24

- • • using hollow mandrels through which groups of cigarettes are fed

B65B 19/245

- • • • {carried by continuously driven endless [conveyersconveyors](#)}

- U B65B 35/00** **Supplying, feeding, arranging, or orientating articles to be packaged (cigarettes [B65B 19/04](#); bottles [B65B 21/04](#); eggs [B65B 23/06](#); biscuits [B65B 23/12](#); {adjustable conveying means [B65B 59/005](#)} if not restricted to packaging machines [B07C](#), [B65G](#), [B65H](#))**
- U B65B 35/06 · Separating single articles from loose masses of articles
- B65B 35/08 · · using pocketed [conveyersconveyors](#)
- U B65B 35/10 · Feeding, e.g. conveying, single articles (orientating [B65B 35/56](#))
- U B65B 35/20 · · by reciprocating or oscillatory pushers
- B65B 35/205 · · · {linked to endless [conveyersconveyors](#)}
- U B65B 35/24 · · by endless belts or chains {([B65B 35/205](#) takes precedence)}
- B65B 35/243 · · · {using cooperating [conveyersconveyors](#) engaging the articles simultaneously}
- B65B 35/246 · · · {using extensible or retractable [conveyersconveyors](#)}
- B65B 35/26 · · by rotary [conveyersconveyors](#)
- B65B 35/28 · · by pneumatic [conveyersconveyors](#)
- U B65B 35/30 · Arranging and feeding articles in groups (orientating [B65B 35/56](#))
- U B65B 35/40 · · by reciprocating or oscillatory pushers
- B65B 35/405 · · · {linked to endless [conveyersconveyors](#)}
- B65B 35/46 · · by rotary [conveyersconveyors](#)
- B65B 35/48 · · by pneumatic [conveyersconveyors](#)
- U B65B 43/00** **Forming, feeding, opening or setting-up containers or receptacles in association with packaging (forming pockets in sheets, blanks or webs, by pressing the material into forming dies or moving it through folding dies [B65B 47/00](#))**
- U B65B 43/42 · Feeding or positioning bags, boxes, or cartons in the distended, opened, or set-up state; Feeding preformed rigid containers, e.g. tins, capsules, glass tubes, glasses, to the packaging position; Locating containers or receptacles at the filling position (by means of filling-nozzles [B65B 39/00](#)); Supporting containers or receptacles during the filling operation (by filling-nozzles [B65B 39/00](#))
- B65B 43/52 · · using roller-ways or endless [conveyersconveyors](#)
- U B65B 49/00** **Devices for folding or bending wrappers around contents**
- B65B 49/14 · Folders forming part of, or attached to, [conveyersconveyors](#) for partially-wrapped articles
- U B65B 2230/00** **Aspects of the final package**
- B65B 2230/02 · Containers having separate compartments isolated from one another ([B65B 29/10](#) and [B65B 2220/16](#) take preference);

## Project: N/A (B65D)

## B65D

**CONTAINERS FOR STORAGE OR TRANSPORT OF ARTICLES OR MATERIALS, e.g. BAGS, BARRELS, BOTTLES, BOXES, CANS, CARTONS, CRATES, DRUMS, JARS, TANKS, HOPPERS, FORWARDING CONTAINERS; ACCESSORIES, CLOSURES, OR FITTINGS THEREFOR; PACKAGING ELEMENTS; PACKAGES (containers specially adapted for storing agricultural or horticultural products [A01F 25/14](#); containers specially adapted for use in dairies [A01J](#); travelling bags or baskets, suitcases [A45C](#); travelling or camp equipment [A45E](#); {linkable display containers [A47B87/00C](#)}; household or table equipment [A47G](#); letter-boxes for home use [A47G 29/12](#); kitchen equipment [A47J](#); associated with vehicles, see the appropriate subclass of [B60](#) ~~to~~ [B64](#); machines, apparatus, or devices for, or methods of, packaging articles or materials [B65B](#); sack holders [B65B 67/00](#); refuse receptacles [B65F 1/00](#); handling sheets, webs or filamentary material [B65H](#); load-engaging elements or devices attached to lifting or lowering gear of cranes or adapted for connection therewith for transmitting lifting forces [B66C](#); liquid handling [B67](#); storing gases [F17](#); {packaging for photosensitive or like materials [G03](#), e.g. [G03C 3/00](#)}; making containers, see subclasses dealing with the working of the material concerned)**

NOTES

1. In this subclass, the indexing codes of [B65D 2519/00004](#) - [B65D 2519/00995](#) should be added, if applicable
2. This subclass covers:
  - containers, packaging elements or packages with auxiliary means or provisions for displaying articles or materials;
  - methods of packaging which are wholly characterised by the form of the package produced or the form of the container or packaging element used, as distinct from the operations performed or the apparatus employed, which are covered by subclass [B65B](#)
3. This subclass, which is intended to be as comprehensive as possible, only excludes containers or packages of a nature clearly confined to a single other subclass, which are classified in that subclass
4. In this subclass, groups [B65D 5/00](#), [B65D 27/00](#), [B65D30/00](#) or [B65D 65/00](#) include constructional features of foldable or erectable container or wrapper blanks as well as the containers or wrappers formed by folding or erecting such blanks
5. Containers, packaging elements or packages classified in group [B65D 85/00](#), are also classified according to the constructional or functional features, if such features are of interest [6]
6. In this subclass, the following terms or expressions are used with the meanings indicated:
  - "rigid or semi-rigid containers" includes:
    - a. containers not deformed by, or not taking-up the shape of, their contents;
    - b. containers adapted to be temporarily deformed to expel their contents;
    - c. pallets;
    - d. trays;
  - "flexible containers" includes:
    - a. containers deformed by, or taking-up the shape of, their contents;
    - b. containers adapted to be permanently deformed to expel their contents;
  - "packaging elements" includes:
    - a. elements, other than containers, for covering, protecting, stiffening, or holding together articles or materials to be stored or transported;

- b. packaging materials of special type or form not provided for in other subclasses;
- "packages" includes:
  - a. combination of containers or packaging elements with articles or materials to be stored or transported:
  - b. articles joined together for convenience of storage or transport;
- "paper" includes materials, e.g. cardboard, plastic sheet materials, laminated materials, or metal foils, worked in a manner analogous to paper;
- "large containers", in groups [B65D 88/00](#) or [B65D 90/00](#), means containers having about the size of containers used in container traffic, sometimes referred to as freight, forwarding or "ISO" (International Standardization) containers, or larger containers [3]

7. Tamper-indicating means for containers or closures are classified in the group appropriate to the type of container or closure, e.g. [B65D 5/54](#), [B65D 17/00](#), [B65D 27/30](#), [B65D 27/30](#), [B65D 27/34](#), [B65D 33/34](#), [B65D 41/32](#), [B65D 47/36](#), [B65D 49/12](#), [B65D 51/20](#), [B65D 55/06](#) [5]

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">B65D 5/34</a>	covered by	<a href="#">B65D 5/325</a>	
<a href="#">B65D 5/35</a>	covered by	<a href="#">B65D 5/32</a>	
<a href="#">B65D 5/355</a>	covered by	<a href="#">B65D 5/0005</a>	
<a href="#">B65D 5/43</a>	covered by	<a href="#">B65D 5/42</a>	
<a href="#">B65D 5/462</a>	covered by	<a href="#">B65D 5/46008</a>	<del>to</del>
<del>- <a href="#">B65D 5/46032</a></del>			
<a href="#">B65D 5/465</a>	covered by	<a href="#">B65D 5/46008</a>	<del>to</del>
<del>- <a href="#">B65D 5/46032</a></del>			
<a href="#">B65D 5/468</a>	covered by	<a href="#">B65D 5/4608</a>	
<a href="#">B65D 5/472</a>	covered by	<a href="#">B65D 5/46048</a>	
<a href="#">B65D 5/475</a>	covered by	<a href="#">B65D 5/46008</a>	
<a href="#">B65D 5/478</a>	covered by	<a href="#">B65D 5/46056</a>	
<a href="#">B65D 5/4805</a>	-	<a href="#">B65D 5/489</a>	covered by
<a href="#">B65D 5/48002</a>			
<a href="#">B65D 5/49</a>	-	<a href="#">B65D 5/499</a>	covered by
<a href="#">B65D 5/48024</a>			
<a href="#">B65D 5/63</a>	covered by	<a href="#">B65D 5/72</a>	
<a href="#">B65D 6/00</a>	-	<a href="#">B65D 6/40</a>	covered by
<a href="#">B65D 7/00</a> ,	<a href="#">B65D 9/00</a> ,	<a href="#">B65D 11/00</a> ,	<a href="#">B65D 15/00</a>
<a href="#">B65D 8/00</a>	-	<a href="#">B65D 8/22</a>	covered by
<a href="#">B65D 7/00</a> ,	<a href="#">B65D 9/00</a> ,	<a href="#">B65D 11/00</a> ,	<a href="#">B65D 15/00</a>
<a href="#">B65D 19/22</a>	covered by	<a href="#">B65D 19/0004</a>	&
subgroups			
<a href="#">B65D 19/24</a>	covered by	<a href="#">B65D 19/0004</a>	&
subgroups			
<a href="#">B65D 19/26</a>	covered by	<a href="#">B65D 19/0004</a>	&
subgroups			
<a href="#">B65D 19/28</a>	covered by	<a href="#">B65D 19/0004</a>	&
subgroups			
<a href="#">B65D 19/30</a>	covered by	<a href="#">B65D 19/0004</a>	&
subgroups			
<a href="#">B65D 19/31</a>	covered by	<a href="#">B65D 19/0004</a>	&
subgroups			
<a href="#">B65D 19/34</a>	covered by	<a href="#">B65D 19/0004</a>	&
subgroups			
<a href="#">B65D 17/28</a>	-	<a href="#">B65D 17/48</a> ,	<a href="#">B65D 17/52</a>
covered by	<a href="#">B65D 17/16</a>	<del>to</del>	<del>- <a href="#">B65D 17/26</a></del>

<a href="#">B65D 19/32</a>	covered by	<a href="#">B65D 19/0002</a> ,	
<a href="#">B65D 19/0004</a>			
<a href="#">B65D 21/024</a>	covered by	<a href="#">B65D 21/0201</a>	
<a href="#">B65D 21/028</a>	covered by	<a href="#">B65D 21/0204</a>	
<a href="#">B65D 21/032</a>	covered by	<a href="#">B65D 21/0211</a>	
<a href="#">B65D 21/036</a>	covered by	<a href="#">B65D 21/0217</a>	
<a href="#">B65D 25/26</a>	covered by	<a href="#">B65D 81/02</a>	
<a href="#">B65D 30/00</a>	-	<a href="#">B65D 30/28</a>	covered by
<a href="#">B65D 29/00</a> ,		<a href="#">B65D 31/00</a>	
<a href="#">B65D 33/17</a>	covered by	<a href="#">B65D 33/1633</a>	
<a href="#">B65D 33/36</a>	covered by	<a href="#">B65D 75/58</a>	
<a href="#">B65D 33/38</a>	covered by	<a href="#">B65D 75/5861</a>	
<a href="#">B65D 35/48</a>	-	<a href="#">B65D 35/54</a>	covered by
<a href="#">B65D 47/2018</a>			
<a href="#">B65D 39/18</a>	covered by	<a href="#">B65D 39/00</a>	
+s.gr.			
<a href="#">B65D 41/01</a>	covered by	<a href="#">B65D 41/00</a>	
<a href="#">B65D 43/03</a>	covered by	<a href="#">B65D 43/00</a>	+
<a href="#">B65D 2543/00027</a>			
<a href="#">B65D 47/22</a>	covered by	<a href="#">B65D 47/20</a>	
<a href="#">B65D 47/34</a>	covered by	<a href="#">B05B 11/00</a>	
<a href="#">B65D 50/06</a>	covered by		
<a href="#">B65D 50/08</a>	covered by	<a href="#">B65D 55/02</a>	
<a href="#">B65D 50/10</a>	covered by	<a href="#">B65D 55/02</a>	
<a href="#">B65D 50/12</a>	covered by	<a href="#">B65D 55/02</a>	
<a href="#">B65D 50/14</a>	covered by	<a href="#">B65D 55/02</a>	
<a href="#">B65D 65/26</a>	-	<a href="#">B65D 65/32</a>	covered by
<a href="#">B65D 75/58</a>			
<a href="#">B65D 65/34</a>	covered by	<a href="#">B65D 75/66</a>	
<a href="#">B65D 65/36</a>	covered by	<a href="#">B65D 75/58</a>	
<a href="#">B65D 71/52</a>	-	<a href="#">B65D 71/68</a>	covered by
<a href="#">B65D 71/0003</a>	<del>to</del>	<del><a href="#">B65D 71/0077</a></del>	
<a href="#">B65D 75/60</a>	-	<a href="#">B65D 75/64</a>	covered by
<a href="#">B65D 75/58</a>			
<a href="#">B65D 81/15</a>	covered by	<a href="#">B65D 81/05</a>	
<a href="#">B65D 81/17</a>	covered by	<a href="#">B65D 81/02</a>	
<a href="#">B65D 83/18</a>	-	<a href="#">B65D 83/74</a>	covered by
<a href="#">B65D 83/14</a> ,		<a href="#">B65D 83/16</a>	
<a href="#">B65D 83/18</a>	covered by	<a href="#">B65D 83/201</a>	
<a href="#">B65D 83/58</a>	covered by	<a href="#">B65D 83/44</a>	
<a href="#">B65D 83/76</a>	covered by	<a href="#">B65D 83/0005</a>	
<a href="#">B65D 85/57</a>	covered by	<a href="#">G11B 23/00</a>	
<a href="#">B65D 85/575</a>	covered by	<a href="#">G11B 23/00</a>	
<a href="#">B65D 85/86</a>	-	<a href="#">B65D 85/90</a>	covered by
<a href="#">H01L 21/00</a> ,		<a href="#">H05K 13/00</a>	
<a href="#">B65D 91/00</a>	covered by	<a href="#">A47G 29/12</a>	

**U B65D 35/00**

**Pliable tubular containers adapted to be permanently {or temporarily} deformed to expel contents, e.g. collapsible tubes for toothpaste or other plastic or semi-liquid material; Holders therefor {(packages for tubes [B65D 85/14](#))}**

B65D 35/44

- Closures (closure members of interest apart from this application [B65D 39/00](#) ~~to~~ [B65D 55/00](#); forming bottom closures after filling [B65B 7/14](#))

- U B65D 39/00** **Closures arranged within necks or pouring openings or in discharge apertures, e.g. stoppers (lids or covers [B65D 43/00](#); with additional securing elements [B65D 45/00](#))**
- NOTE  
In this group, the indexing codes of [B65D 2539/00](#) are used
- U B65D 39/0005 · {made in one piece ([B65D 39/02](#), [B65D 39/04](#), [B65D 39/06](#), [B65D 39/08](#) take precedence)}
- B65D 39/0029 · · {Plastic closures other than those covered by groups [B65D 39/0011](#) ~~te-~~ [B65D 39/0023](#)}
- U B65D 39/0052 · {made in more than one piece ([B65D 39/02](#), [B65D 39/04](#), [B65D 39/06](#), [B65D 39/08](#) take precedence)}
- B65D 39/0076 · · {Plastic closures other than those covered by groups [B65D 39/0058](#) ~~te-~~ [B65D 39/007](#)}
- U B65D 55/00** **Accessories for container closures not otherwise provided for**
- B65D 55/02 · Locking devices; Means for discouraging or indicating unauthorised opening or removal of closure (protective covers for bottles [B65D 23/08](#); {[B65D 41/32](#) takes precedence } ; protective cap-like outer covers for bottle or jar closures [B65D 41/28](#); pressure-applying means [B65D 45/00](#) ~~†~~)
- U B65D 83/00** **Containers or packages with special means for dispensing contents (dispensing means incorporated in removable or non-permanently secured container closures [B65D 47/00](#); for shops, stores, offices, bars, or the like [A47F 1/04](#); showcases or cabinets with dispensing arrangements [A47F 3/02](#); {for surgical articles [A61B 50/30](#) } ; magazines for screws or nuts in combination with spanners, wrenches or screw-drivers [B25B 23/06](#); nail dispensers [B25C 3/00](#); for use in connection with the handling of sheets, webs, or filamentary material [B65H](#); coin deliverers [G07D 1/00](#); {coin-freed apparatus for dispensing discrete articles [G07F 11/00](#))}**
- B65D 83/08 · for dispensing thin flat articles in succession {(towel dispensers intended for re-use [A47K 10/24](#))}
- NOTE  
[B65D 83/10](#) and [B65D 83/12](#) take precedence over [B65D 83/0805](#) ~~te-~~ [B65D 83/0894](#)
- U B65D 83/14 · for delivery of liquid or semi-liquid contents by internal gaseous pressure, i.e. aerosol containers comprising propellant {for a product delivered by a propellant (spraying devices for the destruction of noxious animals or plants [A01M 7/00](#), for therapeutic purposes [A61M 11/00](#); vessels for containing or storing compressed, liquefied, or solidified gases [F17C](#))}
- B65D 83/75 · · {Aerosol containers not provided for in groups [B65D 83/16](#) ~~te-~~ [B65D 83/74](#)}
- U B65D 88/00** **Large containers (component parts, details or accessories [B65D 90/00](#); construction or assembling of bulk storage containers employing civil engineering techniques in situ or off the site [E04H 7/00](#); gas holders of variable capacity [F17B](#); vessels for containing or storing compressed, liquefied or solidified gases [F17C](#))**
- B65D 88/02 · rigid ([B65D 88/34](#) ~~te-~~ [B65D 88/78](#) take precedence; hoppers [B65D 88/26](#); {special vessels for collecting or storing rain-water for use in the household [E03B 3/03](#); cesspools [E03F 11/00](#))}
- B65D 88/12 · · specially adapted for transport (associated with vehicles, see the relevant subclasses of [B60](#) ~~te-~~ [B64](#))
- B65D 88/16 · flexible ([B65D 88/34](#) ~~te-~~ [B65D 88/78](#) take precedence; hoppers [B65D 88/26](#))

- B65D 88/22      · · specially adapted for transport (associated with vehicles, see the relevant subclasses of [B60](#) ~~to~~ [B64](#))
- B65D 88/26      · Hoppers, i.e. containers having funnel-shaped discharge sections ([B65D 88/34](#) ~~to~~ [B65D 88/78](#) take precedence)
- B65D 90/00      Component parts, details or accessories for large containers ([B65D 88/34](#) ~~to~~ [B65D 88/78](#) take precedence)**

**Project: N/A (B65F)**

- U    B65F 3/00      Vehicles particularly adapted for collecting refuse (vehicles in general [B60](#); driving vehicle equipment or auxiliaries [B60K](#); discharging contents by tilting entire vehicles [B65G](#); wheeled apparatus for emptying sewers or cesspools [E03F 7/10](#))**
- B65F 3/02      · with means for discharging refuse receptacles thereinto (~~conveyer construction [B65G](#)~~; ~~conveyor construction [B65G](#)~~; Loaders separate from vehicles [B66F](#); fluid power control systems in general [F15B](#))
- U    B65F 3/14      · with devices for charging, distributing or compressing refuse in the interior of the tank of a refuse vehicle ([B65F 3/02](#) takes precedence)**
- B65F 3/16      · · with ~~conveyer~~~~conveyor~~ wheels (~~with screw conveyers [B65F 3/22](#)~~ ~~with screw conveyors [B65F 3/22](#)~~)
- B65F 3/18      · · with endless ~~conveyers~~~~conveyors~~, e.g. elevators
- B65F 3/22      · · with screw ~~conveyers~~~~conveyors~~, rotary tanks

**Project: N/A (B65G)**

**B65G      TRANSPORT OR STORAGE DEVICES, e.g. ~~CONVEYERS~~~~CONVEYORS~~ FOR LOADING OR TIPPING; SHOP ~~CONVEYER~~~~CONVEYOR~~ SYSTEMS; PNEUMATIC TUBE ~~CONVEYERS~~~~CONVEYORS~~ (preventing fire in special objects or places [A62C 3/00](#)) ; transport or storage devices used in a particular handling or treatment of articles or materials, see the relevant subclass, e.g. in metal-working [B21D 43/00](#), [B23Q 7/00](#), [B23Q 41/02](#); vehicle, railway, sea or aircraft aspects [B60](#) ~~to~~ [B64](#); in packaging [B65B](#); handling thin or filamentary materials [B65H](#); hoisting, lifting, hauling, e.g. truck loaders [B66](#); handling liquids [B67](#); {transport or storage containers for preparing or distributing road building materials [E01C](#); construction or assembling of bulk storage containers employing civil engineering techniques in site or off the site [E04H 7/00](#) } ; specially adapted to underground conditions in mines [E21F 13/00](#); storing or distributing gases or liquids [F17](#); in handling radioactive materials [G21C 19/00](#))**

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

<a href="#">B65G 33/28</a>	covered by	
<a href="#">B65G 33/265</a>	covered by	
<a href="#">B65G 47/10</a>	covered by	
<a href="#">B65G 1/1373</a>	covered by	
<a href="#">B65G 47/86</a>	covered by	<a href="#">B65G 47/842</a> ,
<a href="#">B65G 47/847</a>	covered by	
<a href="#">B65G 49/07</a>	covered by	
<a href="#">H01L 21/677</a>	covered by	
<a href="#">B65G 69/32</a>	covered by	
<a href="#">B65G 69/28</a>	covered by	
<a href="#">B65G 69/34</a>	covered by	<a href="#">B65G 69/28</a>

- B65G 1/00** Storing articles, individually or in orderly arrangement, in warehouses or magazines (~~conveyor combinations in warehouses, magazines, or workshops B65G 37/00~~; ~~conveyor combinations in warehouses, magazines, or workshops B65G 37/00~~; stacking of articles [B65G 57/00](#); removing articles from stacks [B65G 59/00](#); loading machines [B65G 65/02](#); arrangements of articles for drying or baking in kilns or ovens [F26](#); [F27](#))
- NOTE  
group [B65G 1/0442](#) takes precedence over the other groups, except over [B65G 1/08](#)
- U B65G 1/02
- Storage devices (furniture, shop fittings, table equipment [A47B](#), [A47F](#), [A47G](#); mechanical garages [E04H](#); for data record cards in association with machines for making or sensing data [G06K](#); coin changers or sorters [G07D](#); coin-free apparatus [G07F](#) {pallets [B65D 19/00](#)})
- U B65G 1/04
- • mechanical
- B65G 1/137
- • • with arrangements or automatic control means for selecting which articles are to be removed (devices for feeding articles to ~~conveyersconveyors~~ from several groups of articles [B65G 47/04](#))
- B65G 9/00** Apparatus having suspended load carriers movable by hand or gravity (manually-operated endless-rope or chain ~~conveyersconveyors~~ [B65G 17/00](#); railway systems [B61B](#))
- B65G 11/00 - B65G 37/00** Chutes; Kinds or types of ~~conveyersconveyors~~; Constructional features, details, or auxiliary devices peculiar to ~~conveyersconveyors~~ of particular types (feeding or discharging ~~conveyersconveyors~~ by devices incorporated in or operatively associated with ~~conveyersconveyors~~ [B65G 47/00](#); loading or unloading [B65G 65/00](#); escalators or moving walkways [B66B 21/00](#); drag-line scraper ~~conveyersconveyors~~ [E02F 3/46](#))
- B65G 13/00** Roller-ways (storage devices comprising roller-ways [B65G 1/02](#); ~~endless-chain conveyers comprising load-supporting rollers B65G 17/00~~; ~~endless-chain conveyors comprising load-supporting rollers B65G 17/00~~; rollers, or arrangements thereof [B65G 39/00](#); feeding or discharging ~~conveyersconveyors~~ by devices incorporated in, or operatively associated with, ~~conveyersconveyors~~ [B65G 47/00](#), {e.g. by roller-ways as accumulating devices [B65G 47/261](#); } in metal-rolling equipment [B21B 39/00](#), [B21B 41/00](#))
- B65G 15/00** ~~ConveyersConveyors~~ having endless load-conveying surfaces, i.e. belts and like continuous members, to which tractive effort is transmitted by means other than endless driving elements of similar configuration (having load-conveying surfaces formed by interconnected longitudinal links [B65G 17/06](#))
- U B65G 15/10
- comprising two or more co-operating endless surfaces with parallel longitudinal axes, or a multiplicity of parallel elements, e.g. ropes defining an endless surface
- U B65G 15/12
- • with two or more endless belts
- B65G 15/18
- • • the belts being sealed at their edges (~~endless-surface conveyers having a single belt with sealed edges B65G 15/08~~~~endless-surface conveyors having a single belt with sealed edges B65G 15/08~~)
- B65G 15/28
- ~~ConveyersConveyors~~ with a load-conveying surface formed by a single flat belt, not otherwise provided for

- B65G 17/00** **ConveyersConveyors** having an endless traction element, e.g. a chain, transmitting movement to a continuous or substantially continuous load-carrying surface or to a series of individual load-carriers; Endless-chain **conveyersconveyors** in which the chains form the load-carrying surface (railway systems, detachable load-carriers on rails [B61B](#); escalators or paternosters neither combined nor associated with loading or unloading apparatus [B66B 9/00](#))
- U B65G 17/12 · comprising a series of individual load-carriers fixed, or normally fixed, relative to traction element
- B65G 17/123 · · {arranged to keep the load-carriers horizontally during at least a part of the **conveyerconveyor** run}
- B65G 17/22 · with oppositely-moving parts of the **conveyerconveyor** located in a common plane {and being formed by individual load carriers only}
- U B65G 17/30 · Details; Auxiliary devices (belts [B65G 15/30](#); framework [B65G 21/00](#))
- U B65G 17/32 · · Individual load-carriers (control [B65G 17/48](#))
- U B65G 17/34 · · · having flat surfaces, e.g. platforms, grids, forks
- B65G 17/345 · · · · {the surfaces being equipped with a **conveyerconveyor**}
- B65G 19/00** **ConveyersConveyors** comprising an impeller or a series of impellers carried by an endless traction element and arranged to move articles or materials over a supporting surface or underlying material, e.g. endless scraper **conveyersconveyors**
- U B65G 19/18 · Details
- B65G 19/185 · · {for article **conveyersconveyors**, e.g. for container **conveyersconveyors** ([B65G 19/20](#), [B65G 19/22](#); [B65G 19/28](#) take precedence)}
- U B65G 19/20 · · Traction chains, ropes, or cables
- B65G 19/205 · · · {for article **conveyersconveyors**, e.g. for container **conveyersconveyors**}
- U B65G 19/22 · · Impellers, e.g. push-plates, scrapers; Guiding means therefor
- B65G 19/225 · · · {for article **conveyersconveyors**, e.g. for container **conveyersconveyors** ([B65G 19/24](#) takes precedence)}
- U B65G 19/24 · · · Attachment of impellers to traction element
- B65G 19/245 · · · · {for article **conveyersconveyors**, e.g. for container **conveyersconveyors** ([B65G 19/26](#) takes precedence)}
- U B65G 19/26 · · · · pivotal
- B65G 19/265 · · · · · {for article **conveyersconveyors**, e.g. for container **conveyersconveyors**}
- U B65G 19/28 · · Troughs, channels, or conduits
- B65G 19/282 · · · {for article **conveyersconveyors**, e.g. for container **conveyersconveyors** ([B65G 19/30](#) takes precedence)}
- U B65G 19/30 · · · with supporting surface modified to facilitate movement of loads, e.g. friction reducing devices
- B65G 19/303 · · · · {for article **conveyersconveyors**, e.g. for container **conveyersconveyors**}
- B65G 21/00** **Supporting or protective framework or housings for endless load-carriers or traction elements of belt or chain conveyersconveyors** ({for load-carriers in jiggging **conveyersconveyors** [B65G 27/08](#)}; supporting framework or bases for **conveyersconveyors** as a whole [B65G 41/00](#))
- B65G 21/16 · for **conveyersconveyors** having endless load-carriers movable in curved paths

- B65G 21/20
- Means incorporated in, or attached to, framework or housings for guiding {or retaining} load-carriers, traction elements or loads supported on moving surfaces (arrangements for supporting belts [B65G 15/60](#); {details of chain conveyers conveyors [B65G 17/30](#); } rollers or roller arrangements [B65G 39/00](#); [F16G](#))
- B65G 23/00** **Driving gear for endless conveyers conveyors {control devices (for conveyers in general [B65G 43/00](#) for conveyors in general [B65G 43/00](#))}; Belt or chain tensioning arrangements**
- U B65G 23/02
- Belt- or chain-engaging elements
- U B65G 23/04
- Drums, rollers, or wheels {([B65G 23/18](#) takes precedence)}
- B65G 23/10
- arranged intermediate the ends of the conveyers conveyors
- B65G 23/32
- for effecting drive at two or more points spaced along the length of the conveyers conveyors
- B65G 23/36
- comprising two or more driving motors each coupled to a separate driving element, e.g. at either end of the conveyers conveyors
- B65G 25/00** **Conveyers Conveyors comprising a cyclically-moving, e.g. reciprocating, carrier or impeller which is disengaged from the load during the return part of its movement (jigging [B65G 27/00](#))**
- B65G 25/02
- the carrier or impeller having different forward and return paths of movement, e.g. walking beam conveyers conveyors
- B65G 25/04
- the carrier or impeller having identical forward and return paths of movement, e.g. reciprocating conveyers conveyors
- U B65G 25/06
- having carriers, e.g. belts
- B65G 25/065
- {Reciprocating floor conveyers conveyors}
- B65G 27/00** **Jigging conveyers conveyors (jigs for wet separation [B03B](#); generating or transmitting mechanical vibrations [B06](#); jiggers for screening, sifting or sorting [B07B 1/28](#))**
- B65G 27/02
- comprising helical or spiral channels or conduits for elevation of materials (helical or spiral chutes in general [B65G 11/06](#); {use of such conveyers conveyors for arranging or orientating articles during feeding [B65G 47/1421](#)})
- U B65G 27/10
- Applications of devices for generating or transmitting jigging movements
- U B65G 27/28
- with provision for dynamic balancing
- B65G 27/30
- by means of an oppositely-moving mass, e.g. a second conveyer conveyor
- B65G 29/00** **Rotary conveyers conveyors, e.g. rotating discs, arms, starwheels, cones (mechanical projectors [B65G 31/00](#); screw or rotary spiral conveyers conveyors [B65G 33/00](#); {turntables as feeding, transfer or discharging devices [B65G 47/80](#); starwheels as feeding, transfer or discharging devices [B65G 47/84](#)})**
- B65G 33/00** **Screw or rotary spiral conveyers conveyors (screws for extruding, compressing, kneading, mixing, pumping or other special operations, see the relevant classes)**
- B65G 35/00** **Kinds of mechanical conveyers conveyors not otherwise provided for (railway systems [B61B](#))**
- B65G 35/04
- comprising a flexible load carrier, e.g. a belt, which is wound up at one end and paid out at the other (reciprocating belt conveyers conveyors [B65G 25/06](#))

- B65G 37/00** Combinations of mechanical **conveyersconveyors** of the same kind, or of different kinds, of interest apart from their application in particular machines or use in particular manufacturing processes (in "live" storage devices [B65G 1/04](#); {series of co-operating belt **conveyerconveyor** units [B65G 15/22](#); series of co-operating chain **conveyerconveyor** units [B65G 17/26](#); sequence control of combined **conveyersconveyors** [B65G 43/10](#)}; specially adapted for handling radioactive materials [G21](#))
- B65G 37/02 · Flow-sheets for **conveyerconveyor** combinations in warehouses, magazines or workshops
- B65G 39/00 - B65G 49/00** Common features or details of, or auxiliary devices applicable to, **conveyersconveyors** of different kinds or types; Feeding or discharging devices incorporated in, or operatively associated with, **conveyersconveyors**
- B65G 39/00** Rollers, e.g. drive rollers, or arrangements thereof incorporated in roller-ways or other types of mechanical **conveyersconveyors** (driving gear for rollers of roller-ways [B65G 13/06](#); drive rollers of endless **conveyersconveyors** [B65G 23/04](#); arrangement of rollers in metal-rolling equipment [B21B 39/10](#); friction members [F16H 55/32](#))
- B65G 41/00** Supporting frames or bases for **conveyersconveyors** as a whole, e.g. transportable **conveyerconveyor** frames
- B65G 41/001 · {with the **conveyerconveyor** adjustably mounted on the supporting frame or base}
- B65G 41/006 · {with the **conveyerconveyor** not adjustably mounted on the supporting frame or base}
- B65G 41/007 · {Means for moving **conveyerconveyor** frames and control arrangements therefor ([B65G 41/02](#) takes precedence)}
- B65G 43/00** Control, e.g. safety, warning, fault-correcting, devices (for elevators, escalators or moving walkways [B66B](#); in general [F16P](#), [G08B](#))
- NOTE  
in this group the following indexing codes are used:  
[B65G 2811/0673](#)  
[B65G 2812/02099](#) to- [B65G 2812/02108](#)
- B65G 43/10 · Sequence control of **conveyersconveyors** operating in combination
- U B65G 45/00** Lubricating, cleaning, or clearing devices
- B65G 45/005 · {Cleaning **conveyerconveyor** screws}
- B65G 47/00** Article or material handling devices associated with **conveyersconveyors**; Methods employing such devices (for sorting, e.g. postal [B07C](#))
- B65G 47/02 · Devices for feeding articles or materials to **conveyersconveyors**
- U B65G 47/04 · · for feeding articles
- U B65G 47/06 · · · from a single group of articles arranged in orderly pattern, e.g. workpieces in magazines (de-stacking devices [B65G 59/00](#); picking-up flat workpieces [B65H](#))
- B65G 47/08 · · · spacing or grouping the articles during feeding (during transit by **conveyersconveyors** [B65G 47/26](#))
- U B65G 47/12 · · · from disorderly-arranged article piles or from loose assemblages of articles
- B65G 47/14 · · · · arranging or orientating the articles by mechanical or pneumatic means during feeding (during transit by **conveyerconveyor** [B65G 47/24](#), [B65G 47/26](#))
- B65G 47/1492 · · · · {the articles being fed from a feeding **conveyerconveyor**}

- B65G 47/22
  - Devices influencing the relative position or the attitude of articles during transit by **conveyersconveyors** (during feeding [B65G 47/14](#))
- U B65G 47/26
  - • Arranging the articles, e.g. varying spacing between individual articles (stacking or destacking {during transit [B65G 57/32](#), [B65G 59/12](#)})
- U B65G 47/261
  - • • {Accumulating articles}
- B65G 47/263
  - • • • {the **conveyerconveyor** drive is taken from a longitudinally extending shaft}
- B65G 47/28
  - • • during transit by a single **conveyerconveyor** {([B65G 47/261](#) takes precedence)}
- B65G 47/30
  - • • during transit by a series of **conveyersconveyors** {([B65G 47/261](#) takes precedence)}
- B65G 47/31
  - • • • by varying the relative speeds of the **conveyersconveyors** forming the series
- B65G 47/34
  - Devices for discharging articles or materials from **conveyersconveyors** ([B65G 47/256](#) takes precedence; sorting in general [B07](#))
- U B65G 47/38
  - • by dumping, tripping, or releasing load carriers (by flexing or tilting travelling structures [B65G 47/94](#))
- B65G 47/40
  - • • by tilting **conveyerconveyor** buckets
- B65G 47/52
  - Devices for transferring articles or materials between **conveyersconveyors** {or sections of one **conveyerconveyor**}, i.e. discharging and feeding devices (loading or unloading by means not incorporated in, or not operatively associated with, **conveyersconveyors** [B65G 65/00](#); transfer of workpieces during metal rolling [B21B 41/00](#))
- B65G 47/53
  - • between **conveyersconveyors** which cross one another
- B65G 47/56
  - • to or from inclined or vertical **conveyerconveyor** sections
- B65G 47/60
  - • to or from **conveyersconveyors** of the suspended, e.g. trolley, type
- B65G 47/64
  - • Switching **conveyersconveyors**
- B65G 47/66
  - • Fixed platforms or combs, e.g. bridges between **conveyersconveyors**
- B65G 47/68
  - • adapted to receive articles arriving in one layer from one **conveyerconveyor** {lane} and to transfer them in individual layers to more than one **conveyerconveyor** {lane or to one broader **conveyerconveyor** lane}, or vice-versa, e.g. combining the flows of articles conveyed by more than one **conveyerconveyor**
- B65G 47/681
  - • • {from distinct, separate **conveyerconveyor** lanes}
- B65G 47/682
  - • • {from a single **conveyerconveyor** lane consisting of one **conveyerconveyor** or several adjacent **conveyersconveyors**}
- B65G 47/683
  - • • • {with tilting of at least part of the **conveyerconveyor** to make use of gravity}
- B65G 47/71
  - • • the articles being discharged {or distributed} to several {distinct separate} **conveyersconveyors** {or to a broader **conveyerconveyor** lane}
- B65G 47/715
  - • • • {to a broader **conveyerconveyor** lane}
- B65G 47/72
  - • transferring materials in bulk from one **conveyerconveyor** to several **conveyersconveyors**, or vice versa
- U **B65G 49/00**
  - Conveying systems characterised by their application for specified purposes not otherwise provided for (for conveying sheet material [B65H](#))**
- U B65G 49/02
  - for conveying workpieces through baths of liquid
- B65G 49/025
  - • {**conveyerconveyor** feeding and discharging means}
- U B65G 49/04
  - • the workpieces being immersed and withdrawn by movement in a vertical direction

- U B65G 49/0409 . . . {specially adapted for workpieces of definite length}
- U B65G 49/0413 . . . . {arrangements for conveyance through the bath}
- B65G 49/0418 . . . . {chain or belt **conveyersconveyors**}
- B65G 49/0427 . . . . {jigging **conveyersconveyors**}
- U B65G 49/05 . for fragile or damageable materials or articles
- B65G 49/06 . for fragile sheets, e.g. glass (transporting of glass products during their manufacture [C03B 35/00](#))

**NOTE**

In group [B65G 49/06](#) and subgroups it is desirable to add indexing codes for specific aspects of conveying systems. The indexing codes are chosen from groups [B65G 2249/00](#) to [B65G 2249/045](#)

- B65G 49/061 . . . {Lifting, gripping, or carrying means, for one or more sheets forming independent means of transport, e.g. suction cups, transport frames (suction means as load-engaging elements attached to the lifting or lowering gear of cranes [B66C 1/02](#); suction cups for attaching purposes [F16B 47/00](#); suction cups on gripping heads [B25J 15/0616](#); suction cups in general [B65G 47/91](#); suction cups combined with cutting means on vertical **conveyersconveyors** [C03B 33/00](#) - [C03B 33/10](#); devices for turning sheets [B65G 49/067](#); suspending devices [B65G 49/066](#)}
- B65G 49/067 . . . {Sheet handling, means, e.g. manipulators, devices for turning or tilting sheet glass (suction cups [B65G 49/061](#); combined with vertical **conveyersconveyors** [C03B 33/00](#) - [C03B 33/10](#); stacking and destacking [B65G 49/068](#))}
- U **B65G 53/00** **Conveying materials in bulk through troughs, pipes, or tubes by floating the materials, or by flows of gas, liquid, or foam (fluidising in connection with loading or unloading [B65G 69/06](#); loaders for hay or cereals [A01D 87/00](#); {discharging means for mixtures containing clay or cementitious material [B28C 7/16](#); } fluidising devices facilitating filling or emptying of large containers [B65D 88/72](#); {combined washing or cutting and conveyance of materials in sugar manufacture [A23N](#); [C13B](#);} dredging [E02F](#); winning materials out of alluvial deposits [E21C 45/00](#); hydraulic or pneumatic mine-filling-up machines [E21F 15/00](#); fluid dynamics [F15D](#) {pumping fluid by direct action of another fluid [F04F](#))}**
- B65G 53/32 . Conveying concrete, e.g. for distributing same at building sites (mixing concrete on or by **conveyersconveyors** [B28C 5/34](#))
- U B65G 53/34 . Details
- U B65G 53/40 . . Feeding or discharging devices
- B65G 53/44 . . . Endless **conveyersconveyors**
- B65G 53/48 . . . Screws or like rotary **conveyersconveyors**
- B65G 54/00** **Non-mechanical **conveyersconveyors** not otherwise provided for**
- B65G 57/00 -** **Stacking or de-stacking; Loading or unloading (by means incorporated in,**  
**B65G 69/00** **or operatively associated with, **conveyersconveyors** [B65G 47/00](#); lift trucks [B60P](#); [B66F](#); handling sheet material or flat articles made therefrom [B65H](#); cranes [B66C](#); loading or unloading by soil-shifting or like equipment [E02F](#); stacking or de-stacking data record cards in association with machines for marking or sensing data [G06K](#))**

**NOTE**

In groups [B65G 57/00](#) to [B65G 61/00](#), the following term is used with the meaning indicated:

- "stacking" means disposing articles individually or in layers one above each other
- U B65G 57/02      • by adding to the top of the stack
- B65G 57/11      • • the articles being stacked by direct action of the feeding **conveyerconveyor**
- B65G 57/112     • • • the **conveyerconveyor** being adjustable in height
- B65G 57/14      • • • the articles being transferred from carriers moving in an endless path adjacent to the stacks (~~conveyer constructions B65G 15/00 to B65G 35/00; combinations of conveyers B65G 37/00~~**conveyor constructions B65G 15/00 - B65G 35/00; combinations of conveyors B65G 37/00**)
- B65G 63/00**     **Transferring or trans-shipping at storage areas, railway yards, harbours, {or in opening mining cuts}; Marshalling yard installations (transferring refuse between vehicles or containers B65F 9/00; dredging, soil shifting E02F; conveyers used in co-operation with coal or like winning apparatus E21C 47/00; conveyors used in co-operation with coal or like winning apparatus E21C 47/00)**
- B65G 63/04      • with essentially horizontal transit by bridges equipped with **conveyersconveyors** {(cranes **B66C**)}
- U B65G 65/00**     **Loading or unloading (of vehicles B65G 67/00)**
- B65G 65/02      • Loading or unloading machines comprising essentially a **conveyerconveyor** for moving the loads associated with a device for picking-up the loads
- B65G 65/06      • • with endless scraping or elevating pick-up **conveyersconveyors**
- B65G 65/08      • • with reciprocating pick-up **conveyersconveyors**
- U B65G 65/10     • • • Raking or scraping devices
- B65G 65/12      • • • • operations at positions off-set from the **conveyerconveyor** centreline
- B65G 65/14      • • with jiggling pick-up **conveyersconveyors**, e.g. duck-bills
- B65G 65/16      • • with rotary pick-up **conveyersconveyors**
- U B65G 65/30     • Methods or devices for filling or emptying bunkers, hoppers, tanks, or like containers, of interest apart from their use in particular chemical or physical processes or their application in particular machines, e.g. not covered by a single other subclass (devices for tilting and emptying containers **B65G 65/23**; such containers having means facilitating filling or emptying **B65D 88/54**)
- NOTE**
- Methods or devices for filling bunkers, hoppers, or containers are only classified in group **B65G 65/30** if they are of general application apart from their use in particular processes or their application in particular machines or if they are not covered by a single other subclass
- B65G 65/32      • • Filling devices (~~pneumatic conveyers B65G 51/00, B65G 53/00~~**pneumatic conveyors B65G 51/00, B65G 53/00**)
- B65G 65/34      • • Emptying devices (~~conveyer constructions B65G 15/00 to B65G 35/00; conveyor constructions B65G 15/00 - B65G 35/00~~; devices similar to vehicle tipplers **B65G 67/48**)
- U B65G 65/40     • • • Devices for emptying otherwise than from the top
- B65G 65/42      • • • • using belt or chain **conveyersconveyors**
- B65G 65/44      • • • • using reciprocating **conveyersconveyors**, e.g. jiggling **conveyersconveyors**
- B65G 65/46      • • • • using screw **conveyersconveyors**
- B65G 67/00**     **Loading or unloading vehicles (by means incorporated in the vehicles **B60 to- B64**; ground or aircraft-carrier-deck installations **B64F**; transferring refuse between vehicles or containers **B65F 9/00**)**

- U B65G 67/02           · Loading or unloading land vehicles
- U B65G 67/04           · · Loading land vehicles {(loading or unloading boats to or from land vehicles  
B60P 3/10)}
- B65G 67/08           · · · using endless conveyersconveyors
- B65G 67/10           · · · using conveyersconveyors covering the whole length of vehicle trains
- U B65G 67/24           · · Unloading land vehicles
- U B65G 67/26           · · · using rakes or scrapers
- B65G 67/28           · · · · External transverse blades attached to endless conveyersconveyors
  
- B65G 2811/00**       **Indexing codes relating to common features for more than one  
conveyerconveyor kind or type**
- U B65G 2811/06       · Devices controlling the relative position of articles
- U B65G 2811/0673     · · Control of conveying operations
- U B65G 2811/0678     · · · Determining the path to be followed
- B65G 2811/0684     · · · · by stopping or tilting load-carriers not leaving the conveyerconveyor path
- U B65G 2811/0689     · · · Releasing constant material flow
- B65G 2811/0694     · · · · for permanently occupying the conveyerconveyor path
- B65G 2811/09       · Driving means for the conveyersconveyors
- B65G 2811/091     · · the conveyerconveyor type being irrelevant
- B65G 2811/092     · · · a single conveyerconveyor having more than one driving means
  
- B65G 2812/00**       **Indexing codes relating to the kind or type of conveyersconveyors**
- B65G 2812/01       · ConveyersConveyors composed of several types of conveyersconveyors
- B65G 2812/011     · · one conveyerconveyor being driven by another one
- B65G 2812/012     · · for conveying material successively by a series of conveyersconveyors
- B65G 2812/013     · · · without relative movement between conveyersconveyors
- B65G 2812/014     · · · with relative movement between conveyersconveyors
- B65G 2812/015     · · · · the conveyersconveyors being movably linked
- U B65G 2812/016     · · for conveying material by co-operating units in tandem
- B65G 2812/017     · · · using tilted or side by side conveyerconveyor sections
- B65G 2812/018     · · · between conveyerconveyor sections
- B65G 2812/02       · Belt or chain conveyersconveyors
- B65G 2812/02009   · · Common features for belt or chain conveyersconveyors
- U B65G 2812/02019   · · · Supporting or guiding frames
- B65G 2812/02029   · · · · Transportable conveyerconveyor frames
- U B65G 2812/02039   · · · · Profiles or beams
- B65G 2812/02049   · · · · · with guiding means for displaceable conveyerconveyor accessories
- B65G 2812/02118   · · · Gathering means for material falling from the conveyerconveyor
- B65G 2812/02128   · · Belt conveyersconveyors
- B65G 2812/02138   · · · Common features for belt conveyersconveyors
- B65G 2812/02267   · · ConveyersConveyors having endless traction elements
- B65G 2812/02277   · · · Common features for chain conveyersconveyors
- U B65G 2812/02861   · · · moving the materials over supporting surfaces by impeller means e.g.  
    scrapers
- U B65G 2812/02871   · · · · for bulk material
- B65G 2812/02881   · · · · · Scraper conveyersconveyors

- U B65G 2812/02891 . . . . . Troughs, channels or conduits
- B65G 2812/029 . . . . . Guiding means for displaceable **conveyerconveyor** accessories
- B65G 2812/0292 . . . . . with oppositely-moving parts of the **conveyerconveyor** located in a common plane
- B65G 2812/0299 . . **ConveyersConveyors** having independant belt or chain **conveyerconveyor** sections
- B65G 2812/03 . Vibrating **conveyersconveyors**
- U B65G 2812/0304 . . Driving means or auxiliary devices
- B65G 2812/032 . . . Help-**conveyersconveyors**
- B65G 2812/05 . Screw-**conveyersconveyors**
- U B65G 2812/0505 . . Driving means, constitutive elements or auxiliary devices
- B65G 2812/0511 . . . **ConveyerConveyor** screws
- B65G 2812/06 . Skip or hopper **conveyersconveyors**
- B65G 2812/09 . Walking beam **conveyersconveyors**
- B65G 2812/12 . **ConveyersConveyors** with reciprocating means
- B65G 2812/15 . Throwing-**conveyersconveyors**
- B65G 2812/16 . Pneumatic **conveyersconveyors**
- U B65G 2812/1608 . . for bulk material
- B65G 2812/1616 . . . Common means for pneumatic **conveyersconveyors**
- B65G 2812/18 . **ConveyersConveyors** with suspended load-carriers operated by hand or gravity
- B65G 2812/99 . **ConveyerConveyor** systems not otherwise provided for
- U B65G 2814/00 Indexing codes relating to loading or unloading articles or bulk materials**
- U B65G 2814/02 . Auxiliary devices or arrangements
- U B65G 2814/0241 . . for spreading out the material over the whole surface to be loaded
- B65G 2814/0264 . . . using screw **conveyersconveyors**
- U B65G 2814/03 . Loading or unloading means
- U B65G 2814/0301 . . General arrangements
- U B65G 2814/0314 . . . for moving bulk material downwards
- U B65G 2814/0319 . . . . through a closable or non-closable outlet opening
- B65G 2814/032 . . . . . using a belt or chain **conveyerconveyor** in or beneath the opening
- U B65G 2814/0326 . . . for moving bulk material upwards or horizontally
- U B65G 2814/0328 . . . . Picking-up means
- B65G 2814/0331 . . . . . Belt or chain **conveyersconveyors**
- B65G 2814/0332 . . . . . Bucket **conveyersconveyors**
- B65G 2814/0334 . . . . . Scraper **conveyersconveyors**
- B65G 2814/0335 . . . . . Shaking or vibrating **conveyersconveyors**

**Project: N/A (B65H)****B65H****HANDLING THIN OR FILAMENTARY MATERIAL, e.g. SHEETS, WEBS, CABLES**NOTES

1. This subclass does not cover methods or devices intimately associated with other operations on thin or filamentary material, e.g sheets, webs, cables or means for performing such operations, which are classified in the relevant subclasses for these operations, e.g.:

[B07C](#) Postal sorting, similar sorting of documents, e.g. cheques

[B08B 1/02](#) Cleaning travelling work, e.g. webs, by methods involving the use of tools, brushes or like members

[B21B 41/00](#) Metal rolling involving guiding, conveying or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves

[B21C 47/00](#), Winding-up, coiling, winding-off or temporarily

[B21C 49/00](#) accumulating metal wire, metal band or other flexible metal material, characterised by features relevant to metal processing only, other than by rolling

[B21D 43/00](#) Feeding, positioning or storing devices, combined with, or arranged in, or specially adapted for use in connection with, apparatus for working or processing sheet metal without essentially removing material

[B23K 9/12](#) Means for automatic feeding of electrodes for spot or seam welding or cutting

[B29C 31/00](#) Handling for shaping or joining of plastics, for shaping of substances in a plastic state in general or for after-treatment of shaped products, e.g. feeding the material to be shaped

[B41B 15/32](#), Film-handling mechanisms in photographic

[B41B 21/32](#) composing machines

[B41F 13/02](#) Conveying or guiding webs through rotary printing presses or machines

[B41J 11/00](#) to Handling of copy- or impression-transfer material

[B41J 17/00](#) in typewriters or selective printing mechanisms

[B41K 3/44](#) Means for handling copy matter in stamping or numbering apparatus or devices

[B41L](#) Handling sheets or webs in apparatus or devices for manifolding, duplicating or printing for office or other commercial purposes, or on addressing machines or like series-printing machines

[B42B](#) Handling relating to permanently attaching together sheets, quires, or signatures

[B42C](#) Handling sheets in book-binding

[B65B](#) Handling of sheets or webs in apparatus for, or methods of, packaging articles, not of interest apart from their application in packaging machines

[B65C](#) Handling of labels in labelling or tagging apparatus

[C14B 1/62](#) Winding or stacking hides or leather  
in  
machines or devices for manufacturing leather  
[D01](#) ~~to~~ [D07](#) Spinning, weaving, braiding, lace-  
making,  
knitting, sewing, making ropes or cables  
[D21F 2/00](#) Transferring webs from wet ends to  
press  
sections in paper-making  
[F26B 13/00](#) Handling fabrics, fibres, yarns or  
other  
material in long lengths in drying apparatus  
[G03B](#) Film-strip handling or handling of  
pictures  
in apparatus for taking photographs or for  
projecting or viewing them  
[G06K 13/00](#) Conveying record carriers from one station  
to  
another  
[G06M 7/00](#) Counting of flat articles, e.g. sheets,  
carried  
by a ~~conveyer~~conveyor  
[G11B 15/00](#) to Information storage based on relative  
movement  
[G11B 19/00](#), between record carrier and transducer,  
[G11B 23/00](#), involving handling record carriers for  
[G11B 25/00](#) recording or reproducing  
[H01F 41/06](#) Manufacturing coils for magnets,  
inductances,  
transformers, by winding  
[H01G 13/02](#) Machines for winding capacitors  
[H04N 1/00](#) Sheet handling not of interest apart from  
its  
use in systems for transmission or reproduction  
of pictures or patterns not varying in  
time, e.g. facsimile transmission

2. In this subclass:

- the groups relating to thin material, as defined under (i) of Note (3) below, are primarily intended to cover the handling of articles made of paper or cardboard, but also include the handling of articles made of other materials which have similar characteristics or present similar handling problems, e.g. articles made of sheet- plastics or leather;
- the groups relating to filamentary material (groups [B65H 49/00](#) onwards,) as defined in Note (3) below, cover only methods or devices of general application or interest.

3. In this subclass, the following terms or expressions are used with the meanings indicated:

- "handling" includes feeding, folding (other than in the manufacture of products), guiding, orientating, storing, unwinding, and winding;
- "thin material" includes:
  - i. sheets, signatures, envelopes, blanks, and thin and thin piles thereof (hereinafter referred to as "articles"), and
  - ii. webs, tapes, and films, e.g. of paper, fabric, metal foil, or plastics;
- "filamentary material" includes thread, wires, ropes, cables, and hoses;
- "package" means a mass of filamentary material, formed by coiling, depositing, or winding, with or without a supporting core or former or an enclosing container or receptacle.

- {"yarn" also covers similar filamentary materials.}

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [B65H 35/07](#) covered by [B65H 35/0006](#)
- [B65H 77/00](#) covered by [B65H 23/00](#),  
[B65H 59/00](#)
- [B65H 83/00](#), [B65H 83/02](#) covered by  
[B07C 1/025](#), [G07D 11/00](#) and s.gr
- [B65H 85/00](#) covered by [G03B 27/62](#),  
[G03B 27/6264](#), [G03B 27/6257](#)

#### U B65H 5/00

**Feeding articles separated from piles; Feeding articles to machines ({[B65H 9/00](#) takes precedence; } identical mechanisms or parts for delivering or advancing articles from machines [B65H 29/00](#); recirculating articles [B65H 85/00](#), {[G03B 27/6257](#)})**

B65H 5/02 · by belts or chains, {e.g. between belts or chains (by combinations of endless [conveyersconveyors](#) and grippers [B65H 5/085](#); by suction belts [B65H 5/224](#))}

#### U B65H 5/08

· by grippers, e.g. suction grippers

B65H 5/085

· · {by combinations of endless [conveyersconveyors](#) and grippers (suction belts [B65H 5/224](#))}

#### U B65H 9/00

**Registering, e.g. orientating, articles; Devices therefor**

B65H 9/10

· Pusher and like movable registers; Pusher or gripper devices which move articles into registered position

#### NOTE

After the notation of the groups [B65H 9/10](#) to [B65H 9/108](#) and separated therefrom by a + sign, the notation L may be added to indicate that the device moves articles, already positioned in registered position according to a first direction, into registered position along a second direction perpendicular to the first one, e.g. for lateral registering

#### U B65H 19/00

**Changing the web roll**

U B65H 19/10

· in unwinding mechanisms or in connection with unwinding operations

B65H 19/18

· · Attaching, e.g. pasting, the replacement web to the expiring web {(adhesive arrangements on leading end of replacement web, tabs and adhesive tapes for splicing [B65H 19/102](#))}

#### WARNING

Groups [B65H 19/1805](#) to [B65H 19/1842](#) are not complete pending reclassification. See also this group

#### U B65H 29/00

**Delivering or advancing articles from machines; Advancing articles to or into piles**

U B65H 29/02

· by mechanical grippers engaging the leading edge only of the articles

U B65H 29/04

· · the grippers being carried by endless chains or bands

B65H 29/042

· · · {Intermediate [conveyersconveyors](#), e.g. transferring devices}

#### U B65H 45/00

**Folding thin material (specially adapted for the manufacture or treatment of particular products, see appropriate subclasses, e.g. [D06F 89/00](#))**

- B65H 45/02
- Folding limp material {(Shaping of plastics or by bending or folding [B29C 53/00](#); Folding sheets, blanks or webs for box, carton, envelope or bag making [B31B 1/26](#); Shaping of paper or cardboard by bending or folding [B31F 1/0003](#); )} without application of pressure to define or form crease lines (winding or unwinding fabrics for feeding to or from machines [B65H 16/00](#) ~~to-~~ [B65H 27/00](#); folding garments for packaging purposes [B65B](#); folding fabrics in sewing machines [D05B](#))
- U B65H 54/00**      **Winding, coiling, or depositing filamentary material (cores, formers, holders, cans or receptacles [B65H 75/02](#))**
- U B65H 54/02
- Winding and traversing material on to reels, bobbins, tubes, or like package cores or formers
- U B65H 54/28
- · Traversing devices; Package-shaping arrangements (arrangements for preventing ribbon winding [B65H 54/38](#); grooved, slotted, or split drums for driving of packages [B65H 54/46](#))
- B65H 54/30
- · · with thread guides reciprocating or oscillating with fixed stroke {([B65H 54/2803](#) ~~to-~~ [B65H 54/2896](#) take precedence)}
- U B65H 67/00**      **Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations**
- U B65H 67/06
- Supplying cores, receptacles, or packages to, or transporting from, winding or depositing stations {(between spinning and winding machines [D01H 9/18](#), e.g. transporting cans [D01H 9/185](#))}
- U B65H 67/064
- · {Supplying or transporting cross-wound packages, also combined with transporting the empty core}
- B65H 67/065
- · · {Manipulators with gripping or holding means for transferring the packages from one station to another, e.g. from a ~~conveyer~~[conveyor](#) to a creel trolley}
- B65H 2557/00**      **Means for control not provided for in groups [B65H 2551/00](#) ~~to-~~ [B65H 2555/00](#)**

**Project: MP0152 (B65H)**

- M B65H 2701/00**      **Handled material-~~or storage means~~; [Storage means](#)**

**Project: N/A (B65H)**

- U B65H 2801/00**      **Application field**
- U B65H 2801/24
- Post -processing devices
- B65H 2801/27
- · Devices located downstream of office-type machines;

**Project: N/A (B66B)**

**B66B**      **ELEVATORS; ESCALATORS OR MOVING WALKWAYS** ({apparatus for raising or lowering persons on theatrical stages or the like [A63J 5/12](#)}; funicular railbound systems with rigid ground-supported tracks and cable traction, e.g. cliff railways, [B61B 9/00](#); arrangements of ammunition handlers in vessels [B63G 3/00](#); hoists, lifts, or ~~conveyers~~[conveyors](#) for loading or unloading in general [B65G](#); braking or detent devices controlling normal movements of winding drums or barrels [B66D](#); ship-lifting devices [E02C](#); garages for many vehicles with mechanical means for lifting vehicles [E04H 6/12](#); hoists for feeding ammunition or projectiles to launching apparatus or to loading mechanisms [F41A 9/00](#))

**NOTE**

In this subclass, the following term is used with the meaning indicated:

- "elevator" covers the term "lift", and the two terms are interchangeable

B66B 20/00

Elevators not provided for in groups [B66B 1/00](#) ~~to~~ [B66B 19/00](#)**Project: N/A (B66C)**

U B66C 23/00

**Cranes comprising essentially a beam, boom, or triangular structure acting as a cantilever and mounted for translatory or swinging movements in vertical or horizontal planes or a combination of such movements, e.g. jib-cranes, derricks, tower cranes (base supporting structures with legs [B65C 5/00](#))**

U B66C 23/18

- specially adapted for use in particular purposes

B66C 23/36

- · mounted on road or rail vehicles; Manually-movable jib-cranes for use in workshops; Floating cranes (with pneumatic or hydraulic motors [B66C 23/54](#); vehicle or ship aspects [B60](#) ~~to~~ [B63](#))

B66C 25/00

Cranes not provided for in groups [B66C 17/00](#) ~~to~~ [B66C 23/00](#)**Project: N/A (B66D)**

U B66D 1/00

**Rope, cable, or chain winding mechanisms; Capstans (portable or mobile lifting or hauling appliances [B66D 3/00](#))**

U B66D 1/02

- Driving gear

B66D 1/14

- · Power transmissions between power sources and drums or barrels {(including brakes, one-way brakes, one-way clutches, clutches activated alternately with brakes, fixed ratio gearing unless otherwise provided for in [B66D 1/16](#) ~~to~~ [B66D 1/24](#))}

**Project: N/A (B66F)**

U B66F 9/00

**Devices for lifting or lowering bulky or heavy goods for loading or unloading purposes (mobile or transportable lifts in, or associated with, buildings and specially adapted to be shifted from one part of a building or other structure to another part or to another building or structure [B66B 9/16](#); cranes [B66C](#))**

B66F 9/06

- movable, with their loads, on wheels or the like, e.g. fork-lift trucks (vehicle aspects [B60](#) ~~to~~ [B62](#); vehicles predominantly for transporting loads and modified to facilitate loading or unloading [B60P 1/00](#); low-lift hand trucks for transporting goods [B62B 3/06](#))

**Project: N/A (B67B)**

B67B

**APPLYING CLOSURE MEMBERS TO BOTTLES JARS, OR SIMILAR CONTAINERS; OPENING CLOSED CONTAINERS (opening or closing devices attached to, or incorporated in, containers or container closures [B65D](#))**

WARNING

The following IPC groups are not used in the CPC scheme. Subject-matter covered by these groups is classified in the following CPC groups:

[B67B 7/46](#) covered by [B67B 7/30](#) ~~to~~ [B67B 7/385](#)

[B67B 7/48](#) ~~to~~ [B67B 7/52](#) covered by [B67B 7/24](#), [B67B 7/26](#), [B67B 7/28](#)

[B67B 7/54](#) ~~to~~ [B67B 7/90](#) covered by [B67B 7/30](#) ~~to~~ [B67B 7/385](#)

**Project: N/A (B68G)**

U B68G 7/00

**Making upholstery (manufacturing upholstered panels [B68G 13/00](#); {from plastics [B29D 99/0092](#)}; sewing-machines [D05B](#))**

U B68G 7/02

- Making upholstery from waddings, fleeces, mats, or the like (filling methods [B68G 7/06](#))

B68G 7/04

- by ~~conveyer~~conveyor-line methods

**Project: N/A (B81B)****U B81B 3/00****Devices comprising flexible or deformable elements, e.g. comprising elastic tongues or membranes (B81B 5/00 takes precedence)**

U B81B 3/0002

- {Arrangements for avoiding sticking of the flexible or moving parts}

B81B 3/0016

- • {Arrangements for avoiding sticking of the flexible or moving parts not provided for in groups [B81B 3/0005](#) ~~to~~ [B81B 3/0013](#)}

U B81B 3/0018

- {Structures acting upon the moving or flexible element for transforming energy into mechanical movement or vice-versa, i.e. actuators, sensors, generators}

B81B 3/0032

- • {Structures for transforming energy not provided for in groups [B81B 3/0021](#) ~~to~~ [B81B 3/0029](#)}

U B81B 3/0035

- {Constitution or structural means for controlling the movement of the flexible or deformable elements}

U B81B 3/004

- • {Angular deflection}

B81B 3/0048

- • • {Constitution or structural means for controlling angular deflection not provided for in groups [B81B 3/0043](#) ~~to~~ [B81B 3/0045](#)}

B81B 3/0059

- • {Constitution or structural means for controlling the movement not provided for in groups [B81B 3/0037](#) ~~to~~ [B81B 3/0056](#)}

U B81B 3/0064

- {Constitution or structural means for improving or controlling the physical properties of a device}

U B81B 3/0067

- • {Mechanical properties}

B81B 3/0078

- • • {Constitution or structural means for improving mechanical properties not provided for in [B81B 3/007](#) ~~to~~ [B81B 3/0075](#)}

B81B 3/0094

- • {Constitution or structural means for improving or controlling physical properties not provided for in [B81B 3/0067](#) ~~to~~ [B81B 3/0091](#)}

B81B 3/0097

- {Devices comprising flexible or deformable elements not provided for in groups [B81B 3/0002](#) ~~to~~ [B81B 3/0094](#)}

**U B81B 7/00****Micro-structural systems; {Auxiliary parts of micro-structural devices or systems}**

U B81B 7/0009

- {Structural features, others than packages, for protecting a device against environmental influences ([B81C 1/00777](#) takes precedence)}

B81B 7/0029

- • {Protection against environmental influences not provided for in groups [B81B 7/0012](#) ~~to~~ [B81B 7/0025](#)}

U B81B 7/0032

- {Packages or encapsulation (processes for packaging MEMS [B81C 1/00261](#); packaging of smart-MEMS [B81C 1/0023](#))}

U B81B 7/0045

- • {for reducing stress inside of the package structure}

B81B 7/0054

- • • {between other parts not provided for in [B81B 7/0048](#) ~~to~~ [B81B 7/0051](#)}

B81B 7/0077

- • {Other packages not provided for in groups [B81B 7/0035](#) ~~to~~ [B81B 7/0074](#)}

**U B81B 2201/00****Specific applications of micro-electromechanical systems**

U B81B 2201/01

- Switches

U B81B 2201/012

- • characterised by the shape

B81B 2201/018

- • • Switches not provided for in [B81B 2201/014](#) ~~to~~ [B81B 2201/016](#)

U B81B 2201/02

- Sensors

U B81B 2201/0228

- • Inertial sensors

B81B 2201/025

- • • Inertial sensors not provided for in [B81B 2201/0235](#) ~~to~~ [B81B 2201/0242](#)

B81B 2201/0292

- • Sensors not provided for in [B81B 2201/0207](#) ~~to~~ [B81B 2201/0285](#)

U B81B 2201/03

- Micro-engines and actuators

- B81B 2201/038
- • Micro-engines and actuators not provided for in [B81B 2201/031](#) ~~to~~ [B81B 2201/037](#)
- U B81B 2201/04
- Optical MEMS
- B81B 2201/047
- • Optical MEMS not provided for in [B81B 2201/042](#) ~~to~~ [B81B 2201/045](#)
- U B81B 2201/05
- Micro-fluidics
- B81B 2201/058
- • Micro-fluidics not provided for in [B81B 2201/051](#) ~~to~~ [B81B 2201/054](#)
- U B81B 2203/00**      **Basic micro-electromechanical structures**
- U B81B 2203/01
- Suspended structures, i.e. structures allowing a movement
- U B81B 2203/0145
- • Flexible holders
- B81B 2203/0172
- • • Flexible holders not provided for in [B81B 2203/0154](#) ~~to~~ [B81B 2203/0163](#)
- U B81B 2203/03
- Static structures
- U B81B 2203/0323
- • Grooves
- B81B 2203/0346
- • • Grooves not provided for in [B81B 2203/033](#) ~~to~~ [B81B 2203/0338](#)
- U B81B 2203/0369
- • characterized by their profile
- B81B 2203/0392
- • • profiles not provided for in [B81B 2203/0376](#) ~~to~~ [B81B 2203/0384](#)
- U B81B 2207/00**      **Micro-structural systems or auxiliary parts thereof**
- U B81B 2207/01
- comprising a micromechanical device connected to control or processing electronics, i.e. Smart-MEMS
- B81B 2207/017
- • Smart-MEMS not provided for in [B81B 2207/012](#) ~~to~~ [B81B 2207/015](#)
- B81B 2207/03
- Electronic circuits for micro-mechanical devices which are not application specific, e.g. for controlling, power supplying, testing, protecting;
- U B81B 2207/09
- Packages
- U B81B 2207/091
- • Arrangements for connecting external electrical signals to mechanical structures inside the package
- B81B 2207/098
- • • Arrangements not provided for in groups [B81B 2207/092](#) ~~to~~ [B81B 2207/097](#)
- B81B 2207/99
- Micro-structural systems or auxiliary parts thereof not provided for in [B81B 2207/01](#) ~~to~~ [B81B 2207/115](#)

**Project: N/A (B81C)**

- U B81C 1/00**      **Manufacture or treatment of devices or systems in or on a substrate (B81C 3/00 takes precedence)**
- U B81C 1/00015
- {for manufacturing micro-systems}
- U B81C 1/00023
- • {without movable or flexible elements (array of static structures for functionalising surfaces in [B81C 1/00206](#); manufacture of MEMS devices for specific applications, see relevant places, e.g. microreactors [B01J 19/0093](#), lab-on-chip [B01L 3/5027](#), micromixers [B01F 13/0059](#))}
- U B81C 1/00055
- • • {Grooves}
- B81C 1/00079
- • • • {Grooves not provided for in groups [B81C 1/00063](#) ~~to~~ [B81C 1/00071](#)}
- B81C 1/00126
- • • {Static structures not provided for in groups [B81C 1/00031](#) ~~to~~ [B81C 1/00119](#)}
- U B81C 1/00134
- • {comprising flexible or deformable structures (manufacture of MEMS devices for specific applications, see relevant places, e.g. gyroscopes [G01C 19/5719](#), pressure sensors [G01L 9/0042](#), accelerometers [G01P 15/0802](#), acoustic transducers or diaphragms therefor [H04R 31/00](#))}
- B81C 1/0019
- • • {Flexible or deformable structures not provided for in groups [B81C 1/00142](#) ~~to~~ [B81C 1/00182](#)}
- U B81C 1/00222
- • {Integrating an electronic processing unit with a micromechanical structure}

- B81C 1/00253
  - . . . {Processes for integrating an electronic processing unit with a micromechanical structure not provided for in [B81C 1/0023](#) ~~to~~ [B81C 1/00246](#)}
- U B81C 1/00261
  - . . {Processes for packaging MEMS devices (MEMS packages [B81B 7/0032](#), packaging of smart-MEMS [B81C 1/0023](#))}
- B81C 1/00333
  - . . . {Aspects relating to packaging of MEMS devices, not covered by groups [B81C 1/00269](#) ~~to~~ [B81C 1/00325](#)}
- B81C 1/00341
  - . . {Processes for manufacturing micro-systems not provided for in groups [B81C 1/00023](#) ~~to~~ [B81C 1/00261](#)}
- U B81C 1/00349
  - . {Creating layers of material on a substrate}
- B81C 1/0038
  - . . {Processes for creating layers of materials not provided for in groups [B81C 1/00357](#) ~~to~~ [B81C 1/00373](#)}
- U B81C 1/00388
  - . {Etch mask forming}
- B81C 1/00428
  - . . {Etch mask forming processes not provided for in groups [B81C 1/00396](#) ~~to~~ [B81C 1/0042](#)}
- U B81C 1/00436
  - . {Shaping materials, i.e. techniques for structuring the substrate or the layers on the substrate}
- U B81C 1/00444
  - . . {Surface micromachining, i.e. structuring layers on the substrate}
- B81C 1/00492
  - . . . {Processes for surface micromachining not provided for in groups [B81C 1/0046](#) ~~to~~ [B81C 1/00484](#)}
- U B81C 1/00523
  - . . {Etching material}
- B81C 1/00547
  - . . . {Etching processes not provided for in groups [B81C 1/00531](#) ~~to~~ [B81C 1/00539](#)}
- B81C 1/00555
  - . . {Achieving a desired geometry, i.e. controlling etch rates, anisotropy or selectivity ([B81C 1/00023](#) ~~to~~ [B81C 1/0019](#) take precedence)}
- U B81C 1/00563
  - . . . {Avoid or control over-etching}
- B81C 1/00587
  - . . . . {Processes for avoiding or controlling over-etching not provided for in [B81C 1/00571](#) ~~to~~ [B81C 1/00579](#)}
- B81C 1/00626
  - . . . {Processes for achieving a desired geometry not provided for in groups [B81C 1/00563](#) ~~to~~ [B81C 1/00619](#)}
- B81C 1/00634
  - . . {Processes for shaping materials not provided for in groups [B81C 1/00444](#) ~~to~~ [B81C 1/00626](#)}
- U B81C 1/00642
  - . {for improving the physical properties of a device}
- U B81C 1/0065
  - . . {Mechanical properties}
- B81C 1/00682
  - . . . {Treatments for improving mechanical properties, not provided for in [B81C 1/00658](#) ~~to~~ [B81C 1/0065](#)}
- B81C 1/00714
  - . . {Treatment for improving the physical properties not provided for in groups [B81C 1/0065](#) ~~to~~ [B81C 1/00706](#)}
- U B81C 1/00777
  - . {Preserve existing structures from alteration, e.g. temporary protection during manufacturing}
- B81C 1/00785
  - . . {Avoid chemical alteration, e.g. contamination, oxidation or unwanted etching ([B81C 1/00563](#) ~~to~~ [B81C 1/00595](#) take precedence)}
- B81C 1/00809
  - . . . {Methods to avoid chemical alteration not provided for in groups [B81C 1/00793](#) ~~to~~ [B81C 1/00801](#)}
- B81C 1/00833
  - . . {Methods for preserving structures not provided for in groups [B81C 1/00785](#) ~~to~~ [B81C 1/00825](#)}
- U B81C 1/00865
  - . {Multistep processes for the separation of wafers into individual elements}
- B81C 1/00904
  - . . {Multistep processes for the separation of wafers into individual elements not provided for in groups [B81C 1/00873](#) ~~to~~ [B81C 1/00896](#)}

- U B81C 1/00912 · {Treatments or methods for avoiding stiction of flexible or moving parts of MEMS}
- U B81C 1/0092 · · {For avoiding stiction during the manufacturing process of the device, e.g. during wet etching}
- B81C 1/00952 · · · {Treatments or methods for avoiding stiction during the manufacturing process not provided for in groups [B81C 1/00928](#) ~~to~~ [B81C 1/00944](#)}
- U B81C 1/0096 · · {For avoiding stiction when the device is in use, i.e. after manufacture has been completed}
- B81C 1/00984 · · · {Methods for avoiding stiction when the device is in use not provided for in groups [B81C 1/00968](#) ~~to~~ [B81C 1/00976](#)}
- B81C 1/00992 · · {Treatments or methods for avoiding stiction of flexible or moving parts of MEMS not provided for in groups [B81C 1/0092](#) ~~to~~ [B81C 1/00984](#)}
- U B81C 3/00 Assembling of devices or systems from individually processed components**
- U B81C 3/002 · {Aligning micro-parts}
- B81C 3/007 · · {Methods for aligning micro-parts not provided for in groups [B81C 3/004](#) ~~to~~ [B81C 3/005](#)}
- B81C 3/008 · {Aspects related to assembling from individually processed components, not covered by groups [B81C 3/001](#) ~~to~~ [B81C 3/002](#)}
- U B81C 99/00 Subject matter not provided for in other groups of this subclass**
- U B81C 99/0005 · {Apparatus specially adapted for the manufacture or treatment of micro-structural devices or systems, or methods for manufacturing the same}
- B81C 99/0025 · · {Apparatus specially adapted for the manufacture or treatment of micro-structural devices or systems not provided for in [B81C 99/001](#) ~~to~~ [B81C 99/002](#)}
- U B81C 99/0075 · {Manufacture of substrate-free structures}
- B81C 99/0095 · · {Aspects relating to the manufacture of substrate-free structures, not covered by groups [B81C 99/008](#) ~~to~~ [B81C 99/009](#)}
- U B81C 2201/00 Manufacture or treatment of micro-structural devices or systems**
- U B81C 2201/01 · in or on a substrate
- U B81C 2201/0101 · · Shaping material; Structuring the bulk substrate or layers on the substrate; Film patterning
- U B81C 2201/0102 · · · Surface micromachining
- U B81C 2201/0105 · · · · Sacrificial layer
- B81C 2201/0109 · · · · · Sacrificial layers not provided for in [B81C 2201/0107](#) ~~to~~ [B81C 2201/0108](#)
- U B81C 2201/0118 · · · Processes for the planarization of structures
- B81C 2201/0126 · · · · Processes for the planarization of structures not provided for in [B81C 2201/0119](#) ~~to~~ [B81C 2201/0125](#)
- U B81C 2201/0128 · · · Processes for removing material
- U B81C 2201/013 · · · · Etching
- U B81C 2201/0135 · · · · · Controlling etch progression
- B81C 2201/0142 · · · · · Processes for controlling etch progression not provided for in [B81C 2201/0136](#) ~~to~~ [B81C 2201/014](#)
- B81C 2201/0146 · · · · Processes for removing material not provided for in [B81C 2201/0129](#) ~~to~~ [B81C 2201/0145](#)
- U B81C 2201/0147 · · · Film patterning

- B81C 2201/0154 . . . other processes for film patterning not provided for in [B81C 2201/0149](#) to-  
[B81C 2201/015](#)
- U B81C 2201/0161 . . Controlling physical properties of the material
- U B81C 2201/0163 . . . Controlling internal stress of deposited layers
- B81C 2201/017 . . . . Methods for controlling internal stress of deposited layers not provided for  
in [B81C 2201/0164](#) to- [B81C 2201/0169](#)
- U B81C 2201/0174 . . for making multi-layered devices, film deposition or growing
- U B81C 2201/0183 . . . Selective deposition
- B81C 2201/0188 . . . . Selective deposition techniques not provided for in [B81C 2201/0184](#) to-  
[B81C 2201/0187](#)
- B81C 2201/0197 . . . Processes for making multi-layered devices not provided for in groups  
[B81C 2201/0176](#) to- [B81C 2201/0192](#)
- U B81C 2201/03 . . Processes for manufacturing substrate-free structures
- B81C 2201/038 . . Processes for manufacturing substrate-free structures not provided for in  
[B81C 2201/034](#) to- [B81C 2201/036](#)
- U B81C 2203/00 Forming micro-structural systems**
- U B81C 2203/03 . Bonding two components
- U B81C 2203/033 . . Thermal bonding
- B81C 2203/037 . . . Thermal bonding techniques not provided for in [B81C 2203/035](#) to-  
[B81C 2203/036](#)
- B81C 2203/038 . . Bonding techniques not provided for in [B81C 2203/031](#) to- [B81C 2203/037](#)
- U B81C 2203/05 . Aligning components to be assembled
- U B81C 2203/052 . . Passive alignment, i.e. using only structural arrangements or thermodynamic  
forces without an internal or external apparatus
- B81C 2203/057 . . . Passive alignment techniques not provided for in [B81C 2203/054](#) to-  
[B81C 2203/055](#)
- B81C 2203/058 . . Aligning components using methods not provided for in [B81C 2203/051](#) to-  
[B81C 2203/052](#)
- U B81C 2203/07 . Integrating an electronic processing unit with a micromechanical structure
- U B81C 2203/0707 . . Monolithic integration, i.e. the electronic processing unit is formed on or in the  
same substrate as the micromechanical structure
- U B81C 2203/0757 . . . Topology for facilitating the monolithic integration
- B81C 2203/0778 . . . . Topology for facilitating the monolithic integration not provided for in  
[B81C 2203/0764](#) to- [B81C 2203/0771](#)

**Project: N/A (B82B)**

- U B82B 1/00 Nano-structures formed by manipulation of individual atoms or molecules,  
or limited collections of atoms or molecules as discrete units**
- B82B 1/008 . {Nano-structures not provided for in groups [B82B 1/001](#) to- [B82B 1/007](#)}
- U B82B 3/00 Manufacture or treatment of nano-structures by manipulation of individual  
atoms or molecules, or limited collections of atoms or molecules as  
discrete units**
- U B82B 3/0009 . {Forming specific nano-structures}
- B82B 3/0038 . . {Manufacturing processes for forming specific nano-structures not provided  
for in groups [B82B 3/0014](#) to- [B82B 3/0033](#)}
- U B82B 3/0042 . {Assembling discrete nano-structures into nano-structural devices}
- B82B 3/0057 . . {Processes for assembling discrete nano-structures not provided for in groups  
[B82B 3/0047](#) to- [B82B 3/0052](#)}

- U B82B 3/0061 · {Methods for manipulating nanostructures}
- B82B 3/0076 · · {Methods for manipulating nanostructures not provided for in groups [B82B 3/0066](#) ~~to~~ [B82B 3/0071](#)}
- B82B 3/0095 · {Manufacture or treatments or nano-structures not provided for in groups [B82B 3/0009](#) ~~to~~ [B82B 3/009](#)}

**Project: N/A (C01B)****C01B 3/00**

**Hydrogen; Gaseous mixtures containing hydrogen; Separation of hydrogen from mixtures containing it (separation of gases by physical means [B01D](#)); Purification of hydrogen (production of water gas or synthesis gas from solid carbonaceous material [C10J](#); purifying or modifying the chemical compositions of combustible technical gases containing carbon monoxide [C10K](#))**

NOTES

1. In this group it is desirable to add the indexing codes of groups [B01J 2208/00](#) and [B01J 2219/00](#), for details relating to the reactors used in the generation of hydrogen or synthesis gas.

2. In groups [C01B 3/12](#) ~~to~~ [C01B 3/18](#) and in groups [C01B 3/22](#) ~~to~~ [C01B 3/586](#) it is desirable to add the indexing codes of group [C01B 2203/00](#), for aspects relating to hydrogen or synthesis gas generation processes.

- U C01B 3/0005 · {Reversible uptake of hydrogen by an appropriate medium, i.e. based on physical or chemical sorption phenomena or on reversible chemical reactions, e.g. for hydrogen storage purposes (purification of hydrogen [C01B 3/508](#)); Reversible gettering of hydrogen; Reversible uptake of hydrogen by electrodes}
- U C01B 3/001 · · {characterised by the uptaking medium; Treatment thereof}
- C01B 3/0026 · · · {of one single metal or a rare earth metal; Treatment thereof}

NOTES

1. In all of the groups [C01B 3/0026](#) ~~to~~ [C01B 3/0084](#), the metallic storage materials may contain minor quantities of non-metals such as B, C, O, S, Se, Si; e.g. [C01B 3/0036](#) "only containing iron and titanium" includes Fe-Ti compositions comprising non-metals

2. In the groups [C01B 3/0026](#) and [C01B 3/0047](#) ~~to~~ [C01B 3/0068](#) a "rare-earth metal" means one single metal or a combination of metals selected from the lanthanides, Sc or Y

- U C01B 6/00 **Hydrides of metals {including fully or partially hydrided metals, alloys or intermetallic compounds (use of some thereof for reversible sorption of hydrogen [C01B 3/0005](#), [C01B 3/508](#)); Compounds containing at least one metal-hydrogen bond, e.g. (GeH<sub>3</sub>)<sub>2</sub>S, SiH GeH}; Monoborane or diborane; Addition complexes thereof (higher hydrides of boron, substituted hydrides of boron [C01B 35/00](#))**
- C01B 6/24 · Hydrides containing at least two metals; Addition complexes thereof ([C01B 6/13](#) ~~to~~ [C01B 6/23](#) take precedence)
- C01B 9/00 **General methods of preparing halides (particular individual halides, see the relevant groups in [C01B](#) ~~to~~ [C01G](#) according to the element combined with the halogen; electrolytic production of inorganic compounds [C25B](#))**
- U C01B 13/00 **Oxygen; Ozone; Oxides or hydroxides in general**
- U C01B 13/02 · Preparation of oxygen (by liquefying [F25J](#))

- C01B 13/0229
- {Purification or separation processes}
- NOTE  
In groups [C01B 13/0229](#) to- [C01B 13/0288](#), additional features relating to the purification or separation processes are indexed with codes chosen from [C01B 2210/0026](#) to- [C01B 2210/0098](#).
- C01B 13/0288
- • {Combined chemical and physical processing}
- NOTE  
In this group, processing steps are indexed with codes chosen from [C01B 2210/0001](#) to- [C01B 2210/0025](#)
- U C01B 13/10
- Preparation of ozone
- C01B 13/11
- • by electric discharge
- NOTE  
In groups [C01B 13/11](#) and [C01B 13/115](#), additional features relating to the preparation of ozone by electrical discharge are indexed with codes chosen from [C01B 2201/00](#) to- [C01B 2201/90](#).
- C01B 13/14
- Methods for preparing oxides or hydroxides in general (particular individual oxides or hydroxides, see the relevant groups of subclasses [C01B](#) to- [C01G](#) or [C25B](#), according to the element combined with the oxygen or hydroxy group)
- U C01B 17/00**
- Sulfur; Compounds thereof**
- C01B 17/62
- Methods of preparing sulfites in general (particular individual sulfites, see the relevant groups of subclasses [C01B](#) to- [C01G](#), according to the cation)
- C01B 17/96
- Methods for the preparation of sulfates in general (particular individual sulfates, see the relevant groups of subclasses [C01B](#) to- [C01G](#), according to the cation)
- U C01B 21/00**
- Nitrogen; Compounds thereof**
- U C01B 21/04
- Purification or separation of nitrogen (by liquefying [F25J](#))
- C01B 21/0405
- {Purification or separation processes}
- NOTE  
In this group, additional features relating to the purification or separation processes are indexed with codes chosen from [C01B 2210/0026](#) to- [C01B 2210/0098](#)
- C01B 21/0494
- • {Combined chemical and physical processing}
- NOTE  
In this group, processing steps are indexed with codes chosen from [C01B 2210/0001](#) to- [C01B 2210/0025](#)
- C01B 21/06
- Binary compounds of nitrogen with metals, with silicon, or with boron, {or with carbon, i.e. nitrides; Compounds of nitrogen with more than one metal, silicon or boron} (azides [C01B 21/08](#))
- NOTES
1. Binary compounds, i.e. compounds of nitrogen with only one other element chosen from metals, silicon, boron or carbon, are classified in groups [C01B 21/06](#) or [C01B 21/0605](#) to- [C01B 21/076](#). Compounds of nitrogen with more than one element chosen from metals, silicon or boron are classified in [C01B 21/0602](#)
  2. Documents relating to several specific binary compounds are classified in [C01B 21/06](#) only and receive the indexing codes chosen from [C01B 21/0602](#) to- [C01B 21/076](#) to identify the specific compounds

- C01B 21/0637
- • {with metals not specified in groups [C01B 21/0607](#) ~~to~~ [C01B 21/0635](#), other than aluminium, titanium, zirconium or hafnium}
- U C01B 21/082
- Compounds containing nitrogen and non-metals {and optionally metals} ([C01B 21/06](#), [C01B 21/08](#) take precedence)
- U C01B 21/14
- • Hydroxylamine; Salts thereof
- U C01B 21/1409
- • • {Preparation}
- C01B 21/1454
- • • • {of hydroxylamine salts by processes not covered by one or more of groups [C01B 21/1418](#) ~~to~~ [C01B 21/1445](#), e.g. by conversion of one salt into another}
- U C01B 21/20
- Nitrogen oxides; Oxyacids of nitrogen; Salts thereof
- C01B 21/48
- • Methods for the preparation of nitrates in general (particular individual nitrates, see the relevant groups of subclasses [C01B](#) ~~to~~ [C01G](#), according to the cation)
- U C01B 23/00**
- Noble gases; Compounds thereof (liquefying [F25J](#); {noble gases obtained by rectification [F25J 3/028](#)})**
- U C01B 23/001
- {Purification or separation processes of noble gases}
- C01B 23/0094
- • {Combined chemical and physical processing}
- NOTE
- In this group, processing steps are indexed with codes chosen from [C01B 2210/0001](#) ~~to~~ [C01B 2210/0025](#)
- U C01B 25/00**
- Phosphorus; Compounds thereof ({[C01B 6/00](#)}, [C01B 21/00](#), [C01B 23/00](#) take precedence; perphosphates [C01B 15/16](#))**
- U C01B 25/16
- Oxyacids of phosphorus; Salts thereof (peroxyacids or salts thereof [C01B 15/00](#))
- U C01B 25/46
- • Preparation involving solvent-solvent extraction (solvent extraction in general [B01D 11/00](#))
- C01B 25/461
- • • {the phosphoric acid present in the medium obtained after reaction being first extracted from the liquid phase formed or separated then re-extracted as free acid by using water or as a phosphate by using a basic compound (selective extraction of impurities contained in acid [C01B 25/237](#))}
- NOTES
1. The extracting agent may be diluted with a compound or a mixture of compounds which are not solvents for phosphoric acid, e.g. a hydrocarbon
  2. Documents which belong to more than one subgroup of [C01B 25/462](#) ~~to~~ [C01B 25/466](#) are classified by a combination, e.g. [C01B 25/462](#) +**B4**+**B8**
- U C01B 31/00**
- Carbon; Compounds thereof ({[C01B 6/00](#)}, [C01B 21/00](#), [C01B 23/00](#) take precedence; percarbonates [C01B 15/10](#); carbon black [C09C 1/48](#); gas carbon production [C10B](#))**
- U C01B 31/02
- Preparation of carbon (by using ultra high pressure, e.g. for the formation of diamonds, [B01J 3/06](#); by crystal growth [C30B](#)); Purification; {After-treatment}
- U C01B 31/0206
- • {Nanosized carbon materials (graphene [C01B 31/0438](#))}
- C01B 31/022
- • • {Carbon nanotubes}
- NOTE
- In groups [C01B 31/022](#) ~~to~~ [C01B 31/0293](#) it is desirable to add indexing codes for structural aspects or properties of carbon nanotubes. The indexing codes are chosen from [C01B 2202/00](#) ~~to~~ [C01B 2202/36](#)

- C01B 31/04
- Graphite, including modified graphite e.g. graphitic oxides, intercalated graphite, expanded graphite or graphene
- NOTE  
In groups [C01B 31/04](#) ~~to~~ [C01B 31/0492](#) it is desirable to add indexing codes for structural aspects or properties of graphene. The indexing codes are chosen from [C01B 2204/00](#) ~~to~~ [C01B 2204/32](#)
- C01B 31/0423
- {Expanded or exfoliated graphite}
- WARNING  
Groups [C01B 31/043](#) ~~to~~ [C01B 31/0492](#) are not complete pending a reclassification. See also group [C01B 31/04](#)
- C01B 31/24
- Methods for the preparation of carbonates or bicarbonates in general (percarbonates [C01B 15/10](#); particular individual carbonates, see the relevant groups in [C01B](#) ~~to~~ [C01G](#) according to the cation)
- U C01B 31/30
- Carbides (alloys [C22](#))
- C01B 31/301
- {Oxycarbides, sulfocarbides or mixtures of carbides with other bodies, e.g. graphite; Carbides of other non-metals, e.g. silicocarbides, borocarbides}
- NOTE  
Mixtures of carbides, other than those covered by group [C01B 31/308](#), and belonging to more than one of the groups [C01B 31/303](#) ~~to~~ [C01B 31/36](#) are classified in [C01B 31/301](#)
- U C01B 39/00
- Compounds having molecular sieve and base-exchange properties, e.g. crystalline zeolites; Their preparation; After-treatment, e.g. ion-exchange or dealumination (treatment to modify the sorption properties, e.g. shaping using a binder, [B01J 20/10](#); treatment to modify the catalytic properties, e.g. combination of treatments to make the zeolites appropriate to their use as a catalyst, [B01J 29/04](#); treatment to improve the ion-exchange properties [B01J 39/14](#); regeneration or reactivation of ion-exchange properties [B01J 49/00](#); preparation of stabilised suspensions used in detergents [C11D 3/12](#))**
- NOTES
- In this group, the following term is used with the meaning indicated:
    - "zeolites" means:
      - crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;
      - compounds isomorphous to those of the former category, wherein the aluminium or silicon atoms in the framework are partly or wholly replaced by atoms of other elements, e.g. by gallium, germanium, phosphorus or boron.
  - Compounds classified in main group [C01B 39/00](#) are also classified in other groups of class [C01](#) according to their composition
- U C01B 39/02
- Crystalline aluminosilicate zeolites; Isomorphous compound thereof; Direct preparation thereof; Preparation thereof starting from a reaction mixture containing a crystalline zeolite of another type, or from preformed reactants; After-treatment thereof
- C01B 39/023
- {Preparation of physical mixtures or intergrowth products of zeolites chosen from group [C01B 39/04](#) or two or more of groups [C01B 39/14](#) ~~to~~ [C01B 39/48](#)}
- C01B 2203/00
- Integrated processes for the production of hydrogen or synthesis gas (reactors or details thereof [B01J 2208/00](#) ~~to~~ [B01J 2219/00](#))**

- U C01B 2203/08 · Methods of heating or cooling
- U C01B 2203/0805 · · Methods of heating the process for making hydrogen or synthesis gas
- U C01B 2203/0838 · · · by heat exchange with exothermic reactions, other than by combustion of fuel
- C01B 2203/0844 · · · · the non-combustive exothermic reaction being another reforming reaction as defined in groups [C01B 2203/02](#) ~~to~~ [C01B 2203/0294](#)
- C01B 2203/80 · Aspect of integrated processes for the production of hydrogen or synthesis gas not covered by groups [C01B 2203/02](#) ~~to~~ [C01B 2203/1695](#)
- C01B 2203/82 · · Several process steps of [C01B 2203/02](#) ~~to~~ [C01B 2203/08](#) integrated into a single apparatus

**Project: N/A (C01C)**

C01C 1/00

**Ammonia; Compounds thereof** ([C01C 3/08](#), [C01C 3/14](#), [C01C 3/16](#), [C01C 3/20](#) take precedence)

NOTE

Complex ammine salts, e.g. [Pd(NH<sub>3</sub>)<sub>4</sub>]Cl<sub>2</sub>, are { also} classified in the relevant groups of subclasses [C01D](#) ~~to~~ [C01G](#), according to the metal

C01C 1/28

- Methods of preparing ammonium salts in general

NOTES

1. This group does not cover ammonium salts of complex acids (other than complex cyanides) containing a metal in the anion, which are covered by the relevant groups of subclasses [C01D](#) ~~to~~ [C01G](#), according to the metal.

2. Salts of polybasic acids with ammonium and a metal as cations are classified as though the ammonium were hydrogen.

**Project: N/A (C01G)**

U C01G 53/00

**Compounds of nickel**

C01G 53/40

- {Nickelates}

WARNING

Groups [C01G 53/40](#) ~~to~~ [C01G 53/70](#) are not complete pending a reorganisation, see also [C01G 53/006](#) and [C01G 53/00](#)

**Project: N/A (C02F)**

C02F

**TREATMENT OF WATER, WASTE WATER, SEWAGE, OR SLUDGE (separation in general [B01D](#); special arrangements on waterborne vessels of installations for treating water, waste water or sewage, e.g. for producing fresh water, [B63J](#); adding materials to water to prevent corrosion [C23F](#); treating radioactively-contaminated liquids [G21F 9/04](#); regeneration of reactants for recirculation into processes, see the relevant places for the processes)**

NOTE

When classifying in this subclass, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C02F 9/02](#) ~~to~~ [C02F 9/14](#) covered by [C02F 9/00](#) and subgroup

**C02F 1/00 Treatment of water, waste water, or sewage ([C02F 3/00](#) ~~to~~ [C02F 9/00](#) take precedence)**

C02F 1/001 • {Processes for the treatment of water whereby the filtration technique is of importance ([C02F 1/44](#) takes precedence; construction of filters in general [B01D 24/00](#) ~~to~~ [B01D 41/00](#))}

C02F 1/42 • by ion-exchange (ion-exchange in general [B01J](#))

**NOTE**

When classifying in group [C02F 1/42](#), details of ion-exchangers can be further indexed by using indexing codes chosen from [C02F 2001/422](#) ~~to~~ [C02F 2001/427](#)

U C02F 1/46 • by electrochemical methods

U C02F 1/461 • • by electrolysis

U C02F 1/46104 • • • {Devices therefor; Their operating or servicing}

C02F 1/46109 • • • • {Electrodes}

**NOTE**

When classifying in group [C02F 1/46109](#), details of devices for electrolysis can be further indexed by using indexing codes chosen from [C02F 2001/46119](#) ~~to~~ [C02F 2001/46166](#) ]

C02F 1/4618 • • • • {for producing "ionised" acidic or basic water}

**NOTE**

When classifying in group [C02F 1/4618](#), details relating to the production of "ionised" acidic or basic water using electrolysis devices can be further indexed by using indexing codes chosen from [C02F 2001/46185](#) ~~to~~ [C02F 2001/46195](#)

**U C02F 2103/00 Nature of the water, waste water, sewage or sludge to be treated**

C02F 2103/34 • from industrial activities not provided for in groups [C02F 2103/12](#) ~~to~~ [C02F 2103/32](#)

**Project: N/A (C03B)**

**U C03B 7/00 Distributors for the molten glass; Means for taking-off charges of molten glass; Producing the gob, {e.g. controlling the gob shape, weight or delivery tact}**

C03B 7/01 • Means for taking-off charges of molten glass {([C03B 7/08](#), [C03B 7/14](#) ~~to~~ [C03B 7/22](#) take precedence)}

C03B 7/14 • Transferring molten glass or gobs to glass blowing or pressing machines ([C03B 7/18](#) ~~to~~ [C03B 7/22](#) take precedence)

**U C03B 9/00 Blowing glass; Production of hollow glass articles**

U C03B 9/30 • Details of blowing glass (for blowing with the mouth [C03B 9/02](#)); Use of materials for the moulds

U C03B 9/44 • • Means for discharging combined with glass-blowing machines, e.g. take-outs

C03B 9/453 • • • Means for pushing newly formed glass articles onto a ~~conveyer~~[conveyor](#), e.g. sweep-out mechanisms; Dead-plate mechanisms

**U C03B 13/00 Rolling {molten} glass, {i.e. where the molten glass is shaped by rolling (re-forming shaped glass by rolling [C03B 23/004](#), [C03B 23/033](#), [C03B 23/055](#))}**

- C03B 13/14 · Rolling other articles, {i.e. not covered by [C03B 13/01](#) ~~to~~ [C03B 13/12](#), e.g. channeled articles, briquette-shaped articles}
- C03B 32/00** **Thermal after-treatment of glass products not provided for in groups {[C03B 19/00](#)}, [C03B 25/00](#) ~~to~~ [C03B 31/00](#) {or [C03B 37/00](#)}, e.g. crystallisation, eliminating gas inclusions or other impurities; {Hot-pressing vitrified, non-porous, shaped glass products}**
- U C03B 35/00** **Transporting of glass products during their manufacture, {e.g. hot glass lenses, prisms}(conveying systems for fragile sheets, e.g. glass [B65G 49/06](#))**
- U C03B 35/04 · Transporting of hot hollow {or semi-hollow} glass products ([C03B 35/26](#) takes precedence)
- U C03B 35/06 · · Feeding of hot hollow glass products into annealing or heating kilns
- C03B 35/062 · · · {using [conveyersconveyors](#), e.g. chain- or roller [conveyersconveyors](#), dead-plates}
- U C03B 35/14 · Transporting hot glass sheets {or ribbons, e.g. by heat-resistant conveyor belts or bands}
- U C03B 35/16 · · by roller conveyors
- C03B 35/18 · · · Construction of the [conveyerconveyor](#) rollers {Materials, coatings or coverings thereof}
- U C03B 2215/00** **Press-moulding glass**
- U C03B 2215/02 · Press-mould materials
- U C03B 2215/08 · · Coated press-mould dies
- U C03B 2215/14 · · · Die top coat materials, e.g. materials for the glass-contacting layers
- C03B 2215/26 · · · · Mixtures of materials covered by more than one of the groups [C03B 2215/16](#) ~~to~~ [C03B 2215/24](#), e.g. C-SiC, Cr-Cr<sub>2</sub>O<sub>3</sub>, SiALON

**Project: N/A (C03C)**

**C03C 1/00 -  
C03C 14/00**

**Chemical composition of glasses, glazes, or vitreous enamels**NOTE

In groups [C03C 1/00](#) ~~to~~ [C03C 14/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.

- U C03C 25/00** **Surface treatment of fibres or filaments from glass, minerals, or slags {(woven fabrics [D03](#); non-woven fabrics [D04](#); treatment of fabrics in general or non-chemical aspects of treatment of glass fabrics [D06M](#))}**
- U C03C 25/10 · by coating
- U C03C 25/12 · · General methods for coating; Devices therefor
- U C03C 25/22 · · · Depositing from the vapour phase
- C03C 25/226 · · · · {by sputtering}

NOTE

In groups [C03C 25/24](#) ~~to~~ [C03C 25/40](#), organic coating compositions also cover mixtures of organic and inorganic compounds. A coating composition which cannot be completely classified in a single one of groups [C03C 25/24](#) ~~to~~ [C03C 25/40](#) should be classified in each relevant group, in accordance with the following rules:

- Compositions containing only one macromolecular constituent and one or more conventional inorganic or non-macromolecular compounds, e.g. acids, solvents, are classified according to the macromolecular constituent only.

- Compositions containing two or more macromolecular constituents and further conventional inorganic or non-macromolecular compounds are classified according to the macromolecular constituent present in the highest proportion. If, however, the other macromolecular constituents represent invention information, classification is also made for these constituents.
- Compositions containing macromolecular constituents present in comparable proportions are classified according to these constituents.
- If non-macromolecular compounds in the composition also represent invention information, [C03C 25/38](#), for specific solvents, fillers, dyes or pigments, surfactants, biocides or the like in [C03C 25/24](#) or subgroups.

C03C 25/48

- with two or more coatings having different compositions {([C03C 25/104](#) takes precedence)}

#### NOTE

If one or more of the individual coatings are of interest, for each of these coatings classification is also made in one or more of groups [C03C 25/24](#) to- [C03C 25/46](#), in accordance with the note before group [C03C 25/24](#).

## Project: N/A (C04B)

C04B

**LIME, MAGNESIA; SLAG; CEMENTS; COMPOSITIONS THEREOF, e.g. MORTARS, CONCRETE OR LIKE BUILDING MATERIALS; ARTIFICIAL STONE {(roofing granules [E04D 7/005](#))}; CERAMICS (devitrified glass-ceramics [C03C 10/00](#)); REFRACTORIES; TREATMENT OF NATURAL STONE**

#### NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:
  - "fillers" includes pigments, aggregates and fibrous reinforcing materials;
  - "active ingredients" includes processing aids or property improvers, e.g. grinding aids used after the burning process or used in the absence of a burning process;
  - "mortars", "concrete" and "artificial stone" are to be considered as a single group of materials, and therefore, in the absence of an indication to the contrary, they include mortar, concrete and other cementitious compositions.
2. In groups [C04B 7/00](#) to- [C04B 32/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.
3. A composition classified in groups [C04B 26/00](#) or [C04B 28/00](#) is also classified in groups [C04B 14/00](#) to- [C04B 24/00](#) if a filler or active ingredient is of interest.
4. In groups [C04B 2/00](#) to- [C04B 32/00](#) and [C04B 38/00](#) to- [C04B 41/00](#) it is desirable to classify the individual constituents of the mixtures, or other aspects relating to the mixtures or constituents, using Combination Sets with symbols chosen from groups [C04B 2/00](#) to- [C04B 41/00](#).
5. In groups [C04B 2/00](#) to- [C04B 32/00](#) and [C04B 38/00](#) to- [C04B 41/00](#) it is desirable to classify the function of the individual constituents of the mixtures, or other aspects relating to the properties or uses of the mixtures or

products obtained, using Combination Sets with symbols chosen from groups [C04B 2103/00](#) ~~to~~ [C04B 2111/00](#).

6. Groups [C04B 20/123](#) and [C04B 20/126](#) are used for indexing purposes only of documents classified in [C04B 20/12](#)

#### WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C04B 5/02](#) covered by [B01J 2/00](#),  
[C21B 3/06](#)  
~~[C04B 33/132](#)~~ ~~to~~ [C04B 33/138](#) covered by  
[C04B 33/13](#)  
[C04B 35/035](#) covered by [C04B 35/26](#)  
+s.gr.  
[C04B 35/567](#), [C04B 35/569](#), [C04B 35/576](#),  
[C04B 35/577](#) covered by [C04B 35/565](#), [C04B 35/571](#)  
~~[C04B 35/575](#)~~, [C04B 35/806](#)  
[C04B 35/582](#) covered by [C04B 35/581](#),  
[C04B 35/806](#)  
[C04B 35/5833](#), [C04B 35/5835](#) covered by  
[C04B 35/583](#), [C04B 35/806](#)  
[C04B 35/586](#), [C04B 35/587](#), [C04B 35/594](#),  
[C04B 35/596](#) covered by [C04B 35/584](#), [C04B 35/589](#)  
~~[C04B 35/5935](#)~~, [C04B 35/806](#)  
[C04B 35/599](#) covered by [C04B 35/597](#)  
[C04B 35/81](#) covered by [C04B 35/78](#)  
[C04B 35/84](#) covered by [C04B 35/628](#),  
[C04B 35/78](#)

#### U C04B 7/00

C04B 7/345

#### Hydraulic cements (calcium sulfate cements [C04B 11/00](#))

- Hydraulic cements not provided for in one of the groups [C04B 7/02](#) ~~to~~ [C04B 7/34](#)

#### U C04B 11/00

#### Calcium sulfate cements

U C04B 11/02

- {Methods and apparatus for} dehydrating gypsum {(for other purposes than cement manufacture [C01F 11/466](#))}

U C04B 11/028

- • Devices therefor {characterised by the type of calcining devices used therefor or by the type of hemihydrate obtained}

C04B 11/032

- • • for the wet process, e.g. dehydrating in solution or under saturated vapour conditions, {i.e. to obtain alpha-hemihydrate ([C04B 11/0281](#) ~~to~~ [C04B 11/0288](#) take precedence)}

C04B 11/036

- • • for the dry process, e.g. dehydrating in a fluidised bed or in a rotary kiln, {i.e. to obtain beta-hemihydrate ([C04B 11/0281](#) ~~to~~ [C04B 11/0288](#) take precedence)}

C04B 12/00

#### Cements not provided for in groups [C04B 7/00](#) ~~to~~ [C04B 11/00](#)

U C04B 14/00

#### Use of inorganic materials as fillers, e.g. pigments, for mortars, concrete or artificial stone; Treatment of inorganic materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone (expanding or defibrillating materials [C04B 20/00](#))

#### NOTE

Fillers with a well-defined shape other than granular are considered to be reinforcing elements and thus are classified in [E04C 5/00](#). However, if they are only characterised by their composition, classification is made in [C04B](#) only

- U C04B 14/02                   · Granular materials, {e.g. micro-balloons}
- C04B 14/36                   · · Inorganic materials not provided for in groups {[C04B 14/022](#) and} [C04B 14/04](#)  
to- [C04B 14/34](#)
- C04B 20/00**                   **Use of materials as fillers for mortars, concrete or artificial stone according to more than one of groups [C04B 14/00](#) to- [C04B 18/00](#) and characterised by shape or grain distribution; Treatment of materials according to more than one of the groups [C04B 14/00](#) to- [C04B 18/00](#) specially adapted to enhance their filling properties in mortars, concrete or artificial stone; Expanding or defibrillating materials**
- NOTE  
Fillers with a well-defined shape other than granular are considered to be reinforcing elements and thus are classified in [E04C 5/00](#). However, if they are only characterised by their composition, classification is made in [C04B](#) only
- C04B 20/0008               · {Materials specified by a shape not covered by [C04B 20/0016](#) to-  
[C04B 20/0056](#), e.g. nanotubes}
- C04B 22/00 -**               **Use of materials as active ingredients**  
**C04B 24/00**
- NOTE  
Active ingredients which react with cement compounds for forming new or modified mineralogical phases and are added before the hardening process, as well as cements added as additives to other cements, are classified in groups [C04B 7/00](#) to- [C04B 12/00](#), e.g. in group [C04B 7/42](#).
- C04B 24/00**               **Use of organic materials as active ingredients for mortars, concrete or artificial stone, e.g. plasticisers**
- NOTE  
Groups [C04B 24/003](#) to- [C04B 24/006](#) take precedence over groups [C04B 24/008](#) to- [C04B 24/226](#)
- C04B 28/00**               **Compositions of mortars, concrete or artificial stone, containing inorganic binders or the reaction product of an inorganic and an organic binder, e.g. polycarboxylate cements**
- NOTE  
While using Combination Sets in this main group, the presence of an organic binder is indicated with symbols chosen from group [C04B 24/00](#), and the presence of a supplementary inorganic binder with symbols chosen from groups [C04B 7/00](#) to- [C04B 12/00](#)
- C04B 33/00**               **Clay-wares (monolithic refractories or refractory mortars [C04B 35/66](#); porous products [C04B 38/00](#))**
- NOTE  
In groups [C04B 33/00](#) to- [C04B 33/36](#), from 01-10-2008 onwards, the indexing codes of groups [C04B 2235/00](#) to- [C04B 2235/9646](#) are used (with the exception of [C04B 2235/349](#), [C04B 2235/6027](#), [C04B 2235/604](#) and [C04B 2235/9661](#) ) to identify aspects relating to ceramic starting mixtures and sintered ceramic products

**C04B 35/00**

Shaped ceramic products characterised by their composition {(porous ceramic products [C04B 38/00](#); ceramic articles characterised by particular shape, see the relevant classes, e.g. linings for casting ladles, tundishes, cups or the like [B22D 41/02](#); ceramic substrates for microelectronic semi-conductors [H01L 23/15](#))}; Ceramics compositions (containing free metal bonded to carbides, diamond, oxides, borides, nitrides, silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides other than as macroscopic reinforcing agents [C22C](#); {shaping of ceramics [B28B](#)}); Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products {(Chemical preparation of powders of inorganic compounds [C01](#); infiltration of sintered ceramic preforms with molten metal [C04B 41/51](#))}

NOTES

1. In this group, in the absence of an indication to the contrary, compositions are classified according to the constituent present in the highest proportion by weight.
2. In this group, magnesium is considered as an alkaline earth metal.
3. In this group, a composite is considered as a sintered material containing more than one phase, where the secondary phases are not resulting from sintering aids
4. In this group, fine ceramics are considered as products having a polycrystalline, fine-grained microstructure, e.g. of dimensions below 100 micrometers.
5. The production of ceramic powder is classified in this group in so far as it relates to the preparation of powder with specific characteristics.
6. In groups [C04B 35/00](#) to [C04B 35/83](#), from 01-01-2005 onwards, the indexing codes of groups [C04B 2235/00](#) to [C04B 2235/9692](#) are used to identify aspects relating to ceramic starting mixtures and sintered ceramic products

WARNING

Attention is drawn to WARNINGS 3 and 4 after subclass title

- U C04B 35/01      • based on oxide ceramics
- U C04B 35/10     • • based on aluminium oxide
- U C04B 35/101   • • • Refractories from grain sized mixtures
- C04B 35/1015 • • • • {containing refractory metal compounds other than those covered by [C04B 35/103](#) to [C04B 35/106](#)}
- C04B 35/45   • • based on copper oxide or solid solutions thereof with other oxides

NOTE

In groups [C04B 35/4504](#) to [C04B 35/4525](#) an invention is classified in the last appropriate place

- U C04B 35/515   • based on non-oxide ceramics
- C04B 35/58   • • based on borides, nitrides, {i.e. nitrides, oxynitrides, carbonitrides or oxycarbonitrides} or silicides {(containing free binder metal [C22C 29/00](#))}
- C04B 35/622 • Forming processes; Processing powders of inorganic compounds preparatory to the manufacturing of ceramic products

NOTE

In groups [C04B 35/622](#) and subgroups indexing codes are given for aspects relating to the preparation, properties or mechanical treatment or to heat treatments of green bodies. The codes are chosen from [C04B 2235/60](#) to [C04B 2235/668](#)

- C04B 35/626
- Preparing or treating the powders individually or as batches {(pigments for ceramics [C09C 1/0009](#)); preparing or treating macroscopic reinforcing agents for ceramic products, e.g. fibres; mechanical aspects section B}
- WARNING
- Groups [C04B 35/62605](#) ~~to~~ [C04B 35/62695](#) are not complete, see also other subgroups of [C04B 35/00](#), e.g. [C04B 35/626](#)
- C04B 35/71
- Ceramic products containing macroscopic reinforcing agents ([C04B 35/66](#) takes precedence; {infiltration of a porous ceramic matrix with a material forming a non-ceramic phase [C04B 41/00](#), reaction infiltration with Si in order to form SiC [C04B 35/573](#), in order to form Si<sub>3</sub>N<sub>4</sub> [C04B 35/591](#)})
- NOTE
- In groups [C04B 35/71](#) ~~to~~ [C04B 35/83](#) the composition of the ceramic products is also classified in groups [C04B 35/01](#) ~~to~~ [C04B 35/597](#)
- C04B 37/00
- Joining burned ceramic articles with other burned ceramic articles or other articles by heating (laminated products [B32B](#), [E04C](#); {soldering and welding materials [B23K 35/24](#)})**
- NOTE
- In groups [C04B 37/00](#) ~~to~~ [C04B 37/04](#), from 01-10-2008 onwards, features relating to interlayers, additional compositional information or further processing are indexed with codes chosen from [C04B 2237/00](#) ~~to~~ [C04B 2237/88](#)
- WARNING
- Groups [C04B 37/005](#), [C04B 37/006](#), [C04B 37/025](#) and [C04B 37/026](#) are no longer used for classification as from September 1, 2008. Aspects relating to interlayers are from that date indexed by codes chosen from [C04B 2237/02](#) ~~to~~ [C04B 2237/16](#)
- C04B 40/00
- Processes, in general, for influencing or modifying the properties of mortars, concrete or artificial stone compositions, e.g. their setting or hardening ability (active ingredients [C04B 22/00](#) ~~to~~ [C04B 24/00](#); hardening of a well-defined composition [C04B 26/00](#) ~~to~~ [C04B 28/00](#); making porous, cellular or lightening [C04B 38/00](#); mechanical aspects [B28](#), e.g. conditioning the materials prior to shaping [B28B 17/02](#))**
- C04B 41/00
- After-treatment of mortars, concrete, artificial stone or ceramics; Treatment of natural stone (conditioning of the materials prior to shaping [C04B 40/00](#); applying liquids or other fluent materials to surfaces, in general [B05](#); grinding or polishing [B24](#); apparatus or processes for treating or working shaped articles of clay or other ceramic compositions, slag or mixtures containing cementitious material [B28B 11/00](#); working stone or stone-like materials [B28D](#); glazes, other than cold glazes, [C03C 8/00](#); etching, surface-brightening or pickling compositions [C09K 13/00](#))**
- NOTES
1. In this group, multiple classification is made according to the following rules:
    - when the substrate to be treated is of the artificial stone type, e.g. concrete, classification is made in the range [C04B 41/00](#) ~~to~~ [C04B 41/5392](#) as well as in the range [C04B 41/60](#) ~~to~~ [C04B 41/72](#)
    - when the substrate to be treated is of the ceramic type, classification is made in the range [C04B 41/00](#) ~~to~~ [C04B 41/5392](#) as well as in the range [C04B 41/80](#) ~~to~~ [C04B 41/91](#)

- when the substrate to be treated is a-specific, classification is made only in the range [C04B 41/00](#) ~~to~~ [C04B 41/5392](#)
- 2. In groups [C04B 41/0018](#) ~~to~~ [C04B 41/53](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.
- 3. Treating, e.g. coating or impregnating, a material with the same material or with a substance which ultimately is transformed into the same material is not considered after-treatment for this group but is classified as preparation of the material, e.g. a carbon body impregnated with a carbonisable substance is classified in [C04B 35/52](#).
- 4. In groups [C04B 41/00](#) ~~to~~ [C04B 41/53](#), it is desirable to add the indexing codes relating to the nature of the substrate being treated. The indexing codes, which are chosen from groups [C04B 26/00](#) ~~to~~ [C04B 38/00](#) should be unlinked.
- 5. In groups [C04B 41/00](#) ~~to~~ [C04B 41/53](#), it is desirable to add the indexing codes relating to aspects of the coating composition or to the method of application. The indexing codes, which are chosen from groups [C04B 41/00](#) ~~to~~ [C04B 41/5392](#) should be unlinked.
- 6. Attention is drawn to internal Note (2) following the title of subclass [C04B](#).

C04B 41/45

- Coating or impregnating (paints [C09D](#)), {e.g. injection in masonry, partial coating of green or fired ceramics, organic coating compositions for adhering together two concrete elements (ion-implantation [C04B 41/0027](#))}

NOTES

1. In group [C04B 41/45](#) and sub-groups, as a general rule, classification is made according to the end products, rather than according to the starting materials, in the coating or impregnating compositions.
2. In groups [C04B 41/45](#) ~~to~~ [C04B 41/528](#) the following term is used with the meaning indicated:
  - "coating" covers material applied to the substrates as powdery material or applied from the gas or liquid phase, e.g. as a slurry; it only covers the use of preformed sheet-like elements in so far as the thickness of these sheets is small compared with the thickness of the substrate and so far as the resulting product is not exclusively one of the type classifiable in [B32B](#)

U C04B 41/4505  
C04B 41/4545

- {characterised by the method of application}
- • {applied as a powdery material}

NOTE

Coating or impregnation with a specific powdery material is classified according to the specific material and symbols [C04B 41/4545](#) ~~to~~ [C04B 41/4549](#) are allocated in Combination Sets

U C04B 41/50  
C04B 41/5025

- • with inorganic materials
- • • {with ceramic materials (copper oxide or solid solutions thereof [C04B 41/5074](#))}

NOTE

In this subgroup, the materials considered as ceramic materials are those covered by groups [C04B 33/00](#) ~~to~~ [C04B 35/83](#)

C04B 41/5027

- • • {Oxide ceramics in general; Specific oxide ceramics not covered by [C04B 41/5029](#) ~~to~~ [C04B 41/5051](#)}

C04B 41/53

- involving the removal of at least part of the materials of the treated article, {e.g. etching, drying of hardened concrete ([C04B 41/0036](#) ~~to~~ [C04B 41/0054](#) take precedence)}

U C04B 2103/00

**Function or property of ingredients for mortars, concrete or artificial stone**

U C04B 2103/0045

- {Polymers chosen for their physico-chemical characteristics}

- C04B 2103/0063
- · {obtained by an unusual polymerisation process, e.g. by changing the molar ratio of the different monomers during the polymerisation process ([C04B 2103/0058](#) ~~to~~ [C04B 2103/0061](#) take precedence)}
- U C04B 2111/00 Mortars, concrete or artificial stone or mixtures to prepare them, characterised by specific function, property or use**
- U C04B 2111/00034
- {Physico-chemical characteristics of the mixtures}
- C04B 2111/00043
- · {Anhydrous mixtures}
- NOTE  
Code [C04B 2111/00043](#) is only used in combination with groups [C04B 26/00](#) ~~to~~ [C04B 26/32](#).
- C04B 2201/00 Mortars, concrete or artificial stone characterised by specific physical values**
- NOTE  
Indexing codes [C04B 2201/05](#) ~~to~~ [C04B 2201/30](#) are only to be used when the specific physical values are claimed or when they deviate considerably from the average usual values.
- U C04B 2235/00 Aspects relating to ceramic starting mixtures or sintered ceramic products**
- NOTE  
In this group, magnesium is considered as an alkaline earth metal.
- C04B 2235/02
- Composition of constituents of the starting material or of secondary phases of the final product
- NOTE  
Indexing codes [C04B 2235/02](#) ~~to~~ [C04B 2235/5481](#) are to be used only if the aspect is not trivial or not standard, e.g. if water is used as a mixing medium for a powder, whereas normally an organic mixing medium is used or if not the standard alpha-alumina is used to make an alumina ceramic but gamma-alumina in stead.
- C04B 2235/30
- · Constituents and secondary phases not being of a fibrous nature
- NOTES  
1. Indexing codes [C04B 2235/30](#) ~~to~~ [C04B 2235/549](#) are to be given to constituents or additives only if:
- a. it is not obvious from the end product as such that the constituent or additive has been used for making the end product.  
Examples:
    - in case spinel is made from a certain clay in stead of from alumina and silica, the clay is coded,
    - when calcium zirconate and titania are used to make calcium zirconium titanate, a code should be given for the calcium zirconate constituent while normally calcium oxide or calcium carbonate and zirconia are used.

The titania constituent of the starting mixture is not coded since it is to be expected that a single metal oxide is used to make a mixed metal oxide.
  - b. it is not obvious from the "invention information" symbols that this constituent has been used to make the end product, e.g. if the "invention information" symbol given indicates that a zirconia-alumina composite is prepared it is common practice that zirconia and alumina constituents have been used and thus no codes for zirconia or alumina are given. In the same way, if an allocation indicates that an oxide ceramic contains carbon, no code for the addition of carbon is given.

However for an alumina composite product comprising titania, the main symbol for composites based on alumina is given together with an indexing code for titania.

2. In groups [C04B 2235/32](#) to [C04B 2235/349](#) oxides are considered to comprise also metal salts from which they are formed by heating.

- C04B 2235/32
- • • Metal oxides, mixed metal oxides, or oxide-forming salts thereof, e.g. carbonates, nitrates, (oxy)hydroxides, chlorides

NOTE

In groups [C04B 2235/32](#) to [C04B 2235/349](#) metal salts are classified according to the oxides that are formed by heating the metal salts.

- U C04B 2235/38
- • • Non-oxide ceramic constituents or additives

- U C04B 2235/3852
- • • • Nitrides, e.g. oxynitrides, carbonitrides, oxycarbonitrides, lithium nitride, magnesium nitride

- C04B 2235/3856
- • • • • Carbonitrides, e.g. titanium carbonitride, zirconium carbonitride

NOTE

When indexing in group [C04B 2235/3856](#) indexing according to the metal is also made in groups [C04B 2235/3865](#) to [C04B 2235/3886](#)

- U C04B 2235/70
- Aspects relating to sintered or melt-casted ceramic products

- U C04B 2235/74
- • Physical characteristics

- C04B 2235/76
- • • Crystal structural characteristics, e.g. symmetry

NOTE

Codes [C04B 2235/76](#) to [C04B 2235/768](#) are to be used only if the crystal structure is not identified by the classification.

- C04B 2235/80
- • Phases present in the sintered or melt-cast ceramic products other than the main phase

NOTES

1. In this group the term "phases other than the main phase" refers to any phase that is not the main phase, i.e. the phase that is present in the largest amount

2. Codes chosen from groups [C04B 2235/30](#) to [C04B 2235/5296](#) are used for identifying the phases other than the main phase

- C04B 2235/96
- • Properties of ceramic products, e.g. mechanical properties such as strength, toughness, wear resistance

NOTE

Codes [C04B 2235/96](#) to [C04B 2235/9692](#) are to be used only if the property is not identified already by an "invention information" symbol, e.g. by a symbol out of subclass [H01L](#) indicating that the ceramic is dielectric, piezoelectric or magnetic.

**Project: N/A (C05B)**

**C05B**

**PHOSPHATIC FERTILISERS**

WARNING

IPC group [C05B 21/00](#) is not used in the CPC scheme. Subject matter covered by this group is classified in one of the CPC groups [C05B 1/00](#) to [C05B 19/00](#) (see internal note after the title of class [C05](#))

**Project: N/A (C05C)****C05C****NITROGENOUS FERTILISERS**WARNING

IPC group [C05C 13/00](#) is not used in the CPC scheme. Subject matter covered by this group is classified in one of the CPC groups [C05C 1/00](#) to [C05C 11/00](#) (see internal note after the title of class [C05](#))

**Project: N/A (C05D)****C05D****INORGANIC FERTILISERS NOT COVERED BY SUBCLASSES [C05B](#), [C05C](#); FERTILISERS PRODUCING CARBON DIOXIDE**WARNING

IPC group [C05D 11/00](#) is not used in the CPC scheme. Subject matter covered by this group is classified in one of the CPC groups [C05D 1/00](#) to [C05D 9/00](#) (see internal note after the title of class [C05](#))

**Project: N/A (C06B)****C06B 43/00**

**compositions characterised by explosive or thermic constituents not provided for in groups [C06B 25/00](#) to [C06B 41/00](#)**

**Project: N/A (C07)****C07**

**ORGANIC CHEMISTRY (such compounds as the oxides, sulfides, or oxysulfides of carbon, cyanogen, phosgene, hydrocyanic acid or salts thereof [C01](#); products obtained from layered base-exchange silicates by ion-exchange with organic compounds such as ammonium, phosphonium or sulfonium compounds or by intercalation of organic compounds [C01B 33/44](#); macromolecular compounds [C08](#); dyes [C09](#); fermentation products [C12](#); fermentation or enzyme-using processes to synthesise a desired chemical compound or composition or to separate optical isomers from a racemic mixture [C12P](#); production of organic compounds by electrolysis or electrophoresis [C25B 3/00](#), [C25B 7/00](#))**

NOTES

1. In this class, the following term is used with the meaning indicated:

- "preparation" covers purification, separation, stabilisation or use of additives, unless a separate place is provided therefor.

2. {This IPC Note does not apply in CPC.}

3. In subclasses [C07C-C07K](#), the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, and with the exception referred to below, a compound is classified in the last appropriate place. For example, 2-butyl-pyridine, which contains an acyclic chain and a heterocyclic ring, is classified only as a heterocyclic compound, in subclass [C07D](#). In general, and in the absence of an indication to the contrary, the terms "acyclic" and "aliphatic" are used to describe compounds in which there is no ring; and, if a ring were present, the compound would be taken by the "last place" rule to a later group for cycloaliphatic or aromatic compounds, if such a group exists. Where a compound or an entire group of compounds exists in tautomeric forms, it is classified as though existing in the form which is classified last in the system, unless the other form is specifically mentioned earlier in the system.

4. Chemical compounds and their preparation are classified in the groups for the type of compound prepared. The processes of preparation are also classified in the groups for the types of reaction employed, if of interest. Examples of such places outside this class are:

[C12P](#) Fermentation or enzyme-using processes to synthesise a desired chemical compound or composition or to separate optical isomers from a racemic mixture

[C25B 3/00](#) Electrolytic production of organic compounds

[C25B 7/00](#) Electrophoretic production of compounds

5. General processes for the preparation of a class of compounds falling into more than one main group are classified in the groups for the processes employed, when such groups exist. The compounds prepared are also classified in the groups for the types of compound prepared, if of interest.

6. In this class, in the absence of an indication to the contrary, the compounds containing carboxyl or thiocarboxyl groups are classified as the relevant carboxylic or thiocarboxylic acids, unless the "last place rule" (see Note (3), above) dictates otherwise; a carboxyl group being a carbon atom having three bonds, and no more than three, to hetero atoms, other than nitrogen atoms of nitro or nitroso groups, with at least one multiple bond to the same hetero atom and a thiocarboxyl group being a carboxyl group having at least one bond to a sulfur atom, e.g. amides or nitriles of carboxylic acids, are classified with the corresponding acids {unless the "last place rule" (see Note (3), above) dictates otherwise}.

7. {Anhydrides and halides of carboxylic acids are classified as the relevant acids unless otherwise indicated.} Salts of a compound, unless specifically provided for, are classified as that compound, e.g. aniline hydrochloride is classified as containing carbon, hydrogen and nitrogen only (in [C07C 211/46](#)), sodium malonate is classified as malonic acid (in [C07C 55/08](#)), and a mercaptide is classified as the mercaptan. Metal chelates are dealt with in the same way. Similarly, metal alcoholates and metal phenates are {generally} classified in subclass [C07C](#) and not in subclass [C07F](#), the alcoholates {for instance} in groups [C07C 31/28](#) to [C07C 31/32](#) and the phenates as the corresponding phenols in group [C07C 39/235](#) or [C07C 39/44](#). Salts, adducts or complexes formed between two or more organic compounds are classified according to all compounds forming the salts, adducts or complexes.

## Project: N/A (C07B)

C07B 47/00

**Formation or introduction of functional groups not provided for in groups [C07B 39/00](#) to [C07B 45/00](#)**

## Project: N/A (C07C)

C07C

### ACYCLIC OR CARBOCYCLIC COMPOUNDS

#### NOTES

1. In this subclass, the following terms or expressions are used with meanings indicated:

- "bridged" means the presence of at least one fusion other than ortho, peri or spiro;
- two rings are "condensed" if they share at least one ring member, i.e. "spiro" and "bridged" are considered as condensed;
- "condensed ring system" is a ring system in which all rings are condensed among themselves;
- "number of rings" in a condensed ring system equals the number of scissions necessary to convert the ring system into one acyclic chain;
- "quinones" are compounds derived from compounds containing a six-membered aromatic ring or a system comprising six-membered aromatic rings (which system may be condensed or not condensed) by replacing two or four CH groups of the six-membered aromatic rings by C=O groups, and by removing one or two carbon-to-carbon double bonds, respectively, and rearranging the remaining carbon-to-carbon double bonds to give a ring or ring system with alternating double bonds, including the carbon-to-

oxygen bonds; this means that acenaphthenequinone or camphorquinone are not considered as quinones.

2. In this subclass, in the absence of an indication to the contrary, a process is classified in the last appropriate place.

3. In this subclass, in the absence of an indication to the contrary, "quaternary ammonium compounds" are classified with the corresponding "non-quaternised nitrogen compounds".

4. For the classification of compounds in groups [C07C 1/00](#) ~~to~~ [C07C 71/00](#) and [C07C 401/00](#) ~~to~~ [C07C 409/00](#) :

- a compound is classified considering the molecule as a whole (rule of the "whole molecule approach");
- a compound is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
- a compound is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes six-membered aromatic ring, unless otherwise specified or implicitly derivable from the subdivision.

5. For the classification of compounds in groups [C07C 201/00](#) ~~to~~ [C07C 395/00](#), i.e. after the functional group has been determined according to the "last place rule", a compound is classified according to the following principles:

- compounds are classified in accordance with the nature of the carbon atom to which the functional group is attached;
- a carbon skeleton is a carbon atom, other than a carbon atom of a carboxyl group, or a chain of carbon atoms bound to each other, a carbon skeleton is considered to be terminated by every bond to an element other than carbon or to a carbon atom of a carboxyl group;
- when the molecule contains several functional groups, only functional groups linked to the same carbon skeleton as the one first determined are considered;
- a carbon skeleton is considered to be saturated if it does not contain carbon atoms bound to each other by multiple bonds;
- a carbon skeleton is considered to be unsaturated if it contains carbon atoms bound to each other by multiple bonds, which includes a six-membered aromatic ring.

6. When classifying in this subclass, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

7. When a process is classified in a process group, combination sets are used to indicate the product of the process. A combination set consists of a process group, followed by and linked to the group of the product. The products are selected from the corresponding product groups.

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[C07C 27/02](#) covered by [C07C 29/00](#), [C07C 51/00](#)  
[C07C 47/042](#), [C07C 47/045](#), [C07C 47/048](#), [C07C 47/052](#), [C07C 47/055](#),  
[C07C 47/058](#) covered by [C07C 47/04](#)  
[C07C 47/07](#), [C07C 47/09](#) covered by [C07C 47/06](#)  
[C07C 53/04](#) covered by [C07C 53/02](#)  
[C07C 57/045](#), [C07C 57/05](#), [C07C 57/055](#), [C07C 57/065](#), [C07C 57/07](#),  
[C07C 57/075](#) covered by [C07C 57/04](#)  
[C07C 69/025](#), [C07C 69/03](#), [C07C 69/035](#) covered by [C07C 69/003](#) ~~to~~  
[C07C 69/017](#) and [C07C 69/02](#)  
[C07C 69/347](#), [C07C 69/353](#) covered by [C07C 69/003](#) ~~to~~ [C07C 69/017](#)  
and [C07C 69/34](#)

[C07C 69/527](#) covered by [C07C 69/003](#) ~~to~~ [C07C 69/017](#) and [C07C 69/52](#)

[C07C 69/767](#), [C07C 69/773](#) covered by [C07C 69/003](#) ~~to~~ [C07C 69/017](#) and [C07C 69/76](#)

[C07C 69/83](#) covered by [C07C 69/003](#) ~~to~~ [C07C 69/017](#) and [C07C 69/82](#)

**U C07C 5/00 Preparation of hydrocarbons from hydrocarbons containing the same number of carbon atoms**

- U C07C 5/22
  - by isomerisation (with simultaneous hydrogenation [C07C 5/13](#); with simultaneous dehydrogenation [C07C 5/373](#))
- C07C 5/2206
  - • {Catalytic processes not covered by [C07C 5/23](#) ~~to~~ [C07C 5/31](#)}
- U C07C 5/27
  - • Rearrangement of carbon atoms in the hydrocarbon skeleton
- C07C 5/2702
  - • • {Catalytic processes not covered by [C07C 5/2732](#) ~~to~~ [C07C 5/31](#); Catalytic processes covered by both [C07C 5/2732](#) and [C07C 5/277](#) simultaneously}
- U C07C 5/42
  - by dehydrogenation with a hydrogen acceptor

**NOTES**

1. The catalyst is considered as forming part of the acceptor system in case of simultaneous catalyst reduction.

2. The acceptor system is classified according to the supplying substances in case of in situ formation of the acceptor system or of in situ regeneration of the reduced acceptor system.

3. Compounds added for binding the reduced acceptor system are not considered as belonging to the acceptor system.

- C07C 5/54
  - • with an acceptor system containing at least two compounds provided for in more than one of the sub-groups [C07C 5/44](#) ~~to~~ [C07C 5/50](#)

**U C07C 49/00 Ketones; Ketenes; Dimeric ketenes (heterocyclic compounds [C07D](#), e.g. beta-lactones [C07D 305/12](#)); Ketonic chelates**

- C07C 49/76
  - Ketones containing a keto group bound to a six-membered aromatic ring (compounds having a keto group being part of a condensed ring system and being bound to a six-membered aromatic ring [C07C 49/657](#) ~~to~~ [C07C 49/757](#))

**U C07C 51/00 Preparation of carboxylic acids or their salts, halides or anhydrides (of acids by hydrolysis of oils, fats or waxes [C11C](#))**

- U C07C 51/347
  - by reactions not involving formation of carboxyl groups
- C07C 51/377
  - • by splitting-off hydrogen or functional groups; by hydrogenolysis of functional groups {([C07C 51/36](#) ~~to~~ [C07C 51/373](#) take precedence)}
- C07C 51/41
  - Preparation of salts of carboxylic acids {([C07C 51/093](#) ~~to~~ [C07C 51/34](#) take precedence} preparation of soap [C11D](#))

**C07C 69/00 Esters of carboxylic acids; Esters of carbonic or haloformic acids (ortho esters, see the relevant groups, e.g. [C07C 43/32](#))**

**NOTE**

In this group esters having a variably-specified acid moiety, i.e. covered by more than one of groups [C07C 69/02](#), [C07C 69/34](#), [C07C 69/52](#), [C07C 69/608](#), [C07C 69/612](#), [C07C 69/62](#), [C07C 69/66](#), [C07C 69/74](#), [C07C 69/76](#), [C07C 69/95](#), [C07C 69/96](#), are covered by groups [C07C 69/003](#) ~~to~~ [C07C 69/017](#) according to their hydroxylic moiety

**U C07C 231/00 Preparation of carboxylic acid amides**

- C07C 231/10
  - from compounds not provided for in groups [C07C 231/02](#) ~~to~~ [C07C 231/08](#)

- C07C 281/00** Derivatives of carbonic acid containing functional groups covered by groups [C07C 269/00](#) ~~to~~ [C07C 279/00](#) in which at least one nitrogen atom of these functional groups is further bound to another nitrogen atom not being part of a nitro or nitroso group
- C07C 291/00** Compounds containing carbon and nitrogen and having functional groups not covered by groups [C07C 201/00](#) ~~to~~ [C07C 281/00](#)
- C07C 381/00** Compounds containing carbon and sulfur and having functional groups not covered by groups [C07C 301/00](#) ~~to~~ [C07C 337/00](#)
- C07C 2521/00** Catalysts comprising the elements, oxides or hydroxides of magnesium, boron, aluminium, carbon, silicon, titanium, zirconium or hafnium
- NOTE  
The indexing codes of group [C07C 2521/00](#) are associated with groups [C07C 1/00](#) ~~to~~ [C07C 6/00](#).
- C07C 2523/00** Catalysts comprising metals or metal oxides or hydroxides, not provided for in group [C07C 2521/00](#) ([C07C 2521/16](#) takes precedence)
- NOTE  
The indexing codes of group [C07C 2523/00](#) are associated with groups [C07C 1/00](#) ~~to~~ [C07C 6/00](#).
- U C07C 2523/38     · of noble metals
- C07C 2523/54     · · combined with metals, oxides or hydroxides provided for in groups [C07C 2523/02](#) ~~to~~ [C07C 2523/36](#)
- U C07C 2523/70     · of the iron group metals or copper
- C07C 2523/76     · · combined with metals, oxides or hydroxides provided for in groups [C07C 2523/02](#) ~~to~~ [C07C 2523/36](#)
- U C07C 2523/84     · · · with arsenic, antimony, bismuth, vanadium, niobium, tantalum, polonium, chromium, molybdenum, tungsten, manganese, technetium or rhenium
- U C07C 2523/85     · · · · Chromium, molybdenum or tungsten
- U C07C 2523/88     · · · · · Molybdenum
- C07C 2523/887    · · · · · · containing in addition other metals, oxides or hydroxides provided for in groups [C07C 2523/02](#) ~~to~~ [C07C 2523/36](#)
- C07C 2525/00** Catalysts of the Raney type
- NOTE  
The indexing codes of group [C07C 2525/00](#) are associated with groups [C07C 1/00](#) ~~to~~ [C07C 6/00](#).
- C07C 2527/00** Catalysts comprising the elements or compounds of halogens, sulfur, selenium, tellurium, phosphorus or nitrogen; Catalysts comprising carbon compounds
- NOTES
1. Metal catalysts or metal oxide catalysts activated or conditioned by halogens, sulfur or phosphorus, or compounds thereof are indexed in the appropriate groups for metal or metal oxide catalysts.
2. The indexing codes of group [C07C 2527/00](#) are associated with groups [C07C 1/00](#) ~~to~~ [C07C 6/00](#).
- U C07C 2527/06     · Halogens; Compounds thereof
- C07C 2527/08     · · Halides ([C07C 2527/122](#) ~~to~~ [C07C 2527/138](#) take precedence)

**C07C 2529/00 Catalysts comprising molecular sieves**NOTE

The indexing codes of group [C07C 2529/00](#) are associated with groups [C07C 1/00](#) to [C07C 6/00](#).

- U C07C 2529/04 · having base-exchange properties, e.g. crystalline zeolites, pillared clays
- U C07C 2529/06 · · Crystalline aluminosilicate zeolites; Isomorphous compounds thereof
- C07C 2529/70 · · · of types characterised by their specific structure not provided for in groups [C07C 2529/08](#) to [C07C 2529/65](#)

**C07C 2531/00 Catalysts comprising hydrides, coordination complexes or organic compounds**NOTE

The indexing codes of group [C07C 2531/00](#) are associated with groups [C07C 1/00](#) to [C07C 6/00](#).

- C07C 2531/26 · containing in addition, inorganic metal compounds not provided for in groups [C07C 2531/02](#) to [C07C 2531/24](#)

**Project: N/A (C07D)**

**C07D 221/00 Heterocyclic compounds containing six-membered rings having one nitrogen atom as the only ring hetero atom, not provided for by groups [C07D 211/00](#) to [C07D 219/00](#)**

**C07D 227/00 Heterocyclic compounds containing rings having one nitrogen atom as the only ring hetero atom, according to more than one of groups [C07D 203/00](#) to [C07D 225/00](#)**

NOTE

Polymethyleneimines with at least five ring members and having only hydrogen atoms attached to the ring carbon atoms are classified in group [C07D 295/00](#)

**C07D 247/00 Heterocyclic compounds containing rings having two nitrogen atoms as the only ring hetero atoms, according to more than one of groups [C07D 229/00](#) to [C07D 245/00](#)**

**C07D 255/00 Heterocyclic compounds containing rings having three nitrogen atoms as the only ring hetero atoms, not provided for by groups [C07D 249/00](#) to [C07D 253/00](#)**

**C07D 269/00 Heterocyclic compounds containing rings having one nitrogen atom and one oxygen atom as the only ring hetero atoms according to more than one of groups [C07D 261/00](#) to [C07D 267/00](#)**

**C07D 273/00 Heterocyclic compounds containing rings having nitrogen and oxygen atoms as the only ring hetero atoms, not provided for by groups [C07D 261/00](#) to [C07D 271/00](#)**

**C07D 283/00 Heterocyclic compounds containing rings having one nitrogen atom and one sulfur atom as the only ring hetero atoms, according to more than one of groups [C07D 275/00](#) to [C07D 281/00](#)**

**C07D 285/00 Heterocyclic compounds containing rings having nitrogen and sulfur atoms as the only ring hetero atoms, not provided for by groups [C07D 275/00](#) to [C07D 283/00](#)**

- C07D 315/00 Heterocyclic compounds containing rings having one oxygen atom as the only ring hetero atom according to more than one of groups [C07D 303/00](#) ~~to~~- [C07D 313/00](#)
- C07D 321/00 Heterocyclic compounds containing rings having two oxygen atoms as the only ring hetero atoms, not provided for by groups [C07D 317/00](#) ~~to~~- [C07D 319/00](#)
- C07D 325/00 Heterocyclic compounds containing rings having oxygen as the only ring hetero atoms according to more than one of the main groups [C07D 303/00](#) ~~to~~- [C07D 323/00](#)
- C07D 471/00 Heterocyclic compounds containing nitrogen atoms as the only ring hetero atoms in the condensed system, at least one ring being a six-membered ring with one nitrogen atom, not provided for by groups [C07D 451/00](#) ~~to~~- [C07D 463/00](#)
- C07D 487/00 Heterocyclic compounds containing nitrogen atoms as the only ring hetero atoms in the condensed system, not provided for by [C07D 451/00](#) ~~to~~- [C07D 477/00](#)
- C07D 491/00 Heterocyclic compounds containing in the condensed ring system both one or more rings having oxygen atoms as the only ring hetero atoms and one or more rings having nitrogen atoms as the only ring hetero atoms, not provided for by groups [C07D 451/00](#) ~~to~~- [C07D 459/00](#), [C07D 463/00](#), [C07D 477/00](#) or [C07D 489/00](#)
- U C07D 501/00 Heterocyclic compounds containing 5-thia-1-azabicyclo [4.2.0] octane ring systems, i.e. compounds containing a ring system of the formula:
- , e.g. cephalosporins; Such ring systems being further condensed, e.g. 2,3-condensed with an oxygen-, nitrogen- or sulfur-containing hetero ring
- U C07D 501/14 · Compounds having a nitrogen atom directly attached in position 7
- U C07D 501/16 · · with a double bond between positions 2 and 3
- U C07D 501/20 · · · 7-Acylaminocephalosporanic or substituted 7-acylaminocephalosporanic acids in which the acyl radicals are derived from carboxylic acids
- U C07D 501/24 · · · · with hydrocarbon radicals, substituted by hetero atoms or hetero rings, attached in position 3
- C07D 501/48 · · · · · Methylene radicals, substituted by hetero rings ([C07D 501/38](#) ~~to~~- [C07D 501/46](#) take precedence)
- C07D 507/00 Heterocyclic compounds containing a condensed beta-lactam ring system, not provided for by groups [C07D 463/00](#), [C07D 477/00](#) or [C07D 499/00](#) ~~to~~- [C07D 505/00](#); Such ring systems being further condensed
- C07D 513/00 Heterocyclic compounds containing in the condensed system at least one hetero ring having nitrogen and sulfur atoms as the only ring hetero atoms, not provided for in groups [C07D 463/00](#), [C07D 477/00](#) or [C07D 499/00](#) ~~to~~- [C07D 507/00](#)
- C07D 515/00 Heterocyclic compounds containing in the condensed system at least one hetero ring having nitrogen, oxygen, and sulfur atoms as the only ring hetero atoms, not provided for in groups [C07D 463/00](#), [C07D 477/00](#) or [C07D 499/00](#) ~~to~~- [C07D 507/00](#)

**U C07D 519/00** **Heterocyclic compounds containing more than one system of two or more relevant hetero rings condensed among themselves or condensed with a common carbocyclic ring system not provided for in groups [C07D 453/00](#) or [C07D 455/00](#)**

C07D 519/06 · containing at least one condensed beta-lactam ring system, provided for by groups [C07D 463/00](#), [C07D 477/00](#) or [C07D 499/00](#) ~~to~~ [C07D 507/00](#), e.g. a penem or a cepham system

**C07D 521/00** **Heterocyclic compounds containing unspecified hetero rings**

NOTE

This group is only used for the classification of heterocyclic compounds the chemical structure of which is not specified, i.e. only in those cases where the heterocyclic compounds cannot be classified in any of groups [C07D 201/00](#) ~~to~~ [C07D 519/00](#)

**Project: N/A (C07F)**

**U C07F 7/00** **Compounds containing elements of the 4th Group of the Periodic System**

U C07F 7/02 · Silicon compounds

U C07F 7/08 · · Compounds having one or more C-Si linkages

U C07F 7/12 · · · Organo silicon halides

U C07F 7/121 · · · · {Preparation or treatment not provided for in [C07F 7/14](#), [C07F 7/16](#) or [C07F 7/20](#)}

NOTE

The silicon atom involved in the reaction that is attached or becomes attached to the highest number of halide atoms determines classification

C07F 7/128 · · · · · {by reactions covered by more than one of the groups [C07F 7/122](#) ~~to~~ [C07F 7/127](#) and of which the starting material is unknown or insufficiently determined}

U C07F 7/18 · · · Compounds having one or more C-Si linkages as well as one or more C-O-Si linkages

U C07F 7/1804 · · · · {Compounds having Si-O-C linkages (Si-O-acyl linkages [C07F 7/1896](#))}

U C07F 7/1812 · · · · · {having (C1)a-Si-(OC2)b linkages, a and b each being  $\geq 1$  and  $a+b = 4$ , C1 and C2 being hydrocarbon or substituted hydrocarbon radicals}

U C07F 7/1816 · · · · · · {a and b being alternatively specified}

C07F 7/1832 · · · · · · {compounds not provided for in [C07F 7/182](#) ~~to~~ [C07F 7/1824](#)}

U C07F 7/1872 · · · · · {Preparation; Treatments not provided for in [C07F 7/20](#)}

C07F 7/1892 · · · · · · {by reactions not provided for in [C07F 7/1876](#) ~~to~~ [C07F 7/1888](#)}

U C07F 7/22 · Tin compounds

C07F 7/2204 · · {Not belonging to the groups [C07F 7/2208](#) ~~to~~ [C07F 7/2296](#)}

U C07F 7/2224 · · {Compounds having one or more tin-oxygen linkages}

C07F 7/2228 · · · {Compounds not belonging to the groups [C07F 7/2232](#) ~~to~~ [C07F 7/2252](#)}

U C07F 7/226 · · {Compounds with one or more Sn-S linkages}

C07F 7/2264 · · · {Compounds not belonging to group [C07F 7/2268](#) ~~to~~ [C07F 7/2276](#)}

**Project: N/A (C07H)**

**U C07H 19/00** **Compounds containing a hetero ring sharing one ring hetero atom with a saccharide radical; Nucleosides; Mononucleotides ; Anhydro-derivatives thereof**

- U C07H 19/02 · sharing nitrogen
- U C07H 19/04 · · Heterocyclic radicals containing only nitrogen atoms as ring hetero atom
- C07H 19/23 · · · Heterocyclic radicals containing two or more heterocyclic rings condensed among themselves or condensed with a common carbocyclic ring system, not provided for in groups [C07H 19/14](#) ~~to~~ [C07H 19/22](#)

**Project: N/A (C07J)**

- U C07J 41/00 **Normal steroids containing one or more nitrogen atoms not belonging to a hetero ring**

C07J 41/0033 · {not covered by [C07J 41/0005](#)}

**NOTE**

In groups [C07J 41/0038](#) ~~to~~ [C07J 41/0094](#) all references to substituents in position 17-beta of the steroid skeleton include substituents at the 17-position when there is a double bond to or from position 17, and all references to an amide group include all nitrogen substituted carbonyl groups

- C07J 51/00 **Normal steroids with unmodified cyclopenta(a)hydrophenanthrene skeleton not provided for in groups [C07J 1/00](#) ~~to~~ [C07J 43/00](#)**

**Project: N/A (C07K)**

- U C07K 5/00 **Peptides containing up to four amino acids in a fully defined sequence; Derivatives thereof**

- U C07K 5/02 · containing at least one abnormal peptide link
- C07K 5/021 · · {containing the structure -NH-(X)<sub>n</sub>-C(=O)-, n being 5 or 6; for n > 6, classification in [C07K 5/06](#) ~~to~~ [C07K 5/10](#), according to the moiety having normal peptide bonds}
- C07K 5/0227 · · {containing the (partial) peptide sequence -Phe-His-NH-(X)<sub>2</sub>-C(=O)-, e.g. Renin-inhibitors with n = 2 - 6; for n > 6 see [C07K 5/06](#) ~~to~~ [C07K 5/10](#)}
- C07K 5/04 · containing only normal peptide links

**NOTE**

In groups [C07K 5/06](#) ~~to~~ [C07K 5/10](#) the following terms or expressions are used with the meaning indicated:

neutral: amino acids having in the sidechain the same number of amino groups and carboxylic acid groups or derivatives thereof, e.g. Gly;

basic: amino acids having in the sidechain more amino groups than carboxylic acid groups or derivatives thereof, e.g. Arg;

acidic: amino acids having in the sidechain more carboxylic acid groups or derivatives thereof than amino groups, e.g. Asp;

aliphatic: amino acids having only acyclic carbon atoms in the sidechain, e.g. Ala aromatic;

cycloaliphatic: amino acids having a carbocyclic ring in the sidechain, e.g. Phe

heterocyclic: amino acids wherein the sidechain contains or is part of a heteroring, e.g. Pro;

side chain: the R radical in the optionally functionalised amino acid R-CH(NH<sub>2</sub>)CO<sub>2</sub>H)

- U C07K 5/06 · · Dipeptides
- U C07K 5/06008 · · · {with the first amino acid being neutral}
- U C07K 5/06017 · · · · {and aliphatic}

C07K 5/0606 . . . . {the side chain containing heteroatoms not provided for by [C07K 5/06086](#) to- [C07K 5/06139](#), e.g. Ser, Met, Cys, Thr}

**U C07K 14/00 Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof**

C07K 14/195 . from bacteria

NOTE

In groups [C07K 14/20](#) to- [C07K 14/365](#), where appropriate, after the bacteria terminology, the indication of the order (O), family (F) or genus (G) of the bacteria is given in brackets.

**C07K 16/00 Immunoglobulins [IGs], e.g. monoclonal or polyclonal antibodies {(antibodies with enzymatic activity, e.g. abzymes [C12N 9/0002](#))}**

NOTES

1. Documents characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified in [C07K 16/00](#) to- [C07K 16/065](#) or [C07K 16/46](#) to- [C07K 16/468](#)

2. Documents not characterised by the technical aspects of the construction of an antibody or fragment thereof, should be classified only according to their specificity, where necessary accompanied by one or more appropriate indexing codes

**Project: N/A (C08B)**

**C08B 37/00 Preparation of polysaccharides not provided for in groups [C08B 1/00](#) to- [C08B 35/00](#); Derivatives thereof (cellulose [D21](#); {microbiological processes [C12P](#)})**

**Project: N/A (C08C)**

**C08C TREATMENT OR CHEMICAL MODIFICATION OF RUBBERS**

NOTE

This subclass includes:

- processes directed to natural rubber or to conjugated diene rubber (synthesis thereof [C08F](#))
- processes directed to rubbers in general (to a specified rubber, other than provided for by (a) above, [C08F](#) to- [C08H](#))

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:  
[C08C 1/16](#) covered by [C08C 1/14](#)

**Project: MP0133 (C08C)**

**U C08C 1/00 Treatment of rubber latex**

U C08C 1/02 . Chemical or physical treatment of rubber latex before or during concentration

M C08C 1/06 . . Preservation of rubber latex-(~~preserving ingredients C08K~~)

**Project: N/A (C08C)**

**C08C 4/00 Treatment of rubber before vulcanisation, not provided for in groups [C08C 1/00](#) to- [C08C 3/02](#)**

**Project: MP0133 (C08C)**

M C08C 19/00 **Chemical modification of rubber (~~crosslinking agents, other than provided for by C08C 19/30, C08K~~)**

NOTE

In the absence of an indication to the contrary a process is classified in the last appropriate place

M C08C 19/28 • Reaction with compounds containing carbon-to-carbon unsaturated bonds (graft polymers ~~C08F~~[C08F 279/00](#))

**Project: N/A (C08F)**

C08F

**MACROMOLECULAR COMPOUNDS OBTAINED BY REACTIONS ONLY INVOLVING CARBON-TO-CARBON UNSATURATED BONDS**NOTES

1. In this subclass, boron or silicon are considered as metals.
2. In this subclass, the following expression is used with the meaning indicated:
  - aliphatic radical" means an acyclic or a non-aromatic carbocyclic carbon skeleton which is considered to be terminated by every bond to:
    - a. an element other than carbon
    - b. a carbon atom having a double bond to one atom other than carbon
    - c. an aromatic carbocyclic ring or a heterocyclic ring.
 Examples: Polymers of
    1.  $\text{CH}_2=\text{CH}-\text{O}-\text{CH}_2-\text{CH}_2-\text{NH}-\text{C}(=\text{O})\text{O}-\text{CH}_2-\text{CH}_2-\text{OH}$  are classified in group [C08F 16/28](#)
    2.  $\text{CH}_2=\text{CH}-\text{C}(=\text{O})-\text{CH}=\text{CH}_2$  are classified in group [C08F 16/36](#)
    3. para- $\text{C}_6\text{H}_4\text{Cl}(\text{CH}=\text{CH}_2)$  are classified in group [C08F 12/18](#).
3. In this subclass:
  - a. in the absence of an indication to the contrary, a catalyst or a polymer is classified in the last appropriate place .
  - b. {From April 2012 onwards, in a copolymer, the monomer in majority is given an Indexing Code and the monomer(s) in minority are given Indexing Code(s) in the form of a C-Set. The Indexing Codes are linked. The monomer in majority is always indicated first in the C-set. Example: a copolymer having ethylene in majority and styrene in minority is classified in ( [C08F 210/02](#), [C08F 212/08](#) ).}
4. In this subclass:
  - a. macromolecular compounds and their preparation are classified in the groups for the type of compound prepared. General processes for the preparation of macromolecular compounds according to more than one main group are classified in the groups for the processes employed ( [C08F 2/00](#) ~~to~~ [C08F 8/00](#) ). Processes for the preparation of macromolecular compounds are also classified in the groups for the types of reactions employed, if of interest;
  - b. subject matter relating to both homopolymers and copolymers is classified in groups [C08F 10/00](#) ~~to~~ [C08F 38/00](#);
  - c. subject matter limited to homopolymers is classified only in groups [C08F 110/00](#) ~~to~~ [C08F 138/00](#);
  - d. subject matter limited to copolymers is classified only in groups [C08F 210/00](#) ~~to~~ [C08F 246/00](#);
  - e. in groups [C08F 210/00](#) ~~to~~ [C08F 238/00](#), in the absence of an indication to the contrary, a copolymer is classified according to the major monomeric component.
5. This subclass covers also compositions based on monomers which form macromolecular compounds classifiable in this subclass (paints [C09D 4/00](#); adhesives [C09J 4/00](#) ). In this subclass:

- a. if the monomers are defined, classification is made according to the polymer to be formed:
  - in groups [C08F 10/00](#) ~~to~~ [C08F 246/00](#) if no preformed polymer is present;
  - in groups [C08F 251/00](#) ~~to~~ [C08F 291/00](#) if a preformed polymer is present, considering the reaction to take place as a graft or cross-linking reaction;
- b. if the presence of compounding ingredients is of interest, classification is made in group [C08F 2/44](#) (sensitising agents [C08F 2/50](#); catalysts [C08F 4/00](#) );
- c. if the compounding ingredients are of interest per se, classification is also made in subclass [C08K](#).

**U C08F 4/00**

**Polymerisation catalysts (catalysts in general [B01J](#))**

NOTES

1. Group [C08F 4/00](#) and subgroups can be incomplete according to the following classification rules:

- if a catalyst is specifically used for only one type of polymer, it is not classified in [C08F 4/00](#);
- in such a case, the classification symbol of [C08F 4/00](#) providing for the catalyst may be used as a symbol for a C-Set in the groups providing for the polymer, e.g. ( [C08F 12/04](#), [C08F 4/62](#) )
- this method of classification is applied only when a note after the group providing for the polymer explicitly indicates which symbols of [C08F 4/00](#) may be used for forming the C-set.

2. When classifying in group [C08F 4/00](#), the type of catalyst can be further indexed by using indexing codes chosen from [C08F 2410/00](#), [C08F 2420/00](#) or their subgroups

**U C08F 4/42**

- Metals; Metal hydrides; Metallo-organic compounds; Use thereof as catalyst precursors

**U C08F 4/44**

- selected from light metals, zinc, cadmium, mercury, copper, silver, gold, boron, gallium, indium, thallium, rare earths or actinides

**C08F 4/60**

- together with refractory metals, iron group metals, platinum group metals, manganese, rhenium {technetium} or compounds thereof

NOTES

1. In groups [C08F 4/60](#) ~~to~~ [C08F 4/64](#), the term "component" comprises the transition metal or a compound thereof, pretreated or not { (pretreating per se [C08F 4/61](#), [C08F 4/63](#) and [C08F 4/65](#) ) }

2. Group [C08F 4/60003](#) takes precedence over groups [C08F 4/602](#) ~~to~~ [C08F 4/619](#)

**U C08F 4/61**

- • • Pretreating the metal or compound covered by group [C08F 4/60](#) before the final contacting with the metal or compound covered by group [C08F 4/44](#) {([C08F 4/60003](#) - [C08F 4/60196](#) take precedence)}

**U C08F 4/612**

- • • • Pretreating with metals or metal-containing compounds

**C08F 4/617**

- • • • with metals or metal-containing compounds, not provided for in groups [C08F 4/613](#) ~~to~~ [C08F 4/616](#)

**C08F 4/618**

- • • • with metals or metal-containing compounds, provided for in at least two of the groups [C08F 4/613](#) ~~to~~ [C08F 4/617](#)

**C08F 4/62**

- • • Refractory metals or compounds thereof

NOTE

Group [C08F 4/62003](#) takes precedence over groups [C08F 4/622](#) ~~to~~ [C08F 4/639](#)

- U C08F 4/63 . . . . . Pretreating the metal or compound covered by group [C08F 4/62](#) before the final contacting with the metal or compound covered by group [C08F 4/44](#) {([C08F 4/62003](#) - [C08F 4/62196](#) take precedence)}
- U C08F 4/632 . . . . . Pretreating with metals or metal-containing compounds
- C08F 4/637 . . . . . with metals or metal-containing compounds, not provided for in groups [C08F 4/633](#) ~~to~~ [C08F 4/636](#)
- C08F 4/638 . . . . . with metals or metal-containing compounds, not provided for in a single group of groups [C08F 4/633](#) ~~to~~ [C08F 4/637](#)
- C08F 4/64 . . . . . Titanium, zirconium, hafnium or compounds thereof
- NOTE
- Group [C08F 4/64003](#) takes precedence over groups [C08F 4/642](#) ~~to~~ [C08F 4/659](#)
- C08F 4/645 . . . . . Component covered by group [C08F 4/64](#) with a metal or compound covered by group [C08F 4/44](#), not provided for in a single group of groups [C08F 4/642](#) ~~to~~ [C08F 4/643](#) {([C08F 4/60003](#) - [C08F 4/60196](#) take precedence)}
- U C08F 4/65 . . . . . Pretreating the metal or compound covered by group [C08F 4/64](#) before the final contacting with the metal or compound covered by group [C08F 4/44](#) {([C08F 4/64003](#) - [C08F 4/64196](#) take precedence)}
- U C08F 4/652 . . . . . Pretreating with metals or metal-containing compounds
- C08F 4/657 . . . . . with metals or metal-containing compounds, not provided for in groups [C08F 4/653](#) ~~to~~ [C08F 4/656](#)
- C08F 4/658 . . . . . with metals or metal-containing compounds, not provided for in a single group of groups [C08F 4/653](#) ~~to~~ [C08F 4/657](#)
- U C08F 4/70 . . . . . Iron group metals, platinum group metals or compounds thereof
- C08F 4/7095 . . . . . {Cobalt, nickel or compounds thereof ([C08F 4/7001](#) ~~to~~ [C08F 4/7093](#) take precedence)}
- C08F 4/72 . . . . . selected from metals not provided for in group [C08F 4/44](#) ([C08F 4/54](#) ~~to~~ [C08F 4/70](#) take precedence)

**C08F 6/00 Post-polymerisation treatments ([C08F 8/00](#) takes precedence; of conjugated diene rubbers [C08C](#))**

NOTES

- In groups [C08F 6/00](#) ~~to~~ [C08F 6/28](#) the treatment of specific polymers is indicated using the subdivision of [C08L 23/00](#) ~~to~~ [C08L 57/12](#) in the form of C-Sets. Example: ( [C08F 6/12](#), [C08L 25/06](#) )
- Groups [C08F 6/001](#), [C08F 6/006](#), [C08F 6/008](#), [C08F 6/02](#), [C08F 6/04](#) take precedence over the other groups.

**C08F 8/00 Chemical modification by after-treatment (graft polymers, block polymers, cross-linking with unsaturated monomers or with polymers [C08F 251/00](#) ~~to~~ [C08F 299/00](#); of conjugated diene rubbers [C08C](#); cross-linking in general [C08J](#))**

NOTE

Classification is given in the form of C-Sets when sufficient information is provided concerning the polymer to be modified. In groups [C08F 8/00](#) ~~to~~ [C08F 8/50](#), the chemical modification of specific polymers is indicated using the subdivisions of [C08F 10/00](#) ~~to~~ [C08F 34/04](#), [C08F 38/00](#) ~~to~~ [C08F 38/04](#), [C08F 110/00](#) ~~to~~ [C08F 134/04](#), [C08F 138/00](#) ~~to~~ [C08F 138/04](#), [C08F 210/00](#) ~~to~~ [C08F 234/04](#), [C08F 238/00](#) ~~to~~ [C08F 299/08](#). Example: ( [C08F 8/44](#), [C08F 16/06](#) ) Otherwise, only the [C08F 8/00](#) - [C08F 8/50](#) symbol(s) is (are) given.

- C08F 10/00 Homopolymers and copolymers of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond**
- NOTE  
In groups [C08F 10/00](#) to- [C08F 10/14](#) the method of polymerisation or the nature of the catalyst may be indicated using the subdivision of [C08F 2/00](#) to- [C08F 2/58](#) or of [C08F 4/00](#) to- [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 10/02](#), [C08F 4/651](#) )
- C08F 12/00 Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring**
- NOTES  
1. Until March 2012, in groups [C08F 12/04](#) to- [C08F 12/08](#) the method of polymerisation might be indicated using the subdivision of [C08F 2/02](#) to- [C08F 2/06](#), [C08F 2/16](#) to- [C08F 2/30](#), [C08F 2/34](#) or [C08F 2/38](#) to- [C08F 2/46](#) in the form of C-sets; the nature of the catalyst might be indicated using the subdivision of [C08F 4/00](#) to- [C08F 4/60](#), [C08F 4/62](#), [C08F 4/64](#) or [C08F 4/68](#) to- [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 12/08](#), [C08F 2/20](#) )  
2. From April 2012 on, in groups [C08F 12/00](#) to- [C08F 12/36](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/00](#) to- [C08F 2/60](#) in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of [C08F 4/00](#) to- [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 12/08](#), [C08F 2/56](#) )
- U C08F 14/00 Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen**
- U C08F 14/02     • Monomers containing chlorine
- U C08F 14/04     • • Monomers containing two carbon atoms
- C08F 14/06     • • • Vinyl chloride
- NOTE  
In group [C08F 14/06](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/02](#) to- [C08F 2/06](#), [C08F 2/16](#) to- [C08F 2/30](#), [C08F 2/34](#) or [C08F 2/38](#) to- [C08F 2/46](#) in the form of C-Sets. Example: ( [C08F 14/06](#), [C08F 2/44](#) )
- U C08F 14/18     • Monomers containing fluorine
- NOTE  
In group [C08F 14/18](#) and subgroups, the method of polymerisation may be indicated using the subdivision of [C08F 2/02](#), [C08F 2/04](#), [C08F 2/16](#), [C08F 2/38](#), [C08F 2/44](#) and [C08F 2/46](#) in the form of C-Sets. Example: ( [C08F 14/22](#), [C08F 2/38](#) )
- C08F 14/185     • • {Monomers containing fluorine not covered by the groups [C08F 14/20](#) to- [C08F 14/28](#)}
- U C08F 20/00 Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and only one being terminated by only one carboxyl radical or a salt, anhydride, ester, amide, imide or nitrile thereof**
- U C08F 20/02     • Monocarboxylic acids having less than ten carbon atoms, Derivatives thereof

- C08F 20/10
- • Esters
- NOTE  
In groups [C08F 20/12](#) ~~to~~ [C08F 20/14](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/02](#) ~~to~~ [C08F 2/06](#), [C08F 2/16](#) ~~to~~ [C08F 2/30](#), [C08F 2/34](#) or [C08F 2/38](#) ~~to~~ [C08F 2/46](#) in the form of C-Sets. Example: ( [C08F 20/12](#), [C08F 2/26](#) )
- U C08F 20/42
- • Nitriles
- C08F 20/44
- • • Acrylonitrile
- NOTE  
In group [C08F 20/44](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/02](#) ~~to~~ [C08F 2/06](#), [C08F 2/16](#) ~~to~~ [C08F 2/30](#), [C08F 2/34](#) or [C08F 2/38](#) ~~to~~ [C08F 2/46](#) in the form of C-Sets. Example: ( [C08F 20/44](#), [C08F 2/46](#) )
- C08F 36/00**
- Homopolymers and copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds ([C08F 32/00](#) takes precedence)**
- NOTE  
In [C08F 36/00](#) ~~to~~ [C08F 36/22](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/00](#) ~~to~~ [C08F 2/58](#) in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of [C08F 4/00](#) ~~to~~ [C08F 4/60](#), [C08F 4/62](#), [C08F 4/64](#), [C08F 4/642](#), [C08F 4/6421](#), [C08F 4/643](#) or [C08F 4/68](#) ~~to~~ [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 36/04](#), [C08F 4/642](#) )
- C08F 110/00**
- Homopolymers of unsaturated aliphatic hydrocarbons having only one carbon-to-carbon double bond**
- NOTE  
In groups [C08F 110/00](#) ~~to~~ [C08F 110/14](#) the method of polymerisation or the nature of the catalyst may be indicated using the subdivision of [C08F 2/00](#) ~~to~~ [C08F 2/58](#) or of [C08F 4/00](#) ~~to~~ [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 110/14](#), [C08F 4/6592](#) )
- C08F 112/00**
- Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring**
- NOTE  
From April 2012 on, in groups [C08F 112/00](#) ~~to~~ [C08F 112/36](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/00](#) ~~to~~ [C08F 2/60](#) in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of [C08F 4/00](#) ~~to~~ [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 112/08](#), [C08F 4/70](#) )
- U **C08F 114/00**
- Homopolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen**
- U C08F 114/18
- Monomers containing fluorine
- C08F 114/185
- • {Monomers containing fluorine not covered by the groups [C08F 114/20](#) ~~to~~ [C08F 114/28](#)}

- C08F 136/00**      **Homopolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds (C08F 132/00 takes precedence)**
- NOTE**  
In [C08F 136/00](#) to- [C08F 136/22](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/00](#) to- [C08F 2/58](#) in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of [C08F 4/00](#) to- [C08F 4/60](#), [C08F 4/62](#), [C08F 4/64](#), [C08F 4/642](#), [C08F 4/6421](#), [C08F 4/643](#) or [C08F 4/68](#) to- [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 136/18](#), [C08F 2/26](#) )
- C08F 210/00**      **Copolymers of unsaturated aliphatic hydrocarbon having only one carbon-to-carbon double bond**
- NOTE**  
In [C08F 210/00](#) to- [C08F 210/18](#) the method of polymerisation or the nature of the catalyst may be indicated using the subdivision of [C08F 2/00](#) to- [C08F 2/58](#) or of [C08F 4/00](#) to- [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 210/06](#), [C08F 4/04](#) )
- C08F 212/00**      **Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by an aromatic carbocyclic ring**
- NOTE**  
From April 2012 on, in groups [C08F 212/00](#) to- [C08F 212/36](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/00](#) to- [C08F 2/60](#) in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of [C08F 4/00](#) to- [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 212/08](#), [C08F 4/16](#) )
- U C08F 214/00**      **Copolymers of compounds having one or more unsaturated aliphatic radicals, each having only one carbon-to-carbon double bond, and at least one being terminated by a halogen**
- U C08F 214/18**      • Monomers containing fluorine
- C08F 214/182**      • • {Monomers containing fluorine not covered by the groups [C08F 214/20](#) to- [C08F 214/28](#)}
- C08F 236/00**      **Copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds (C08F 232/00 takes precedence)**
- NOTE**  
In [C08F 236/00](#) to- [C08F 236/22](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/00](#) to- [C08F 2/58](#) in the form of C-Sets; the nature of the catalyst may be indicated using the subdivision of [C08F 4/00](#) to- [C08F 4/60](#), [C08F 4/62](#), [C08F 4/64](#), [C08F 4/642](#), [C08F 4/6421](#), [C08F 4/643](#) or [C08F 4/68](#) to- [C08F 4/82](#) in the form of C-Sets. Example: ( [C08F 236/10](#), [C08F 4/46](#) )
- C08F 251/00 - C08F 292/00**      **Graft polymers; Polymers crosslinked with unsaturated monomers**
- NOTE**  
In [C08F 251/00](#) to- [C08F 292/00](#) the grafted monomer may be indicated using the subdivision of [C08F 210/00](#) to- [C08F 238/04](#) preceded by a "+" sign.

Example: [C08F 265/06](#) +[C08F 220/06](#)

**C08F 289/00** **Macromolecular compounds obtained by polymerising monomers on to macromolecular compounds not provided for in groups [C08F 251/00](#) to- [C08F 287/00](#)**

**C08F 291/00** **Macromolecular compounds obtained by polymerising monomers on to macromolecular compounds according to more than one of the groups [C08F 251/00](#) to- [C08F 289/00](#)**

#### NOTE

In [C08F 291/00](#) the method of polymerisation may be indicated using the subdivision of [C08F 2/02](#), [C08F 2/16](#), [C08F 2/18](#) or [C08F 2/22](#) in the form of C-Sets. Example: ( [C08F 291/00](#), [C08F 2/16](#) )

**C08F 299/00** **Macromolecular compounds obtained by interreacting polymers involving only carbon-to-carbon unsaturated bond reactions, in the absence of non-macromolecular monomers (in the presence of non-macromolecular monomers [C08F 251/00](#) to- [C08F 291/00](#); involving other reactions [C08G 81/00](#))**

**C08F 301/00** **Macromolecular compounds not provided for in groups [C08F 10/00](#) to- [C08F 299/00](#)**

### Project: N/A (C08G)

**C08G**

#### **MACROMOLECULAR COMPOUNDS OBTAINED OTHERWISE THAN BY REACTIONS ONLY INVOLVING UNSATURATED CARBON-TO-CARBON BONDS**

#### NOTES

1. In this subclass, group [C08G 18/00](#) takes precedence over the other groups. A further classification is given if the polymers are obtained by reactions forming specific linkages for which an appropriate group is provided.
2. Within each main group of this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.
3. In groups [C08G 61/00](#) to- [C08G 79/00](#), in the absence of an indication to the contrary, macromolecular compounds obtained by reactions forming two different linkages in the main chain are classified only according to the linkage present in excess.
4. This subclass covers also compositions based on monomers which from macromolecular compounds classifiable in this subclass. In this subclass:
  - a. if the monomers are defined, classification is made in groups [C08G 2/00](#) to- [C08G 79/00](#), [C08G 83/00](#) according to the polymer to be formed;
  - b. if the monomers are defined in a way that a composition cannot be classified within one main group of this subclass, the composition is classified in group [C08G 85/00](#);
  - c. if the compounding ingredients are of interest per se, classification is also made in subclass [C08K](#).

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[C08G 14/067](#), [C08G 14/073](#), [C08G 14/09](#) covered by [C08G 14/06](#)  
[C08G 59/16](#), [C08G 59/17](#) covered by [C08G 59/14](#)  
[C08G 63/49](#) covered by [C08G 63/48](#)  
[C08G 65/28](#) covered by [C08G 65/26](#)  
[C08G 73/04](#) covered by [C08G 73/02](#)

- U C08G 2/00**      **Addition polymers of aldehydes or cyclic oligomers thereof or of ketones; Addition copolymers thereof with less than 50 molar percent of other substances**
- C08G 2/14      · Polymerisation of single aldehydes not provided for in groups [C08G 2/08](#) ~~to~~ [C08G 2/12](#)
- U C08G 8/00**      **Condensation polymers of aldehydes or ketones with phenols only**
- U C08G 8/04      · of aldehydes
- U C08G 8/08      · · of formaldehyde, e.g. of formaldehyde formed in situ
- C08G 8/24      · · · with mixtures of two or more phenols which are not covered by only one of the groups [C08G 8/10](#) ~~to~~ [C08G 8/20](#)
- U C08G 12/00**      **Condensation polymers of aldehydes or ketones with only compounds containing hydrogen attached to nitrogen (aminophenols [C08G 8/16](#))**
- U C08G 12/02      · of aldehydes
- U C08G 12/04      · · with acyclic or carbocyclic compounds
- C08G 12/043      · · · {with at least two compounds covered by more than one of the groups [C08G 12/06](#) ~~to~~ [C08G 12/24](#)}
- U C08G 12/26      · · with heterocyclic compounds
- C08G 12/263      · · · {with at least two compounds covered by more than one of the groups [C08G 12/28](#) ~~to~~ [C08G 12/32](#)}
- C08G 14/00**      **Condensation polymers of aldehydes or ketones with two or more other monomers covered by at least two of the groups [C08G 8/00](#) ~~to~~ [C08G 12/00](#)**
- C08G 16/00**      **Condensation polymers of aldehydes or ketones with monomers not provided for in the groups [C08G 4/00](#) ~~to~~ [C08G 14/00](#) (with polynitriles [C08G 69/38](#))**
- U C08G 18/00**      **Polymeric products of isocyanates or isothiocyanates (preparatory processes of porous or cellular materials, in which the monomers or catalysts are not specific [C08J](#))**
- U C08G 18/06      · with compounds having active hydrogen
- U C08G 18/08      · · Processes
- C08G 18/0895      · · · {Manufacture of polymers by continuous processes ([C08G 18/0838](#) takes precedence)}
- NOTES**
1. After the symbols [C08G 18/10](#) and [C08G 18/12](#) and separated by a "," sign, are indicated the reactive components of a second or following step by one of the symbols [C08G 18/2805](#), [C08G 18/30](#) ~~to~~ [C08G 18/38](#), [C08G 18/40](#) ~~to~~ [C08G 18/64](#) without subnotations, [C08G 18/65](#) ~~to~~ [C08G 18/66](#), [C08G 18/70](#) ~~to~~ [C08G 18/80](#)
2. After the symbols [C08G 18/10](#) and [C08G 18/12](#) and separated by a "," sign are indicated the oligomerisation of isocyanate- or isothiocyanate groups in the prepolymers or in the added reactive components involving reaction of at least a part of the isocyanate- or isothiocyanate groups with each other in the reaction mixture by the symbols [C08G 18/02](#) or [C08G 18/09](#) respectively or by subnotations thereof
- U C08G 18/16      · · · Catalysts (catalysts in general [B01J](#))
- C08G 18/166      · · · · {Catalysts not provided for in the groups [C08G 18/18](#) ~~to~~ [C08G 18/26](#)}
- U C08G 18/22      · · · · containing metal compounds

- C08G 18/222 . . . . {metal compounds not provided for in groups [C08G 18/225](#) to-  
[C08G 18/26](#)}
- C08G 18/28 . . characterised by the compounds used containing active hydrogen
- NOTE  
For the purpose of groups [C08G 18/28](#) to- [C08G 18/69](#), the addition of water for the preparation of cellular materials is not taken into consideration {except in the case, wherein water is the only compound having active hydrogen [C08G 18/302](#). When there is attributed a class in [C08G 18/00](#) for a specific monomer or a catalyst, the addition of water as the sole blowing agent is indicated by indexing code [C08G 2101/0083](#). Moreover specific aggregation forms of water, e.g. absorbed water and water of crystallisation are also classified in [C08J 9/02](#)}
- U C08G 18/40 . . . High-molecular-weight compounds {([C08G 18/2805](#) takes precedence)}
- C08G 18/4009 . . . . {Two or more macromolecular compounds not provided for in one single group of groups [C08G 18/42](#) to- [C08G 18/64](#)}
- U C08G 18/48 . . . . Polyethers
- C08G 18/4825 . . . . . {Polyethers containing two hydroxy groups ([C08G 18/4833](#) to-  
[C08G 18/5096](#) take precedence)}
- C08G 18/4829 . . . . . {Polyethers containing at least three hydroxy groups ([C08G 18/4833](#) to-  
[C08G 18/5096](#) take precedence)}
- C08G 18/64 . . . . Macromolecular compounds not provided for by groups [C08G 18/42](#) to-  
[C08G 18/63](#)
- C08G 18/67 . . . Unsaturated compounds having active hydrogen
- NOTES  
1. After the symbols [C08G 18/67](#) and [C08G 18/671](#) to- [C08G 18/679](#) and separated by a "," sign is indicated the manufacture of polymers containing ionic or ionogenic groups from unsaturated low-molecular-weight compounds having active hydrogen by one of the symbols [C08G 18/0804](#) to- [C08G 18/0833](#)  
2. After the symbols [C08G 18/671](#) to- [C08G 18/672](#) and separated by a "," sign are indicated the polymer-backbone forming high-molecular-weight compounds containing active hydrogen or their combination with low-molecular-weight compounds by one of the symbols [C08G 18/40](#) to- [C08G 18/64](#) without subnotations, [C08G 18/65](#) to- [C08G 18/66](#), [C08G 18/6705](#) and [C08G 18/6795](#) to- [C08G 18/69](#). This note does not apply for the symbols [C08G 18/6725](#) and [C08G 18/673](#)
- C08G 18/671 . . . . {Unsaturated compounds having only one group containing active hydrogen (takes precedence on groups [C08G 18/675](#) to- [C08G 18/69](#))}
- U C08G 18/70 . . characterised by the isocyanates or isothiocyanates used
- U C08G 18/72 . . . Polyisocyanates or polyisothiocyanates
- C08G 18/721 . . . . {Two or more polyisocyanates not provided for in one single group [C08G 18/73](#) to- [C08G 18/80](#)}
- C08G 18/81 . . . Unsaturated isocyanates or isothiocyanates
- NOTES  
1. After the symbols [C08G 18/81](#) to- [C08G 18/8191](#) and separated by a "," sign is indicated the manufacture of polymers containing ionic or ionogenic groups by one of the symbols [C08G 18/0804](#) to- [C08G 18/0833](#)  
2. After the symbols [C08G 18/8158](#) to- [C08G 18/8175](#) and separated by a "," sign are indicated the polymer-backbone forming high-molecular-weight compounds containing active hydrogen or their combination with low-molecular-weight compounds by one of the symbols [C08G 18/40](#)

~~to~~ C08G 18/64 without subnotations, C08G 18/65 ~~to~~ C08G 18/66, C08G 18/6705 and C08G 18/6795 ~~to~~ C08G 18/69

- U C08G 59/00** Polycondensates containing more than one epoxy group per molecule (low-molecular-weight polyepoxy compounds [C07](#)); Macromolecules obtained by polymerising compounds containing more than one epoxy group per molecule using curing agents or catalysts which react with the epoxy groups
- U C08G 59/18 · Macromolecules obtained by polymerising compounds containing more than one epoxy group per molecule using curing agents or catalysts which react with the epoxy groups; {e.g. general methods of curing}
- C08G 59/20 · · characterised by the epoxy compounds used
- NOTE  
Preparation and curing of epoxy polycondensates, in which the epoxy polycondensate is not exclusively low-molecular-weight compound and in which the method of curing is not important, are classified only in groups [C08G 59/02](#) ~~to~~ [C08G 59/12](#).
- U C08G 59/40 · · characterised by the curing agents used
- C08G 59/4007 · · · {Curing agents not provided for by the groups [C08G 59/42](#) ~~to~~ [C08G 59/66](#)}
- C08G 61/00** Macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain of the macromolecule ([C08G 2/00](#) ~~to~~ [C08G 16/00](#) take precedence)
- NOTE  
In this group, it is desirable to add the indexing codes [C08G 2261/00](#) ~~to~~ [C08G 2261/964](#)
- C08G 63/00** Macromolecular compounds obtained by reactions forming a carboxylic ester link in the main chain of the macromolecule (polyester-amides [C08G 69/44](#); polyester-imides [C08G 73/16](#))
- NOTE  
Compounds characterised by the chemical constitution of the polyesters are classified in the groups for the type of polyester compound. Compounds characterised by the preparation process of the polyesters are classified in the groups for the process employed (groups [C08G 63/78](#) ~~to~~ [C08G 63/87](#)). Compounds characterised both by the chemical constitution and by the preparation process are classified according to each of these aspects.
- U C08G 63/68 · Polyesters containing atoms other than carbon, hydrogen and oxygen ([C08G 63/64](#) takes precedence)
- C08G 63/681 · · {containing elements not provided for by groups [C08G 63/682](#) ~~to~~ [C08G 63/698](#)}
- U C08G 63/78 · Preparation processes
- U C08G 63/82 · · characterised by the catalyst used
- C08G 63/826 · · · {Metals not provided for in groups [C08G 63/83](#) ~~to~~ [C08G 63/86](#) ([C08G 63/823](#) takes precedence)}
- U C08G 65/00** Macromolecular compounds obtained by reactions forming an ether link in the main chain of the macromolecule
- U C08G 65/02 · form cyclic ethers by opening of the heterocyclic ring
- U C08G 65/26 · · from cyclic ethers and other compounds

- U C08G 65/2642 . . . {characterised by the catalyst used}
- NOTES**
1. In this group classification is made according to the metal in the compounds, if any
  2. In this group boron is considered a metal and magnesium as an alkaline earth metal
- U C08G 65/2645 . . . . {Metals or compounds thereof, e.g. salts}
- C08G 65/266 . . . . {Metallic elements not covered by group [C08G 65/2648](#) ~~to~~ [C08G 65/2645](#), or compounds thereof}
- U C08G 65/2669 . . . . {Non-metals or compounds thereof (boron [C08G 65/2654](#))}
- C08G 65/2687 . . . . {Elements not covered by groups [C08G 65/2672](#) ~~to~~ [C08G 65/2684](#) or compounds thereof}
- U C08G 65/34 . from hydroxy compounds or their metallic derivatives {([C08G 65/26](#) takes precedence)}
- U C08G 65/38 . . derived from phenols
- U C08G 65/40 . . . from phenols (I) and other compounds (II), e.g. OH-Ar-OH + X-Ar-X, where X is halogen atom, i.e. leaving group
- U C08G 65/4012 . . . . {Other compound (II) containing a ketone group, e.g. X-Ar-C(=O)-Ar-X for polyetherketones}
- C08G 65/4068 . . . . {(I) or (II) containing elements not covered by groups [C08G 65/4018](#) ~~to~~ [C08G 65/4056](#)}
- C08G 67/00** **Macromolecular compounds obtained by reactions forming in the main chain of the macromolecule a linkage containing oxygen or oxygen and carbon, not provided for in groups [C08G 2/00](#) ~~to~~ [C08G 65/00](#)**
- C08G 73/00** **Macromolecular compounds obtained by reactions forming a linkage containing nitrogen with or without oxygen or carbon in the main chain of the macromolecule, not provided for in groups [C08G 12/00](#) ~~to~~ [C08G 71/00](#) {(polycarbodiimides prepared from isocyanates [C08G 18/025](#), [C08G 18/797](#))}**
- C08G 73/06 . Polycondensates having nitrogen-containing heterocyclic rings in the main chain of the macromolecule
- NOTES**
1. In this subgroup, "spiro" and "bridged" compounds are considered as condensed
  2. Heterocyclic rings containing both nitrogen and sulfur are classified in subgroups [C08G 75/00](#) ~~to~~ [C08G 75/32](#)

**Project: RP0309 (C08G)**

- U C08G 75/00 **Macromolecular compounds obtained by reactions forming a linkage containing sulfur with or without nitrogen, oxygen, or carbon in the main chain of the macromolecule**
- U C08G 75/02 . Polythioethers
- E C08G 75/0204 . . {Polyarylenethioethers}

**NOTES**

1. In this group, macromolecular compounds are classified for the inventive aspects which are relevant in any of the following sets of groups:

- [C08G 75/0209-C08G 75/0245](#);
- [C08G 75/025-C08G 75/0268](#);
- [C08G 75/0277-C08G 75/0281](#);

- C08G 75/0286-C08G 75/0295.

2. Within each set of groups mentioned in Note (1), the last place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the last appropriate place.

**WARNING**

Group C08G 75/0204 is incomplete pending reclassification of documents from group C08G 75/04.

Groups C08G 75/04 and C08G 75/0204 should be considered in order to perform a complete search.

- M C08G 75/0209 . . . {derived from **monomer** **monomers** containing one aromatic ring}
- M C08G 75/0213 . . . . {containing **other** elements **other** than carbon, hydrogen or sulfur}
- U C08G 75/0218 . . . . . {containing oxygen}
- M C08G 75/0222 . . . . . {containing nitrogen}
- M C08G 75/0227 . . . {derived from **monomer** **monomers** containing two or more aromatic rings}
- M C08G 75/0231 . . . {containing chain-terminating or **chain**-branching agents}
- M C08G 75/0236 . . . {containing atoms other than carbon or sulfur **on the main chain**} **in a linkage between arylene groups**
- M C08G 75/024 . . . . {containing carbonyl groups}
- E C08G 75/0245 . . . {Block **and/or** graft polymers}

**WARNING**

Group C08G 75/0245 is incomplete pending reclassification of documents from group C08G 75/12.

Groups C08G 75/12 and C08G 75/0245 should be considered in order to perform a complete search.

- M C08G 75/025 . . . {Preparatory processes}
- M C08G 75/0254 . . . . {using **metalsulfide**} **metal sulfides**
- M C08G 75/0259 . . . . {using **metalhydrogensulfide**} **metal hydrogensulfides**
- M C08G 75/0263 . . . . {using elemental sulfur}
- M C08G 75/0268 . . . . {using **disulfide**} **disulfides**
- C C08G 75/0277 . . . {Post-polymerisation treatment} (**chemical after-treatment C08G 75/0286**)

**WARNING**

Group C08G 75/0277 is impacted by reclassification into group C08G 75/0286.

Groups C08G 75/0277 and C08G 75/0286 should be considered in order to perform a complete search.

- M C08G 75/0281 . . . . {Recovery **and/or** purification}
- E C08G 75/0286 . . . {Chemical after-treatment}

**WARNING**

Group C08G 75/0286 is incomplete pending reclassification of documents from group C08G 75/0277.

Groups C08G 75/0277 and C08G 75/0286 should be considered in order to perform a complete search.

- M C08G 75/029 . . . . {**modified** **Modification** with organic compounds}
- M C08G 75/0295 . . . . {**modified** **Modification** with inorganic compounds}

- C C08G 75/04
- from mercapto compounds or metallic derivatives thereof ([C08G 75/0204](#) takes precedence)
- WARNING**  
Group [C08G 75/04](#) is impacted by reclassification into group [C08G 75/0204](#). Groups [C08G 75/04](#) and [C08G 75/0204](#) should be considered in order to perform a complete search.
- M C08G 75/045
- • {from mercapto compounds and ~~unsaturated~~ *unsaturated* compounds}
- C C08G 75/12
- Polythioether-ethers ([C08G 75/0245](#) takes precedence)
- WARNING**  
Group [C08G 75/12](#) is impacted by reclassification into group [C08G 75/0245](#). Groups [C08G 75/12](#) and [C08G 75/0245](#) should be considered in order to perform a complete search.
- U C08G 75/20
- Polysulfones
- E C08G 75/205
- {Copolymers of sulfur ~~dioxyde~~ *dioxide* with unsaturated organic compounds ([C08G 75/22](#) takes precedence)}
- WARNING**  
Group [C08G 75/205](#) is incomplete pending reclassification of documents from group [C08G 75/22](#). Groups [C08G 75/205](#) and [C08G 75/22](#) should be considered in order to perform a complete search.
- C C08G 75/22
- • Copolymers of sulfur dioxide with unsaturated aliphatic compounds
- WARNING**  
Group [C08G 75/22](#) is impacted by reclassification into group [C08G 75/205](#). Groups [C08G 75/22](#) and [C08G 75/205](#) should be considered in order to perform a complete search.
- U C08G 79/00
- Macromolecular compounds obtained by reactions forming a linkage containing atoms other than silicon, sulfur, nitrogen, oxygen, and carbon {with or without the latter elements in the main chain of the macromolecule}**
- U C08G 79/02
- a linkage containing phosphorus
- M C08G 79/025
- • {Polyphosphazenes}

**Project: N/A (C08G)**

C08G 83/00

Macromolecular compounds not provided for in groups [C08G 2/00](#) to-  
[C08G 81/00](#)

**Project: N/A (C08J)**

C08J

**WORKING-UP; GENERAL PROCESSES OF COMPOUNDING; AFTER-TREATMENT NOT COVERED BY SUBCLASSES [C08B](#), [C08C](#), [C08F](#), [C08G](#) (mechanical aspects [B29](#); layered products, manufacture thereof [B32B](#); treatment of macromolecular material specially adapted to enhance its filling properties in mortars, concrete or artificial stone [C04B 16/04](#), [C04B 18/20](#), [C04B 20/00](#); treatment of textiles [D06](#))**

**NOTES**

1. This subclass covers processes, not covered by subclasses [C08B](#) to- [C08H](#), for treating polymers.

In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place

2. When classifying in subclass [C08J](#), the treatment of specific polymers is indicated using indexing codes chosen from [C08J 2300/00](#) or subgroups thereof.

Example:

- Preparation of particles of polystyrene by impregnation of the particles with the blowing agent: [C08J 9/18](#) and [C08J 2325/06](#).

The use of a polymeric component in minority, e.g. masterbatch, coating, impregnating agent or thin binder is indicated using indexing codes chosen from [C08J 2400/00](#) or subgroups thereof. Examples:

- Use of PMMA as masterbatch in a polystyrene composition: [C08J 3/226](#) and [C08J 2325/06](#) and [C08J 2433/10](#)
- Bonding of polystyrene by heating: [C08J 5/121](#) and [C08J 2325/06](#)
- Coating of a polyethylene substrate with a polyurethane coating: [C08J 7/047](#) and [C08J 2323/06](#) and [C08J 2475/04](#)
- Use of ABS as an additive for foamed polyacrylamide : [C08J 9/0061](#) and [C08J 2333/26](#) and [C08J 2455/02](#)

In the following subgroups, the codes of [C08J 2300/00](#) ~~to~~ [C08J 2399/00](#) are used to specify:

- [C08J 3/226](#) : the polymeric material to which the masterbatch carrier is added.
- [C08J 7/047](#) : the polymeric substrate to be coated.
- [C08J 9/0061](#) : the polymeric component in majority in a multicomponents foamable blend.

3. Group [C08J 2400/00](#) was introduced on January 1st, 2012. Patent documents are continuously being reclassified. As a consequence, documents published before 01/01/2012, and to which [C08J 2400/00](#) indexing codes were allocated, are indexed in the corresponding head group. Example:

- Use of PMMA as masterbatch in a polystyrene composition: [C08J 3/226](#) and [C08J 2325/06](#) and [C08J 2433/00](#), instead of [C08J 2433/10](#).

In the following subgroups, the codes of [C08J 2400/00](#) ~~to~~ [C08J 2499/00](#) are used to specify:

- [C08J 3/226](#) : the polymeric carrier in a masterbatch.
- [C08J 5/12](#) : the chemical nature of the adhesive
- [C08J 7/047](#) : the chemical nature of the coating(s).
- [C08J 9/0061](#) : the polymeric component in minority in a multicomponents foamable blend.
- [C08J 9/224](#), [C08J 9/236](#), [C08J 9/36](#), [C08J 9/40](#) and [C08J 9/42](#) : the polymer used for coating, binding, or impregnating the foam. [C08J 9/26](#) : the polymer to be leached out.
- [C08J 9/33](#) and [C08J 9/35](#) : the foam fragments included in the (foamable) polymer matrix.
- in all other subgroups, when the presence of a polymeric component in minority is of relevance.

#### WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C08J 5/14](#) covered by [B24D 3/20](#), [F16D 69/02](#)

[C08J 5/16](#) covered by [C10M](#)

#### C08J 5/00

**Manufacture of articles or shaped materials containing macromolecular substances (shaping of foodstuffs [A23P](#); manufacture of semi-permeable membranes [B01D 67/00](#) ~~to~~ [B01D 71/00](#); mechanical features, see the relevant classes, e.g. [B29](#))**

- U C08J 5/12 · Bonding of a preformed macromolecular material to the same or other solid material such as metal, glass, leather, e.g. using adhesives {(mechanical aspects [B29C 65/00](#))}
- C08J 5/124 · · {using adhesives based on a macromolecular component (adhesive compositions per se [C09J 4/00](#), [C09J 101/00](#) ~~to~~ [C09J 201/00](#))}
- U C08J 7/00 Chemical treatment or coating of shaped articles made of macromolecular substances (coating with metallic material [C23C](#); electrolytic deposition of metals [C25](#))**
- C08J 7/04 · Coating {(Coating compositions per se [C09D 4/00](#), [C09D 101/00](#) ~~to~~ [C09D 201/00](#))}
- U C08J 9/00 Working-up of macromolecular substances to porous or cellular articles or materials; After-treatment thereof (mechanical aspects [B29C 44/00](#); foamed polymeric products of isocyanates or isothiocyanates characterised by the monomers or catalysts used [C08G 18/00](#))**
- U C08J 9/04 · using blowing gases generated by a previously added blowing agent
- U C08J 9/12 · · by a physical blowing agent
- U C08J 9/14 · · · organic
- C08J 9/149 · · · · {Mixtures of blowing agents covered by more than one of the groups [C08J 9/141](#) ~~to~~ [C08J 9/143](#)}
- NOTE**  
In groups [C08J 9/16](#) ~~to~~ [C08J 9/232](#), the following term is used with the meaning indicated:
- "expandable" includes also expanding, pre-expanded or expanded
- U C08J 2201/00 Foams characterised by the foaming process**
- C08J 2201/04 · characterised by the elimination of a liquid or solid component, e.g. precipitation, leaching out, evaporation
- NOTE**  
When the elimination is performed in several steps, only the first step is indicated using codes [C08J 2201/042](#) ~~to~~ [C08J 2201/0547](#)
- U C08J 2203/00 Foams characterized by the expanding agent**
- U C08J 2203/18 · Binary blends of expanding agents
- C08J 2203/182 · · of physical blowing agents, e.g. acetone and butane
- NOTE**  
The blowing agents should be specified by using codes [C08J 2203/06](#) ~~to~~ [C08J 2203/166](#).
- C08J 2203/184 · · of chemical foaming agent and physical blowing agent, e.g. azodicarbonamide and fluorocarbon
- NOTE**  
The expanding agents should be specified by using codes [C08J 2203/02](#) ~~to~~ [C08J 2203/166](#).
- U C08J 2203/20 · Ternary blends of expanding agents
- C08J 2203/202 · · of physical blowing agents
- NOTE**  
The blowing agents should be specified by using codes [C08J 2203/02](#) ~~to~~ [C08J 2203/166](#).

- C08J 2203/204      · · of chemical foaming agent and physical blowing agents  
NOTE  
The expanding agents should be specified by using codes [C08J 2203/02](#) ~~to~~-  
[C08J 2203/166](#).
- C08J 2319/00      Characterised by the use of rubbers not provided for in groups  
[C08J 2307/00](#) ~~to~~- [C08J 2317/00](#)
- C08J 2333/00      Characterised by the use of homopolymers or copolymers of compounds  
having one or more unsaturated aliphatic radicals, each having only one  
carbon-to-carbon double bond, and only one being terminated by only one  
carboxyl radical, or of salts, anhydrides, esters, amides, imides, or nitriles  
thereof; Derivatives of such polymers.
- C08J 2347/00      Characterised by the use of homopolymers or copolymers of compounds  
having one or more unsaturated aliphatic radicals, at least one having two  
or more carbon-to-carbon double bonds; Derivatives of such polymers  
([C08J 2345/00](#) takes precedence; of conjugated diene rubbers [C08J 2309/00](#)  
~~to~~- [C08J 2321/00](#))
- C08J 2353/00      Characterised by the use of homopolymers or copolymers, obtained by  
polymerisation reactions only involving carbon-to-carbon unsaturated  
bonds, not provided for in groups [C08J 2323/00](#) ~~to~~- [C08J 2353/00](#)
- C08J 2355/00      Characterised by the use of homopolymers or copolymers, obtained by  
polymerisation reactions only involving carbon-to-carbon unsaturated  
bonds, not provided for in groups [C08J 2323/00](#) ~~to~~- [C08J 2353/00](#)
- C08J 2365/00      Characterised by the use of macromolecular compounds obtained by  
reactions forming a carbon-to-carbon link in the main chain ([C08J 2307/00](#)  
~~to~~- [C08J 2357/00](#), [C08J 2361/00](#) take precedence); Derivatives of such  
polymers
- C08J 2373/00      Characterised by the use of macromolecular compounds obtained by  
reactions forming a linkage containing oxygen or oxygen and carbon in  
the main chain, not provided for in groups [C08J 2359/00](#) ~~to~~- [C08J 2371/00](#);  
Derivatives of such polymers
- C08J 2379/00      Characterised by the use of macromolecular compounds obtained by  
reactions forming in the main chain of the macromolecule a linkage  
containing nitrogen with or without oxygen, or carbon only, not provided  
for in groups [C08J 2361/00](#) ~~to~~- [C08J 2377/00](#)
- C08J 2393/00      Characterised by the use of natural resins; Derivatives thereof (of  
polysaccharides [C08J 2301/00](#) ~~to~~- [C08J 2305/00](#); of natural rubber  
[C08J 2317/00](#))
- C08J 2397/00      Characterised by the use of lignin-containing materials (of polysaccharides  
[C08J 2301/00](#) ~~to~~- [C08J 2305/00](#))
- C08J 2399/00      Characterised by the use of natural macromolecular compounds or  
of derivatives thereof not provided for in groups [C08J 2301/00](#) ~~to~~-  
[C08J 2307/00](#) or [C08J 2389/00](#) ~~to~~- [C08J 2397/00](#)
- C08J 2419/00      Characterised by the use of rubbers not provided for in groups  
[C08J 2407/00](#) ~~to~~- [C08J 2417/00](#)

- C08J 2447/00** Characterised by the use of homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds; Derivatives of such polymers ([C08J 2445/00](#) takes precedence; of conjugated diene rubbers [C08J 2409/00](#) ~~to-~~ [C08J 2421/00](#))
- C08J 2453/00** Characterised by the use of homopolymers or copolymers, obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in groups [C08J 2423/00](#) ~~to-~~ [C08J 2453/00](#)
- C08J 2455/00** Characterised by the use of homopolymers or copolymers, obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in groups [C08J 2423/00](#) ~~to-~~ [C08J 2453/00](#)
- C08J 2465/00** Characterised by the use of macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain ([C08J 2407/00](#) ~~to-~~ [C08J 2457/00](#), [C08J 2461/00](#) take precedence); Derivatives of such polymers
- C08J 2473/00** Characterised by the use of macromolecular compounds obtained by reactions forming a linkage containing oxygen or oxygen and carbon in the main chain, not provided for in groups [C08J 2459/00](#) ~~to-~~ [C08J 2471/00](#); Derivatives of such polymers
- C08J 2479/00** Characterised by the use of macromolecular compounds obtained by reactions forming in the main chain of the macromolecule a linkage containing nitrogen with or without oxygen, or carbon only, not provided for in groups [C08J 2461/00](#) ~~to-~~ [C08J 2477/00](#)
- C08J 2493/00** Characterised by the use of natural resins; Derivatives thereof (of polysaccharides [C08J 2401/00](#) ~~to-~~ [C08J 2405/00](#); of natural rubber [C08J 2417/00](#))
- C08J 2497/00** Characterised by the use of lignin-containing materials (of polysaccharides [C08J 2401/00](#) ~~to-~~ [C08J 2405/00](#))
- C08J 2499/00** Characterised by the use of natural macromolecular compounds or of derivatives thereof not provided for in groups [C08J 2401/00](#) ~~to-~~ [C08J 2407/00](#) or [C08J 2489/00](#) ~~to-~~ [C08J 2497/00](#)

**Project: N/A (C08K)****C08K**

**USE OF INORGANIC OR NON-MACROMOLECULAR ORGANIC SUBSTANCES AS COMPOUNDING INGREDIENTS** (pesticides, herbicides [A01N](#); pharmaceuticals, cosmetics [A61K](#); explosives [C06B](#); paints, inks, varnishes, dyes, polishes, adhesives [C09](#); lubricants [C10M](#); detergents [C11D](#); artificial filaments or fibres [D01F](#); textile treating compositions [D06](#))

NOTES

1. The use of an ingredient for a specific polymer is classified by adding, in a C-set, to the group symbol of [C08K](#), the subdivision of [C08L 1/00](#) ~~to-~~ [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)).
2. From April 2012, the use of an ingredient for a specific polymer is classified by adding, in a C-set, to the group symbol of [C08K](#), the subdivision of [C08L 1/00](#) ~~to-~~ [C08L 99/00](#). Example: Polystyrene containing a carboxylic amide is classified in ([C08K 5/20](#), [C08L 25/06](#)).
3. In this subclass, in the absence of an indication to the contrary, an ingredient is classified in the last appropriate place.
4. In this subclass:

- a mixture of ingredients is classified in the most indented group covering all the essential ingredients of the mixture, e.g.:
  - a mixture of a monohydric and a polyhydric alcohol [C08K 5/05](#)
  - a mixture of two polyhydric alcohols [C08K 5/053](#)
  - a mixture of an alcohol and an ether [C08K 5/04](#)
  - a mixture of an ether and an amine [C08K 5/00](#)
  - a mixture of an amine and a metal [C08K 13/02](#)

{ This note is applied only for mixtures with more than three essential ingredients. Mixtures with two or three ingredients are classified in the appropriate groups of [C08K](#), e.g. a mixture of Al<sub>2</sub>O<sub>3</sub>, an ether and an amine is classified in [C08K 3/22](#), [C08K 5/06](#) and [C08K 5/17](#)}

- ammonium salts are classified in the same way as metal salts

5. In this subclass, organic acid salts, alcoholates, phenolates or mercaptides are classified in the groups or subgroups of the parent compounds

6. The use of an ingredient for a specific polymer is classified by adding to the group symbol of [C08K](#) and separated therefrom by a "+" sign, the subdivision of [C08L 1/00](#) to- [C08L 99/00](#).

Example: Polystyrene containing a carboxylic amide is classified in [C08K 5/20](#) + [C08L 25/06](#)

7. In this subclass are considered as compounding ingredients:

- inert additives
- radical crosslinking agents, e.g. peroxides, S-containing vulcanisation agents
- coupling agents, i.e. compounds able to improve the adhesion between filler and macromolecule

Are not considered as compounding ingredients:

- chemical modifying or crosslinking agents which react via a condensation or addition mechanism (for [C08B](#) polymers [C08B](#), for diene rubbers [C08C 19/30](#), for other vinyl polymers [C08F 8/00](#), for polysiloxanes [C08L 83/00](#), for other [C08G](#) polymers [C08G](#))
- solvents or dispersion agents for making polymer solutions, emulsions or dispersions ([C08J 3/02](#))
- blowing agents ([C08J 9/04](#))

#### WARNING

The following IPC group is not used in the CPC system. Subject matter covered by this group is classified in the following CPC groups:

[C08K 5/5445](#) covered by [C08K 5/544](#)

#### U C08K 3/00

##### Use of inorganic ingredients

C08K 3/0008

- {Inorganic ingredients according to more than one of the "one dot" groups of [C08K 3/02](#) to- [C08K 3/40](#)}

C08K 3/0075

- {Metal containing compounds according to more than one of the "one dot" groups of [C08K 3/10](#) to- [C08K 3/40](#)}

#### U C08K 5/00

##### Use of organic ingredients

C08K 5/0008

- {Organic ingredients according to more than one of the "one dot" groups of [C08K 5/01](#) to- [C08K 5/59](#)}

#### U C08K 13/00

##### Use of mixtures of ingredients not covered by one single of the preceding main groups, each of these compounds being essential

C08K 13/06

- Pretreated ingredients and ingredients covered by the main groups [C08K 3/00](#) to- [C08K 7/00](#)

C08K 13/08

- Ingredients of unknown constitution and ingredients covered by the main groups [C08K 3/00](#) to- [C08K 9/00](#)

## Project: N/A (C08L)

- C08L 19/00      Compositions of rubbers not provided for in groups [C08L 7/00](#) to- [C08L 17/00](#)
- C08L 23/00 -      **Compositions of macromolecular compounds obtained by reactions**  
C08L 57/00      **involving only carbon-to-carbon unsaturated bonds**
- NOTE  
Groups [C08L 23/00](#) to- [C08L 49/00](#) are to be interpreted in accordance with Notes 2), 3) and 4 a) following the title of subclass [C08F](#) ]
- C08L 47/00      Compositions of homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds; Compositions of derivatives of such polymers ([C08L 45/00](#) takes precedence; of conjugated diene rubbers [C08L 9/00](#) to- [C08L 21/00](#))
- C08L 55/00      Compositions of homopolymers or copolymers, obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in groups [C08L 23/00](#) to- [C08L 53/00](#)
- U    C08L 63/00      Compositions of epoxy resins; Compositions of derivatives of epoxy resins  
C08L 63/10      · Epoxy resins modified by unsaturated compounds
- NOTE  
In groups [C08L 65/00](#) to- [C08L 85/00](#), in the absence of an indication to the contrary, compositions of macromolecular compounds, obtained by reactions forming two different linkages in the main chain, are classified only according to the linkage present in excess
- C08L 65/00      Compositions of macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain ([C08L 7/00](#) to- [C08L 57/00](#), [C08L 61/00](#) take precedence); Compositions of derivatives of such polymers
- C08L 73/00      Compositions of macromolecular compounds obtained by reactions forming a linkage containing oxygen or oxygen and carbon in the main chain, not provided for in groups [C08L 59/00](#) to- [C08L 71/00](#); Compositions of derivatives of such polymers
- C08L 79/00      Compositions of macromolecular compounds obtained by reactions forming in the main chain of the macromolecule a linkage containing nitrogen with or without oxygen or carbon only, not provided for in groups [C08L 61/00](#) to- [C08L 77/00](#)
- U    C08L 87/00      Compositions of unspecific macromolecular compounds, obtained otherwise than by polymerisation reactions only involving unsaturated carbon-to-carbon bonds  
C08L 87/005      · {Block or graft polymers not provided for in groups [C08L 1/00](#) to- [C08L 85/04](#)}
- C08L 89/00 -      **Compositions of natural macromolecular compounds or of derivatives**  
C08L 101/00      **thereof (of polysaccharides [C08L 1/00](#) to- [C08L 5/00](#); of natural rubber [C08L 7/00](#))**
- C08L 99/00      Compositions of natural macromolecular compounds or of derivatives thereof not provided for in groups [C08L 89/00](#) to- [C08L 97/00](#)

**U C08L 2666/00** **Composition of polymers characterized by a further compound in the blend, being organic macromolecular compounds, natural resins, waxes or and bituminous materials, non-macromolecular organic substances, inorganic substances or characterized by their function in the composition (not used)**

NOTE

These codes are not used for the classification of new documents. They are a replacement of the combination classes.

- U C08L 2666/02 • Organic macromolecular compounds, natural resins, waxes or and bituminous materials
- C08L 2666/04 • • Macromolecular compounds according to groups [C08L 7/00](#) ~~to~~ [C08L 49/00](#), or [C08L 55/00](#) ~~to~~ [C08L 57/00](#); Derivatives thereof
- C08L 2666/08 • • • Homopolymers or copolymers according to [C08L 7/00](#) ~~to~~ [C08L 21/00](#); Derivatives thereof
- C08L 2666/10 • • Homopolymers or copolymers according to [C08L 39/00](#) ~~to~~ [C08L 49/00](#); Derivatives thereof
- C08L 2666/12 • • Homopolymers or copolymers not provided for in [C08L 2666/06](#) ~~to~~ [C08L 2666/10](#)
- C08L 2666/14 • • Macromolecular compounds according to [C08L 59/00](#) ~~to~~ [C08L 87/00](#); Derivatives thereof
- C08L 2666/16 • • • Addition or condensation polymers of aldehydes or ketones according to [C08L 59/00](#) ~~to~~ [C08L 61/00](#); Derivatives thereof
- C08L 2666/18 • • • Polyesters or polycarbonates according to [C08L 67/00](#) ~~to~~ [C08L 69/00](#); Derivatives thereof
- C08L 2666/20 • • • Macromolecular compounds having nitrogen in the main chain according to [C08L 75/00](#) ~~to~~ [C08L 79/00](#); Derivatives thereof
- C08L 2666/22 • • • Macromolecular compounds not provided for in [C08L 2666/16](#) ~~to~~ [C08L 2666/20](#)
- C08L 2666/26 • • Natural polymers, natural resins or derivatives thereof according to [C08L 1/00](#) ~~to~~ [C08L 5/00](#), [C08L 89/00](#), [C08L 93/00](#), [C08L 97/00](#) or [C08L 99/00](#)

**Project: N/A (C09B)****C09B**

**ORGANIC DYES OR CLOSELY-RELATED COMPOUNDS FOR PRODUCING DYES; MORDANTS; LAKES (fermentation or enzyme-using processes to synthesise a desired chemical compound [C12P](#))**

NOTE

In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">C09B 23/01</a>	covered by	<a href="#">C09B 23/0008</a> <del>to</del>
<del><a href="#">C09B 23/0091</a></del>		
<a href="#">C09B 29/01</a>	" "	<a href="#">C09B 29/0003</a> <del>to</del> <del>-</del>
<a href="#">C09B 29/0022</a>		
<a href="#">C09B 29/03</a>	" "	<a href="#">C09B 29/0007</a>
<a href="#">C09B 29/033</a>	" "	<a href="#">C09B 29/0025</a>
<a href="#">C09B 29/036</a>	" "	<a href="#">C09B 29/0029</a>
<a href="#">C09B 29/039</a>	" "	<a href="#">C09B 29/0074</a> <del>to</del> <del>-</del>
<a href="#">C09B 29/0081</a>		
<a href="#">C09B 29/042</a>	" "	<a href="#">C09B 29/0085</a>

<a href="#">C09B 29/045</a>	"	"	<a href="#">C09B 29/0088</a>	
<a href="#">C09B 29/048</a>	"	"	<a href="#">C09B 29/0092</a>	
<a href="#">C09B 29/085</a>	"	"	<a href="#">C09B 29/0003</a>	<a href="#">C09B 29/0801</a>
<del>to</del> <a href="#">C09B 29/0848</a>				
<a href="#">C09B 29/09</a>	"	"	<a href="#">C09B 29/0025</a>	<a href="#">C09B 29/0801</a>
<del>to</del> <a href="#">C09B 29/0848</a>				
<a href="#">C09B 29/15</a>	"	"	<a href="#">C09B 29/103</a>	
<a href="#">C09B 29/40</a>	"	"	<a href="#">C09B 29/3608</a>	<del>to</del>
<a href="#">C09B 29/3613</a>				
<a href="#">C09B 29/42</a>	"	"	<a href="#">C09B 29/3617</a>	<del>to</del>
<a href="#">C09B 29/3639</a>				
<a href="#">C09B 29/44</a>	"	"	<a href="#">C09B 29/3643</a>	
<a href="#">C09B 29/46</a>	"	"	<a href="#">C09B 29/3652</a>	
<a href="#">C09B 29/48</a>	"	"	<a href="#">C09B 29/3656</a>	
<a href="#">C09B 29/50</a>	"	"	<a href="#">C09B 29/366</a>	
<a href="#">C09B 29/52</a>	"	"	<a href="#">C09B 29/3665</a>	
<a href="#">C09B 33/13</a>	"	"	<a href="#">C09B 33/12</a>	
<a href="#">C09B 46/00</a>	"	"	<a href="#">C09B 27/00</a>	<del>to</del>
<a href="#">C09B 45/00</a>				
<a href="#">C09B 67/02</a>	"	"	<a href="#">C09B 67/0097</a>	
<a href="#">C09B 67/04</a>	"	"	<a href="#">C09B 67/0001</a>	
<a href="#">C09B 67/06</a>	"	"	<a href="#">C09B 67/0003</a>	
<a href="#">C09B 67/08</a>	"	"	<a href="#">C09B 67/0004</a>	
<a href="#">C09B 67/10</a>	"	"	<a href="#">C09B 67/0014</a>	
<a href="#">C09B 67/12</a>	"	"	<a href="#">C09B 67/0016</a>	
<a href="#">C09B 67/14</a>	"	"	<a href="#">C09B 67/0017</a>	
<a href="#">C09B 67/16</a>	"	"	<a href="#">C09B 67/0019</a>	
<a href="#">C09B 67/18</a>	"	"	<a href="#">C09B 67/002</a>	
<a href="#">C09B 67/20</a>	"	"	<a href="#">C09B 67/006</a>	
<a href="#">C09B 67/22</a>	"	"	<a href="#">C09B 67/0033</a>	
<a href="#">C09B 67/24</a>	"	"	<a href="#">C09B 67/0072</a>	
<a href="#">C09B 67/26</a>	"	"	<a href="#">C09B 67/0073</a>	
<a href="#">C09B 67/28</a>	"	"	<a href="#">C09B 67/0077</a>	
<a href="#">C09B 67/30</a>	"	"	<a href="#">C09B 67/0078</a>	
<a href="#">C09B 67/32</a>	"	"	<a href="#">C09B 67/0075</a>	
<a href="#">C09B 67/34</a>	"	"	<a href="#">C09B 67/0076</a>	
<a href="#">C09B 67/36</a>	"	"	<a href="#">C09B 67/0079</a>	
<a href="#">C09B 67/38</a>	"	"	<a href="#">C09B 67/008</a>	
<a href="#">C09B 67/40</a>	"	"	<a href="#">C09B 67/0082</a>	
<a href="#">C09B 67/42</a>	"	"	<a href="#">C09B 67/0071</a>	
<a href="#">C09B 67/44</a>	"	"	<a href="#">C09B 67/0083</a>	
<a href="#">C09B 67/46</a>	"	"	<a href="#">C09B 67/0084</a>	
<a href="#">C09B 67/48</a>	"	"	<a href="#">C09B 67/0025</a>	
<a href="#">C09B 67/50</a>	"	"	<a href="#">C09B 67/0026</a>	
<a href="#">C09B 67/52</a>	"	"	<a href="#">C09B 67/0027</a>	
<a href="#">C09B 67/54</a>	"	"	<a href="#">C09B 67/0096</a>	

- U C09B 5/00 Dyes with an anthracene nucleus condensed with one or more heterocyclic rings with or without carbocyclic rings**
- U C09B 5/02     • the heterocyclic ring being {only} condensed in peri position
- C09B 5/022     • • {not provided for in one of the sub groups [C09B 5/04](#) ~~to~~ [C09B 5/20](#)}
- U C09B 5/24     • the heterocyclic rings being {only} condensed with an anthraquinone nucleus in 1-2 or 2-3 position
- C09B 5/2409    • • {not provided for in one of the sub groups [C09B 5/26](#) ~~to~~ [C09B 5/62](#)}

**C09B 27/00 -  
C09B 62/00****Azo dyes****NOTE**

In groups [C09B 27/00](#) to- [C09B 45/00](#), arrows in the formulae of the various types of azo dyes indicate which part of an azo dye, prepared by diazotising and coupling, is derived from the diazo component and which part is derived from the coupling component. The arrow is pointing to the part derived from the coupling component.

**U C09B 62/00****Reactive dyes, i.e. dyes which form covalent bonds with the substrates or which polymerise with themselves**

- U C09B 62/002
  - with the linkage of the reactive group being alternatively specified {not used}
- C09B 62/0025
  - • {Specific dyes not provided for in groups [C09B 62/004](#) to- [C09B 62/018](#)}
- U C09B 62/02
  - with the reactive group directly attached to a heterocyclic ring
- C09B 62/021
  - • {Specific dyes not provided for in groups [C09B 62/024](#) to- [C09B 62/038](#)}
- U C09B 62/04
  - • to a triazine ring
- C09B 62/046
  - • • {Specific dyes not provided for in group [C09B 62/06](#) to- [C09B 62/10](#)}
- U C09B 62/12
  - • to a pyridazine ring
- C09B 62/125
  - • • {Specific dyes non provided for in groups [C09B 62/14](#) to- [C09B 62/18](#)}
- U C09B 62/20
  - • to a pyrimidine ring
- C09B 62/205
  - • • {Specific dyes not provided for in groups [C09B 62/22](#) to- [C09B 62/26](#)}
- U C09B 62/28
  - • to a pyrazine ring
- C09B 62/285
  - • • {Specific dyes not provided for in groups [C09B 62/30](#) to- [C09B 62/34](#)}
- U C09B 62/343
  - • to a five membered ring
- C09B 62/3435
  - • • {Specific dyes not provided for in groups [C09B 62/345](#) to- [C09B 62/357](#)}
- U C09B 62/36
  - • to some other heterocyclic ring
- C09B 62/365
  - • • {Specific dyes not provided for in groups [C09B 62/38](#) to- [C09B 62/42](#)}
- U C09B 69/00
  - Dyes not provided for by a single group of this subclass
- C09B 69/08
  - Dyes containing a splittable water solubilizing group {(Dyes containing an onium group attached to the dye molecule via a bridge are to be considered as cationic dyes and are classified with the respective dyes such as [C09B 44/02](#) to- [C09B 44/08](#); [C09B 69/001](#) to- [C09B 69/005](#))}

**Project: N/A (C09C)****C09C**

**TREATMENT OF INORGANIC MATERIALS, OTHER THAN FIBROUS FILLERS, TO ENHANCE THEIR PIGMENTING OR FILLING PROPERTIES (preparation of inorganic compounds or non-metallic elements [C01](#); treatment of materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone [C04B 14/00](#), [C04B 18/00](#), [C04B 20/00](#)); PREPARATION OF CARBON BLACK; {PREPARATION OF INORGANIC MATERIALS WHICH ARE NO SINGLE CHEMICAL COMPOUNDS AND WHICH ARE MAINLY USED AS PIGMENTS OR FILLERS}**

**NOTES**

1. In this subclass, in the absence of an indication to the contrary, a compound is classified in the last appropriate place
2. Treatment by polymerisation onto particle is classified in [C08F 292/00](#). Only treatment by already polymerised agents is classified in [C09C](#)
3. Whenever in groups [C09C 1/00](#) to- [C09C 1/66](#) the materials consist of a particulate core bearing a coating or any other deposit, classification is done

only according to the composition of the core, unless otherwise stated, e.g. [C09C 1/0015](#), [C09C 1/0078](#)

4. Preparations of those materials which are no single chemical compounds comprise those of many ceramic pigments ([C09C 1/0009](#)), consisting of solid solutions or polycrystalline structures, and those defined as composite materials ([C09C 1/0081](#))

5. Preparation and treatment steps are not always easy to distinguish from each other, e.g. preparation in the presence of treating agents (by precipitation or calcination), precise reacting conditions, affecting pigmentary effects. It is common practice to include these complex topics in [C09C 1/00](#) while avoiding redundancy

6. When classifying in this subclass, the indexing codes of subclass [C01P](#) are used to identify structural or physical aspects of solid inorganic compounds

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[C09C 1/68](#) covered by [C09K 3/14](#)

#### U C09C 1/00

**Treatment of specific inorganic materials other than fibrous fillers (luminescent or tenebrescent materials [C09K](#)); Preparation of carbon black**

C09C 1/0015

- {Pigments exhibiting interference colours, e.g. transparent platelets of appropriate thinness or flaky substrates, e.g. mica, bearing appropriate thin transparent coatings ([C09C 1/0078](#), [C09C 1/62](#) take precedence)}

#### NOTES

1. The optical properties of the interference pigments are depending on the order of the different layers applied on the substrate in view of their refractive indices; A refractive index < or = 1.8 is considered low, a refractive index >1.8 is considered high; A dye is always an organic, coloured material. An aluminium lake compound would for classification purposes also fall under this definition, as well as any coloured metal chelate or metal complex with organic ligands; An interference pigment can e.g. have a flaky, spherical or ellipsoidal core; A pigment comprising a core consisting of a metal is only considered as an interference pigment if it shows properties typical for interference pigments

2. In groups [C09C 1/0015](#) to- [C09C 1/0075](#) it is desirable to add indexing codes relating to the compositional and structural details chosen from groups [C09C 2200/00](#) to- [C09C 2220/20](#)]

U C09C 1/28

- Compounds of silicon {([C09C 1/0009](#), [C09C 1/0015](#), [C09C 1/0078](#) take precedence)}

C09C 1/30

- • Silicic acid

#### NOTES

1. Combinations of treatment steps, characterised by the sequence or the nature of two or more individual steps, are classified in [C09C 1/309](#).

2. The individual steps are classified with symbols chosen from groups [C09C 1/3009](#) to- [C09C 1/3081](#).

C09C 1/309

- • • {Combinations of treatments provided for in groups [C09C 1/3009](#) to- [C09C 1/3081](#)}

U C09C 1/36

- Compounds of titanium {([C09C 1/0009](#), [C09C 1/0015](#), [C09C 1/0078](#) take precedence)}

C09C 1/3607	<ul style="list-style-type: none"> <li>• • {Titanium dioxide}</li> </ul> <p><u>NOTES</u></p> <ol style="list-style-type: none"> <li>1. Combinations of treatment steps, characterised by the sequence or the nature of two or more individual steps, are classified in <a href="#">C09C 1/3692</a>.</li> <li>2. The individual steps are classified with symbols chosen from groups <a href="#">C09C 1/3615</a> <del>to</del> <a href="#">C09C 1/3684</a>.</li> </ol>
C09C 1/3692	<ul style="list-style-type: none"> <li>• • {Combinations of treatments provided for in groups <a href="#">C09C 1/3615</a> <del>to</del> <a href="#">C09C 1/3684</a>}</li> </ul>
U C09C 1/44	<ul style="list-style-type: none"> <li>• Carbon</li> </ul>
U C09C 1/48	<ul style="list-style-type: none"> <li>• • Carbon black</li> </ul>
C09C 1/487	<ul style="list-style-type: none"> <li>• • • {Separation; Recovery (quenching <a href="#">C09C 1/50</a> <del>to</del> <a href="#">C09C 1/54</a>)}</li> </ul>
<b>U C09C 3/00</b>	<b>Treatment in general of inorganic materials, other than fibrous fillers, to enhance their pigmenting or filling properties (dyeing other macromolecular particles <a href="#">C08J 3/20</a>; dyeing macromolecular fibres <a href="#">D06P</a>)</b>
C09C 3/006	<ul style="list-style-type: none"> <li>• {Combinations of treatments provided for in groups <a href="#">C09C 3/04</a> <del>to</del> <a href="#">C09C 3/12</a>}</li> </ul> <p><u>NOTE</u></p> <p>When classifying in this group, it is desirable to classify the individual treatment steps with symbols chosen from groups <a href="#">C09C 3/04</a> <del>to</del> <a href="#">C09C 3/12</a>.</p>
<b>C09C 2200/00</b>	<b>Compositional and structural details of pigments exhibiting interference colours</b>
	<p><u>NOTE</u></p> <p>When indexing codes <a href="#">C09C 2200/00</a> <del>to</del> <a href="#">C09C 2220/20</a> are used, no codes are given for the particle morphology according to the indexing codes <a href="#">C01P 2004/10</a> <del>to</del> <a href="#">C01P 2004/42</a> or <a href="#">C01P 2004/80</a> <del>to</del> <a href="#">C01P 2004/88</a></p>

**Project: N/A (C09D)****C09D**

**COATING COMPOSITIONS, e.g. PAINTS, VARNISHES OR LACQUERS; FILLING PASTES; CHEMICAL PAINT OR INK REMOVERS; INKS; CORRECTING FLUIDS; WOODSTAINS; PASTES OR SOLIDS FOR COLOURING OR PRINTING; USE OF MATERIALS THEREFOR (cosmetics [A61K](#); processes for applying liquids or other fluent materials to surfaces, in general, [B05D](#); staining wood [B27K 5/02](#); glazes or vitreous enamels [C03C](#); organic macromolecular compounds [C08](#); organic dyes or closely-related compounds for producing dyes, mordants or lakes, per se , [C09B](#); treatment of inorganic materials other than fibrous fillers used as pigments or fillers [C09C](#); natural resins, French polish, drying-oils, driers, turpentine, per se , [C09F](#); polishing compositions other than French polish, ski waxes [C09G](#); preparation of glue or gelatine [C09H](#), {[C08H 1/06](#) } ; adhesives or use of materials as adhesives [C09J](#); materials for sealing or packing joints or covers [C09K 3/10](#); materials for stopping leaks [C09K 3/12](#); processes for the electrolytic or electrophoretic production of coatings [C25D](#); textile-treating compositions [D06](#); paper-making [D21](#); conductors, insulators [H01B](#))**

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:

- "use of materials for coating compositions" means the use of known or new polymers or products;
- "rubber" includes:
  - a. natural or conjugated diene rubbers;

b. rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for coating compositions based on such macromolecular compounds);

- "based on" is defined by means of Note 3, below;
- "filling pastes" means materials used to fill up the holes or cavities of a substrate in order to smooth its surface prior to coating.

2. In this subclass, coating compositions containing specific macromolecular substances are classified only according to the macromolecular substance, non-macromolecular substances not being taken into account.

Example: a coating composition containing polyethene and amino-propyltrimethoxysilane is classified in group [C09D 123/06](#).

However, coating compositions containing combinations of organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond with prepolymers or polymers other than unsaturated polymers of groups [C09D 159/00](#) to [C09D 187/00](#) are classified according to the unsaturated non-macromolecular component in group [C09D 4/00](#).

Example: a coating composition containing polyethene and styrene monomer is classified in group [C09D 4/06](#).

Aspects relating to the physical nature of the coating compositions or to the effects produced, as defined in group [C09D 5/00](#), if clearly and explicitly stated, are also classified in this subclass.

Coating compositions characterised by other features, e.g. additives, are classified in group [C09D 7/00](#), unless the macromolecular constituent is specified.

3. In this subclass, coating compositions comprising two or more macromolecular constituents are classified according to the macromolecular constituent or constituents present in the highest proportion, i.e. the constituent on which the composition is based. If the composition is based on two or more constituents, present in equal proportions, the composition is classified according to each of these constituents.

Examples:

A coating composition containing 80 parts of polyethene and 20 parts of polyvinylchloride is classified in group [C09D 123/06](#);

A coating composition containing 40 parts of polyethene and 40 parts of polyvinylchloride is classified in groups [C09D 123/06](#) and [C09D 127/06](#).

4. Documents classified up until 04.2012: after the notation of group [C09D 4/06](#), and separated therefrom by a + sign, notations concerning the macromolecular compound may be added. The notations are selected from the main groups [C08F 251/00](#) to [C08F 291/00](#) and from the subgroups of [C08F 290/00](#) to [C08F 290/048](#) and [C08F 290/08](#) to [C08F 290/128](#).

Example: a paint based on a mixture of methylmethacrylate monomer and a polymer of vinylchloride is classified in [C09D 4/06](#) + [C08F 259/04](#).

5. From April 2012 onwards, after the notation [C09D 4/00](#), classification concerning the monomer may be added, in the form of C-sets. The notation is selected from [C08F 210/00](#) to [C08F 246/00](#), [C08G 77/00](#) to [C08G 77/04](#) or [C08G 77/20](#) to [C08G 77/30](#). Ex.: A paint based on a mixture of methylmethacrylate monomer and a polymer of vinylchloride is classified ( [C09D 4/06](#), [C08F 259/04](#) ).

6. Documents classified up until 09-2003: Classification is given in the form of C-Sets. The polymer in majority is given a [C09D 101/00](#) - [C09D 201/10](#) symbol, and the minor components are characterised by Indexing Codes taken from the list below. The Indexing Codes are linked. The polymer in majority is always first in the C-set. List of [C08L](#) codes: [C08L 23/00](#), [C08L 23/26](#), [C08L 25/00](#), [C08L 27/00](#), [C08L 27/04](#), [C08L 27/12](#), [C08L 29/00](#), [C08L 31/00](#),

[C08L 33/00](#), [C08L 35/00](#), [C08L 37/00](#), [C08L 51/00](#), [C08L 53/00](#), [C08L 55/02](#), [C08L 61/04](#), [C08L 61/20](#), [C08L 63/00](#), [C08L 67/00](#), [C08L 67/02](#), [C08L 67/025](#), [C08L 67/03](#), [C08L 67/04](#), [C08L 67/06](#), [C08L 67/07](#), [C08L 69/00](#), [C08L 69/005](#), [C08L 71/00](#), [C08L 75/04](#), [C08L 77/00](#), [C08L 77/08](#), [C08L 77/12](#), [C08L 79/08](#), [C08L 79/085](#), [C08L 81/00](#), [C08L 83/00](#), [C08L 85/00](#), [C08L 91/06](#), [C08L 95/00](#) or [C08L 2666/00](#) - [C08L 2666/86](#). Documents from group [C09D 123/00](#) - [C09D 123/36](#), [C09D 145/00](#) - [C09D 145/02](#) and [C09D 149/00](#) have all been reclassified following Note 3 below. An additive is classified in the last appropriate place in the list as selected for each [C09D](#) group.

Examples:

- a. A coating composition based on a polyamide and a graft polymer is classified in ([C09D 177/00](#), [C08L 2666/24](#)).
- b. A coating composition based on polyvinylchloride and containing CaCO<sub>3</sub> is classified according to note 4 of [C08K](#), i.e. in [C08K 3/26](#) and [C09D 127/06](#). If this coating composition contains also a polyamide, then the classification will be ([C09D 127/06](#), [C08L 77/00](#), [C08K 3/26](#)).
- c. A coating composition based on a polysiloxane ([C09D 183/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C09D 183/04](#), [C08L 83/04](#), [C08L 2666/34](#), [C08L 2666/54](#)).

7. From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a [C09D](#) symbol, and the minor components are characterised by Indexing Codes taken from [C08L](#) or [C08K](#) and they are linked or unlinked. The polymer in majority is always first in the C-set. List of indexing codes in the C-Sets: [C08L 1/00](#), [C08L 81/00](#), [C08L 83/00](#), [C08L 91/06](#), [C08L 95/00](#) or [C08L 2666/02](#) - [C08L 2666/08](#), [C08L 2666/14](#) - [C08L 2666/26](#).

Examples:

- a. A coating of 60 parts polyvinylchloride ([C09D 127/06](#)) and 40 parts polyamide is classified in ([C09D 127/06](#), [C08L 2666/20](#)), [C08L 77/00](#).
- b. A coating of 50 parts polyvinylchloride ([C09D 127/06](#)) and 50 parts polyamide ([C09D 177/00](#)) is classified in ([C09D 127/06](#), [C08L 2666/20](#)), and [C08L 77/00](#), as well as ([C09D 177/00](#), [C08L 2666/04](#)) and [C08L 27/06](#).
- c. A coating composition based on polyvinylchloride and containing CaCO<sub>3</sub> is classified according to [N: Note 4 of [C08K](#), i.e. in [C08K 3/26](#), [C09D 127/06](#). If this composition contains also a polyamide, then the classification will be ([C09D 127/06](#), [C08L 2666/20](#)) and [C08K 3/26](#).
- d. A composition based on a first polysiloxane ([C09D 183/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C09D 183/04](#), [C08L 83/00](#), [C08K 5/13](#), [C08K 3/36](#)) and [C08L 2205/02](#).

8. From April 2012 onwards, after the notation of groups [C09D 101/00](#) to [C09D 201/00](#), notations concerning the other constituents of the coating composition may be added, in the form of C-Sets. The further constituent is added with an indexing code. The indexing codes are chosen from [C08L 1/00](#) - [C08L 2555/86](#) or [C08K](#) and they may be linked or unlinked: - [C08L 1/00](#) - [C08L 101/10](#) are linked. - [C08L 2201/00](#) - [C08L 2555/86](#) are unlinked. The polymer in majority is always first in the C-set. Examples:

- a. A coating composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups [C09D 123/06](#) and [C08K 5/544](#) (unlinked).
- b. A coating composition containing 80 parts of polyethylene and 20 parts of polyvinylchloride is classified in ([C09D 123/06](#), [C08L 27/06](#)).
- c. A coating composition containing 40 parts of polyethylene and 40 parts of polyvinylchloride is classified in ([C09D 123/06](#), [C08L 27/06](#)) and ([C09D 127/06](#), [C08L 23/06](#)).

- d. A coating composition containing 90% of polysiloxane ([C09D 183/04](#)) further containing 10% of polyester ([C08L 67/00](#)) and an alcohol is classified in ([C09D 183/04](#), [C08L 67/00](#), [C08K 5/05](#)).

**WARNING**

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">C09D 4/02</a> <a href="#">C08F 220/00</a>	covered by	<a href="#">C09D 4/00</a> ,
<a href="#">C09D 4/04</a> <a href="#">C08F 222/00</a>	covered by	<a href="#">C09D 4/00</a> ,
<a href="#">C09D 5/23</a> <a href="#">C09D 5/25</a> <a href="#">C09D 5/33</a> <a href="#">C09D 5/46</a>	covered by covered by covered by covered by	<a href="#">H01F 41/16</a> <a href="#">H01B 3/308</a> <a href="#">C09D 5/004</a> <a href="#">C09D 5/03</a>
<a href="#">C09D 161/08</a> , <a href="#">C09D 161/06</a>	<a href="#">C09D 161/10</a>	covered by
<a href="#">C09D 163/02</a> <a href="#">C09D 171/08</a> <a href="#">C09D 171/10</a> <a href="#">C09D 183/05</a> <a href="#">C09D 183/07</a> <a href="#">C09D 183/06</a>	covered by covered by covered by covered by covered by	<a href="#">C09D 163/00</a> <a href="#">C09D 171/02</a> <a href="#">C09D 171/12</a> <a href="#">C09D 183/04</a> <a href="#">C09D 183/04</a> ,

**C09D 4/00** Coating compositions, e.g. paints, varnishes or lacquers, based on organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond; {Coating compositions, based on monomers of macromolecular compounds of groups [C09D 183/00](#) to- [C09D 183/16](#)}

C09D 4/06 · {Organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond} in combination with a macromolecular compound other than an unsaturated polymer of groups [C09D 159/00](#) to- [C09D 187/00](#)

**U C09D 5/00** Coating compositions, e.g. paints, varnishes or lacquers, characterised by their physical nature or the effects produced; Filling pastes {(magnetisable or magnetic paints [H01F 1/00](#); electrically insulating paints [H01B 3/00](#); paints for electrophoretic applications [C25D 13/00](#))}

C09D 5/44 · for electrophoretic applications (processes for coating by electrophoresis [C25D 13/00](#))

**NOTE**

The groups [C09D 5/4403](#) to- [C09D 5/4476](#) relating to paints based on a specified film-forming polymer or mixture of polymers take precedence over the groups [C09D 5/448](#) to- [C09D 5/4496](#) relating to paints characterised by other features

C09D 5/448 · · {characterised by the additives used ([C09D 5/4403](#) to- [C09D 5/4476](#), [C09D 5/4492](#) take precedence)}

C09D 5/4484 · · {Anodic paints ([C09D 5/4403](#) to- [C09D 5/4476](#) take precedence)}

C09D 5/4488 · · {Cathodic paints ([C09D 5/4403](#) to- [C09D 5/4476](#) take precedence)}

**C09D 119/00** Coating compositions based on rubbers, not provided for in groups [C09D 107/00](#) to- [C09D 117/00](#)

- C09D 147/00** Coating compositions based on homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds; Coating compositions based on derivatives of such polymers (**C09D 145/00** takes precedence; based on conjugated diene rubbers **C09D 109/00** ~~to~~ **C09D 121/00**)
- C09D 155/00** Coating compositions based on homopolymers or copolymers, obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in groups **C09D 123/00** ~~to~~ **C09D 153/00**
- U C09D 163/00** Coating compositions based on epoxy resins; Coating compositions based on derivatives of epoxy resins
- C09D 163/10** · Epoxy resins modified by unsaturated compounds
- NOTE  
In groups **C09D 165/00** ~~to~~ **C09D 185/00**, in the absence of an indication to the contrary, adhesives based on macromolecular compounds obtained by reactions forming two different linkages in the main chain are classified according to the linkage present in excess.
- C09D 165/00** Coating compositions based on macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain (**C09D 107/00** ~~to~~ **C09D 157/00**, **C09D 161/00** take precedence); Coating compositions based on derivatives of such polymers
- C09D 173/00** Coating compositions based on macromolecular compounds obtained by reactions forming a linkage containing oxygen or oxygen and carbon in the main chain, not provided for in groups **C09D 159/00** ~~to~~ **C09D 171/00**; Coating compositions based on derivatives of such polymers
- C09D 179/00** Coating compositions based on macromolecular compounds obtained by reactions forming in the main chain of the macromolecule a linkage containing nitrogen, with or without oxygen, or carbon only, not provided for in groups **C09D 161/00** ~~to~~ **C09D 177/00**
- U C09D 187/00** Coating compositions based on unspecified macromolecular compounds, obtained otherwise than by polymerisation reactions only involving unsaturated carbon-to-carbon bonds
- C09D 187/005** · {Block or graft polymers not provided for in groups **C09D 101/00** ~~to~~ **C09D 185/04**}
- C09D 189/00 - C09D 201/00** Coating compositions based on natural macromolecular compounds or on derivatives thereof (based on polysaccharides **C09D 101/00** ~~to~~ **C09D 105/00**; based on natural rubber **C09D 107/00**)
- C09D 199/00** Coating compositions based on natural macromolecular compounds or on derivatives thereof, not provided for in groups **C09D 189/00** ~~to~~ **C09D 197/00**

## Project: N/A (C09J)

## C09J

**ADHESIVES; NON-MECHANICAL ASPECTS OF ADHESIVE PROCESSES IN GENERAL; ADHESIVE PROCESSES NOT PROVIDED FOR ELSEWHERE; USE OF MATERIALS AS ADHESIVES (surgical adhesives [A61L 24/00](#); processes for applying liquids or other fluent materials to surfaces in general [B05D](#); adhesives on the basis of non specified organic macromolecular compounds used as bonding agents in layered products [B32B](#); organic labelling fabrics or comparable materials or articles with deformable surface using adhesives and thermo-activatable adhesives respectively [B65C 5/02](#), [B65C 5/04](#); organic macromolecular compounds [C08](#); production of multi-layer textile fabrics [D06M 17/00](#); preparation of glue or gelatine [C09H](#); adhesive labels, tag tickets or similar identification of indication means [G09F 3/10](#))**

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:

- "use of materials as adhesives" means the use of known or new polymers or products;
- "rubber" includes:
  - a. natural or conjugated diene rubbers;
  - b. rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for adhesives based on such macromolecular compounds);
- "based on" is defined by means of Note 3, below.

2. In this subclass, adhesives containing specific macromolecular substances are classified only according to the macromolecular substance, non-macromolecular substances not being taken into account.

Example: an adhesive containing polyethene and amino-propyltrimethoxysilane is classified in group [C09J 123/06](#).

However, adhesives containing combinations of organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond with prepolymers or polymers other than unsaturated polymers of groups [C09J 159/00](#) to [C09J 187/00](#) are classified according to the unsaturated non-macromolecular component in group [C09J 4/00](#).

Example: an adhesive containing polyethene and styrene monomer is classified in group [C09J 4/06](#).

Aspects relating to the physical nature of the adhesives or to the effects produced, as defined in group [C09J 9/00](#), if clearly and explicitly stated, are also classified in this subclass. Adhesives characterised by other features, e.g. additives, are classified in group [C09J 11/00](#), unless the macromolecular constituent is specified.

3. In this subclass, adhesives comprising two or more macromolecular constituents are classified according to the macromolecular constituent or constituents present in the highest proportion, i.e. the constituent on which the adhesive is based. If the adhesive is based on two or more constituents, present in equal proportions, the adhesive is classified according to each of these constituents.

Examples: An adhesive containing 80 parts of polyethene and 20 parts of polyvinylchloride is classified in group [C09J 123/06](#);

An adhesive containing 40 parts of polyethene and 40 parts of polyvinylchloride is

classified in groups [C09J 123/06](#) and [C09J 127/06](#).

4. An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups [C09J 123/06](#) and [C08K 5/544](#)

5. Documents classified up until 09-2003: Classification is given in the form of C-Sets. The polymer in majority is given a [C09J 101/00](#) - [C09J 201/10](#) symbol, and the minor components are characterised by Indexing Codes taken from the list below. The Indexing Codes are linked. The polymer in majority is always first in the C-set.

List of [C08L](#) codes: [C08L 23/00](#), [C08L 23/26](#), [C08L 25/00](#), [C08L 27/00](#), [C08L 27/04](#), [C08L 27/12](#), [C08L 29/00](#), [C08L 31/00](#), [C08L 33/00](#), [C08L 35/00](#), [C08L 37/00](#), [C08L 51/00](#), [C08L 53/00](#), [C08L 55/02](#), [C08L 61/04](#), [C08L 61/20](#), [C08L 63/00](#), [C08L 67/00](#), [C08L 67/02](#), [C08L 67/025](#), [C08L 67/03](#), [C08L 67/04](#), [C08L 67/06](#), [C08L 67/07](#), [C08L 69/00](#), [C08L 69/005](#), [C08L 71/00](#), [C08L 75/04](#), [C08L 77/00](#), [C08L 77/08](#), [C08L 77/12](#), [C08L 79/08](#), [C08L 79/085](#), [C08L 81/00](#), [C08L 83/00](#), [C08L 85/00](#), [C08L 91/06](#), [C08L 95/00](#) or [C08L 2666/00](#) - [C08L 2666/86](#). An additive is classified in the last appropriate place in the list as selected for each [C09J](#) group. Examples:

- a. An adhesive composition based on a polyamide and a graft polymer is classified in ([C09J 177/00](#), [C08L 2666/24](#)).
- b. An adhesive composition based on polyvinylchloride and containing CaCO<sub>3</sub> is classified according to note 4 of [C08K](#), i.e. in [C08K 3/26](#) and [C09J 127/06](#). If this adhesive composition contains also a polyamide, then the classification will be ([C09J 127/06](#), [C08L 77/00](#), [C08K 3/26](#)).
- c. An adhesive composition based on a polysiloxane ([C09J 183/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C09J 183/04](#), [C08L 83/04](#), [C08L 2666/34](#), [C08L 2666/54](#)

6. From April 2012, after the notation [C09J 4/00](#), classification concerning the monomer may be added, in the form of C-sets. The notation is selected from [C08F 210/00](#) to- [C08F 246/00](#), [C08G 77/00](#) to- [C08G 77/04](#) or [C08G 77/20](#) to- [C08G 77/30](#).

Ex. 1: An adhesive based on methylmethacrylate monomer is classified in ([C09J 4/00](#), [C08F 220/00](#)).

Ex. 2: An adhesive based on a dialkoxysilane monomer compound is classified in ([C09J 4/00](#), [C08G 77/04](#)).

7. From 01.09.2003 until April 2012: Classification is given in the form of C-Sets. The polymer in majority is given a [C08L](#) class, and the minor components are characterised by Indexing Codes taken from [C08L](#) or [C08K](#) and they are linked or unlinked. The polymer in majority is always first in the C-set. List of indexing codes in the C-Sets: [C08L 1/00](#), [C08L 81/00](#), [C08L 83/00](#), [C08L 91/06](#), [C08L 95/00](#) or [C08L 2666/02](#) - [C08L 2666/08](#), [C08L 2666/14](#) - [C08L 2666/26](#).

Examples:

- a. An adhesive blend of 60 parts polyvinylchloride ([C09J 127/06](#)) and 40 parts polyamide is classified in ([C09J 127/06](#), [C08L 2666/20](#)), [C08L 77/00](#).
- b. An adhesive blend of 50 parts polyvinylchloride ([C09J 127/06](#)) and 50 parts polyamide ([C09J 177/00](#)) is classified in ([C09J 127/06](#), [C08L 2666/20](#)), ([C09J 177/00](#), [C08L 2666/04](#)), [C08L 77/00](#) and [C08L 27/06](#).
- c. An adhesive composition based on polyvinylchloride and containing CaCO<sub>3</sub> is classified according to [N: Note 4 of [C08K](#), i.e. in [C08K 3/26](#), [C09J 127/06](#). If this composition contains also a polyamide, then the classification will be ([C09J 127/06](#), [C08L 2666/20](#)) and [C08K 3/26](#).
- d. A composition based on a first polysiloxane ([C09J 183/04](#)) and containing a second polysiloxane, a phenol and silica is classified in ([C09J 183/04](#), [C08L 83/00](#), [C08K 5/13](#), [C08K 3/36](#)) and [C08L 2205/02](#).

8. From April 2012 onwards, after the notation of groups [C09J 101/00](#) to- [C09J 201/00](#), notations concerning the other constituents of the adhesive composition may be added, in the form of C-sets. The further constituent is added with an indexing code. The indexing codes are chosen from [C08L 1/00](#)

-[C08L 2555/86](#) or [C08K](#) and they may be linked or unlinked: - [C08L 1/00](#) - [C08L 101/16](#) are linked. - [C08L 2201/00](#) - [C08L 2555/86](#) are unlinked. The polymer in majority is always first in the C-set.

Examples:

- a. An adhesive composition containing polyethylene and amino-propyltrimethoxysilane is classified in groups [C09J 123/06](#) and [C08K 5/544](#) (unlinked).
- b. An adhesive containing 80 parts of polyethylene and 20 parts of polyvinylchloride is classified in group ([C09J 123/06](#), [C08L 27/06](#)).
- c. An adhesive containing 40 parts of polyethylene and 40 parts of polyvinylchloride is classified in groups ([C09J 123/06](#), [C08L 27/06](#)) and ([C09J 127/06](#), [C08L 23/06](#)).
- d. An adhesive containing 90% of polysiloxane ([C09J 183/04](#)) further containing of polyester ([C08L 67/00](#)) and an alcohol is classified in ([C09J 183/04](#), [C08L 67/00](#), [C08K 5/05](#)).

#### WARNING

The following IPC group is not used in the CPC system: Subject matter covered by these groups is classified in the following CPC group:

[C09J 163/02](#) covered by [C09J 163/00](#)

<b>C09J 4/00</b>	<b>Adhesives based on organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond; {adhesives, based on monomers of macromolecular compounds of groups <a href="#">C09J 183/00</a> to- <a href="#">C09J 183/16</a>}</b>
C09J 4/06	· {Organic non-macromolecular compounds having at least one polymerisable carbon-to-carbon unsaturated bond} in combination with a macromolecular compound other than an unsaturated polymer of groups <a href="#">C09J 159/00</a> to- <a href="#">C09J 187/00</a>
<b>C09J 119/00</b>	<b>Adhesives based on rubbers, not provided for in groups <a href="#">C09J 107/00</a> to- <a href="#">C09J 117/00</a></b>
<b>C09J 147/00</b>	<b>Adhesives based on homopolymers or copolymers of compounds having one or more unsaturated aliphatic radicals, at least one having two or more carbon-to-carbon double bonds; Adhesives based on derivatives of such polymers (<a href="#">C09J 145/00</a> takes precedence; based on conjugated diene rubbers <a href="#">C09J 109/00</a> to- <a href="#">C09J 121/00</a>)</b>
<b>C09J 155/00</b>	<b>Adhesives based on homopolymers or copolymers, obtained by polymerisation reactions only involving carbon-to-carbon unsaturated bonds, not provided for in groups <a href="#">C09J 123/00</a> to- <a href="#">C09J 153/00</a></b>
<b>U C09J 163/00</b>	<b>Adhesives based on epoxy resins; Adhesives based on derivatives of epoxy resins</b>
C09J 163/10	· Epoxy resins modified by unsaturated compounds
	<b>NOTE</b> In groups <a href="#">C09J 165/00</a> to- <a href="#">C09J 185/00</a> , in the absence of an indication to the contrary, adhesives based on macromolecular compounds obtained by reactions forming two different linkages in the main chain are classified according to the linkage present in excess.
<b>C09J 165/00</b>	<b>Adhesives based on macromolecular compounds obtained by reactions forming a carbon-to-carbon link in the main chain (<a href="#">C09J 107/00</a> to- <a href="#">C09J 157/00</a>, <a href="#">C09J 161/00</a> take precedence); Adhesives based on derivatives of such polymers</b>

- C09J 173/00** Adhesives based on macromolecular compounds obtained by reactions forming a linkage containing oxygen or oxygen and carbon in the main chain, not provided for in groups [C09J 159/00](#) ~~to~~ [C09J 171/00](#); Adhesives based on derivatives of such polymers
- C09J 179/00** Adhesives based on macromolecular compounds obtained by reactions forming in the main chain of the macromolecule a linkage containing nitrogen, with or without oxygen, or carbon only, not provided for in groups [C09J 161/00](#) ~~to~~ [C09J 177/00](#)
- U C09J 187/00** Adhesives based on unspecified macromolecular compounds, obtained otherwise than by polymerisation reactions only involving unsaturated carbon-to-carbon bonds
- C09J 187/005 · {Block or graft polymers not provided for in groups [C09J 101/00](#) ~~to~~ [C09J 185/04](#)}
- C09J 189/00 - C09J 201/00** Adhesives based on natural macromolecular compounds or on derivatives thereof (based on polysaccharides [C09J 101/00](#) ~~to~~ [C09J 105/00](#); based on natural rubber [C09J 107/00](#))
- C09J 199/00** Adhesives based on natural macromolecular compounds or on derivatives thereof, not provided for in groups [C09J 189/00](#) ~~to~~ [C09J 197/00](#)
- C09J 2499/00** Presence of natural macromolecular compounds or on derivatives thereof, not provided for in groups [C09J 2489/00](#) ~~to~~ [C09J 2497/00](#)

**Project: N/A (C09K)**

- C09K 3/00** **Materials not provided for elsewhere**
- NOTE  
When classifying in groups [C09K 3/10](#) ~~to~~ [C09K 3/1028](#) the properties and uses of the material can be further indexed by using indexing codes chosen from [C09K 2003/1034](#) ~~to~~ [C09K 2003/1096](#) and the chemical nature of the materials can be further indexed by using indexing codes chosen from [C09K 2200/00](#) ~~to~~ [C09K 2200/0697](#)
- U C09K 5/00** **Heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants; Materials for the production of heat or cold by chemical reactions other than by combustion**
- U C09K 5/02** · Materials undergoing a change of physical state when used ([C09K 5/16](#), [C09K 5/20](#) take precedence)
- C09K 5/04 · · the change of state being from liquid to vapour or vice-versa
- NOTE  
When classifying in groups [C09K 5/042](#), [C09K 5/044](#) and [C09K 5/045](#) the chemical nature of the material can be further indexed by using indexing codes chosen from [C09K 2205/00](#) ~~to~~ [C09K 2205/48](#)
- C09K 5/08 · Materials not undergoing a change of physical state when used ([C09K 5/16](#), [C09K 5/20](#) take precedence)
- WARNING  
The subgroups of [C09K 5/08](#) might be incomplete as some of the patent documents classified in [C09K 5/08](#) might need reclassification to one or more of groups [C09K 5/10](#) ~~to~~ [C09K 5/14](#)

- C09K 9/00** Tenebrescent materials, i.e. materials for which the range of wavelength for energy absorption is changed as result of excitation by some form of energy ({liquid crystal materials [C09K 19/00](#); photochromic glass [C03C 4/06](#); in thermometers [G01K 11/12](#); in photochromic filters [G02B 5/23](#); in optical modulation devices [G02F 1/00](#) ; photosensitive materials for photographic purposes [G03C](#); {in cathodochromic screens [H01J 29/14](#)})
- NOTE  
When classifying in groups [C09K 9/02](#) the chemical nature of the tenebrescent material can be further indexed by using indexing codes chosen from [C09K 2211/00](#) to- [C09K 2211/188](#)
- U C09K 11/00** **Luminescent, e.g. electroluminescent, chemiluminescent materials**  
C09K 11/06
- containing organic luminescent materials
- NOTE  
When classifying in groups [C09K 11/06](#) and [C09K 11/07](#) the chemical nature of the luminescent material can be further indexed by using indexing codes chosen from [C09K 2211/00](#) to- [C09K 2211/188](#)
- C09K 11/08
- containing inorganic luminescent materials
- NOTES
1. In groups [C09K 11/08](#) to- [C09K 11/897](#), in the absence of an indication to the contrary, classification of materials is made in the last appropriate place
  2. { In this group, magnesium is considered as an alkaline earth metal }
- WARNING  
Groups [C09K 11/0805](#) to- [C09K 11/0894](#), with the exception of [C09K 11/0883](#) for classifying nitrides, are no longer used for classification of new documents. The backlog of this group is being continuously reclassified to subgroups [C09K 11/54](#) to- [C09K 11/897](#)
- C09K 11/0827
- {Halogenides ([C09K 11/0805](#), [C09K 11/0838](#) to- [C09K 11/0894](#) take precedence)}
- U C09K 11/64**
- containing aluminium
- C09K 11/644
- • {Halogenides ([C09K 11/641](#), [C09K 11/646](#) to- [C09K 11/648](#) take precedence)}
- U C09K 11/66**
- containing germanium, tin or lead
- C09K 11/664
- • {Halogenides ([C09K 11/661](#), [C09K 11/666](#) to- [C09K 11/668](#) take precedence)}
- U C09K 11/67**
- containing refractory metals
- C09K 11/674
- • {Halogenides ([C09K 11/671](#), [C09K 11/676](#) to- [C09K 11/679](#) take precedence)}
- U C09K 11/74**
- containing arsenic, antimony or bismuth
- C09K 11/7428
- • {Halogenides ([C09K 11/7407](#), [C09K 11/7442](#) to- [C09K 11/7492](#) take precedence)}
- U C09K 11/77**
- containing rare earth metals
- C09K 11/7704
- • {Halogenides ([C09K 11/7701](#), [C09K 11/7706](#) to- [C09K 11/7714](#) take precedence)}
- U C09K 11/7715**
- • {containing cerium}
- C09K 11/7719
- • • {Halogenides ([C09K 11/7716](#), [C09K 11/7721](#) to- [C09K 11/7727](#) take precedence)}
- U C09K 11/7743**
- • {containing terbium}

- C09K 11/7747 . . . . {Halogenides ([C09K 11/7744](#), [C09K 11/7749](#) ~~to~~ [C09K 11/7755](#) take precedence)}
- U C09K 11/7766 . . . {containing two or more rare earth metals (containing europium [C09K 11/7783](#))}
- C09K 11/7772 . . . . {Halogenides ([C09K 11/7767](#), [C09K 11/7774](#) ~~to~~ [C09K 11/7782](#) take precedence)}
- U C09K 11/7783 . . . {containing two or more rare earth metals one of which being europium}
- C09K 11/779 . . . . {Halogenides ([C09K 11/7784](#), [C09K 11/7792](#) ~~to~~ [C09K 11/7798](#) take precedence)}

**C09K 13/00**

**Etching, surface-brightening or pickling compositions (for glass [C03C 15/00](#), {[C03C 25/66](#); for mortars, concrete, artificial or natural stone or ceramics [C04B 41/5338](#)}; for metallic material [C23F](#), [C23G 1/00](#), [C25F 1/00](#); {for semi-conductors [H01L](#)})**

NOTE

In groups [C09K 13/02](#) ~~to~~ [C09K 13/12](#), in the absence of an indication to the contrary, materials are classified in the last appropriate place.

**C09K 15/00**

**Anti-oxidant composition; Compositions inhibiting chemical change ({for use in well-specified applications, see the relevant places, e.g. in etching or pickling compositions [C09K 13/00](#), [C23G](#)}, in foodstuffs [A21D](#), [A23](#), {in association with organic compounds [C07C](#), [C07D](#)}, in macromolecular compositions [C08](#); in liquid fuels or lubricants [C10](#); in fats, fatty substances, fatty oils or waxes [C11B 5/00](#); in detergents [C11D](#); {coating or impregnating carbon or graphite based bodies to protect them from oxidation [C04B 41/45](#)}; corrosion inhibiting compositions for metallic material [C23F 11/00](#))**

NOTE

In groups [C09K 15/02](#) ~~to~~ [C09K 15/34](#), in the absence of an indication to the contrary, a composition is classified in the last appropriate place.

**C09K 17/00**

**Soil-conditioning materials or soil-stabilising materials (specially adapted for boreholes or wells [C09K 8/00](#); fertilisers [C05](#); consolidating by placing solidifying or pore-filling substances in the soil [E02D 3/12](#))**

NOTES

1. This group covers mixtures of soil-conditioning or soil-stabilising materials with fertilisers characterised by their soil-conditioning or soil-stabilising activity.
2. This group does not cover mixtures of soil-conditioning or soil-stabilising materials with fertilisers characterised by their fertilising activity which are covered by subclass [C05G](#).
3. For the purpose of classification in this group, the presence of fertilisers in the composition is not taken into account.
4. In groups [C09K 17/02](#) ~~to~~ [C09K 17/50](#), in the absence of an indication to the contrary, materials are classified in the last appropriate place.

**C09K 19/00****Liquid crystal materials**NOTES

1. In groups [C09K 19/02](#) to- [C09K 19/60](#), { with the exception of groups [C09K 19/0208](#) to- [C09K 19/0283](#) } , in the absence of an indication to the contrary, materials are classified in the last appropriate place.
2. Mixtures containing two or more liquid crystal compounds covered individually by the same one of groups [C09K 19/04](#) to- [C09K 19/40](#) are classified only in that group.
3. If liquid crystal components of the mixtures classified in groups [C09K 19/42](#) to- [C09K 19/50](#) are of importance as such, they should also be classified according to the compounds in groups [C09K 19/04](#) to- [C09K 19/40](#).

U C09K 19/04

- characterised by the chemical structure of the liquid crystal components, {e.g. by a specific unit}

C09K 19/42

- · Mixtures of liquid crystal compounds covered by two or more of the preceding groups [C09K 19/06](#) to- [C09K 19/40](#)

**C09K 21/00****Fireproofing materials (for use in a particular application, see the relevant places, e.g. fireproofing of wood [B27K](#), of polymers [C08](#), of textiles [D06M](#), of paper [D21H](#); fireproof paints [C09D 5/18](#))**NOTE

In groups [C09K 21/02](#) to- [C09K 21/14](#), in the absence of an indication to the contrary, materials are classified in the last appropriate place.

U **C09K 2211/00****Chemical nature of organic luminescent or tenebrescent compounds**

U C09K 2211/10

- Non-macromolecular compounds

U C09K 2211/1018

- · Heterocyclic compounds

C09K 2211/1025

- · · characterised by ligands

NOTE

In groups [C09K 2211/1025](#) to- [C09K 2211/1074](#) indexing is made in the last appropriate place

U C09K 2211/14

- Macromolecular compounds

C09K 2211/1441

- · Heterocyclic

NOTE

In groups [C09K 2211/1441](#) to- [C09K 2211/1483](#) indexing is made in the last appropriate place

**Project: N/A (C10B)**U **C10B 7/00****Coke ovens with mechanical conveying means for the raw material inside the oven**

C10B 7/10

- with ~~conveyer~~conveyor-screws

U **C10B 47/00****Destructive distillation of solid carbonaceous material with indirect heating, e.g. by external combustion**

U C10B 47/28

- Other processes

U C10B 47/32

- · in ovens with mechanical conveying means

C10B 47/44

- · · with ~~conveyer~~conveyor-screws

## Project: N/A (C10G)

## C10G

**CRACKING HYDROCARBON OILS; PRODUCTION OF LIQUID HYDROCARBON MIXTURES, e.g. BY DESTRUCTIVE HYDROGENATION, OLIGOMERISATION, POLYMERISATION (cracking to hydrogen or synthesis gas [C01B](#); cracking or pyrolysis of hydrocarbon gases to individual hydrocarbons or mixtures thereof of definite or specific constitution [C07C](#); cracking to cokes [C10B](#)); RECOVERY OF HYDROCARBON OILS FROM OIL-SHALE, OIL-SAND, OR GASES; REFINING MIXTURES MAINLY CONSISTING OF HYDROCARBONS; REFORMING OF NAPHTHA; MINERAL WAXES (inhibiting corrosion or incrustation in general [C23F](#))**

NOTES

- In this subclass,
  - groups [C10G 9/00](#) to [C10G 49/00](#) are limited to one-step processes;
  - combined or multi-step processes are covered by groups [C10G 51/00](#) to [C10G 69/00](#);
  - refining or recovery of mineral waxes is covered by group [C10G 73/00](#)
- In this subclass, the following terms or expressions are used with the meanings indicated:
  - "in the presence of hydrogen" or "in the absence of hydrogen" mean treatments in which hydrogen, in free form or as hydrogen generating compounds, is added, or not added, respectively;
  - "hydrotreatment" is used for conversion processes as defined in group [C10G 45/00](#) or group [C10G 47/00](#);
  - "hydrocarbon oils" covers mixtures of hydrocarbons such as tar oils or mineral oils.
- In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:  
[C10G 73/23](#) covered by [C10G 73/06](#)

- |   |                                |  |
|---|--------------------------------|--|
| U | C10G 1/00                      | <b>Production of liquid hydrocarbon mixtures from oil-shale, oil-sand, or non-melting solid carbonaceous or similar materials, e.g. wood, coal (mechanical winning of oil from oil-shales, oil-sand, or the like <a href="#">B03B</a>)</b> |
|   | C10G 1/006                     | · {Combinations of processes provided in groups <a href="#">C10G 1/02</a> to <a href="#">C10G 1/08</a> }   |
| U | C10G 21/00                     | <b>Refining of hydrocarbon oils in the absence of hydrogen, by extraction with selective solvents (<a href="#">C10G 17/00</a>, <a href="#">C10G 19/00</a> take precedence; dewaxing oils <a href="#">C10G 73/02</a>)</b>                   |
|   | U C10G 21/06                   | · characterised by the solvent used  |
|   | U C10G 21/12                   | · · Organic compounds only   |
|   | C10G 21/27                     | · · · Organic compounds not provided for in a single one of groups <a href="#">C10G 21/14</a> to <a href="#">C10G 21/26</a>  |
|   | <b>C10G 51/00 - C10G 99/00</b> | <b><u>Multi-step processes</u></b>   |
|   |                                | <u>NOTE</u>  |
|   |                                | Groups <a href="#">C10G 51/00</a> to <a href="#">C10G 69/00</a> cover only those combined treating operations where the interest is directed to the relationship between the steps.  |
| U | C10G 2300/00                   | <b>Aspects relating to hydrocarbon processing covered by groups <a href="#">C10G 1/00</a> - <a href="#">C10G 99/00</a></b>   |
|   | U C10G 2300/40                 | · Characteristics of the process deviating from typical ways of processing   |

- C10G 2300/4062 · · Geographical aspects e.g. different process units form a combination process at different geographical locations:

**C10G 2400/00** **Products obtained by processes covered by groups [C10G 9/00](#) to-[C10G 69/14](#)**

**Project: N/A (C10H)**

**U C10H 15/00** **Acetylene gas generators with carbide feed, with or without regulation by the gas pressure**

- C10H 15/14 · with feed worm or feed ~~conveyers~~[conveyors](#)

**Project: N/A (C10L)**

**C10L** **FUELS NOT OTHERWISE PROVIDED FOR (fuels for generating pressure gas, e.g. for rockets [C06D 5/00](#); candles [C11C](#); nuclear fuel [G21C 3/00](#)); NATURAL GAS; SYNTHETIC NATURAL GAS OBTAINED BY PROCESSES NOT COVERED BY SUBCLASSES [C10G](#), [C10K](#); LIQUEFIED PETROLEUM GAS; ADDING MATERIALS TO FUELS OR FIRES TO REDUCE SMOKE OR UNDESIRABLE DEPOSITS OR TO FACILITATE SOOT REMOVAL; FIRELIGHTERS**

NOTE

In subclass [C10L](#) it is desirable to give indexing codes for information about components of solid, liquid and gaseous fuels or firelighters, their additives and constituents and their preparation and use. The indexing codes are taken from [C10L 2200/00](#) to- [C10L 2290/60](#)

**U C10L 1/00** **Liquid carbonaceous fuels**

- U C10L 1/10 · containing additives
- C10L 1/106 · · {mixtures of inorganic compounds with organic macromolecular compounds}

NOTES

1. In groups [C10L 1/12](#) to- [C10L 1/30](#){[C10L 1/308](#)} , in the absence of an indication to the contrary, a compound is always classified in the last appropriate place.
2. A metal salt or an ammonium salt of a compound is classified as that compound, e.g. a chromium sulfonate is classified as a sulfonate in group [C10L 1/24](#) and not in group [C10L 1/30](#).
3. When classifying in this group, it is desirable to classify the individual additional components using Combination Sets with symbols chosen from groups [C10L 1/12](#) to- [C10L 1/308](#)
4. Mixtures of additives are classified in the corresponding main group. Individual additives can be classified using Combination Sets according to the Note above
5. When several alternatives for the same individual additive are mentioned, e.g. as a Markush-formula, classification may be done in the corresponding main group only, the alternatives being classified using Combination Sets, according to the Note above.
6. Documents classified until April 2003, have been classified with Combination Sets as explained in the Notes above, however using symbols chosen from groups [C10L 1/10](#) to- [C10L 1/308](#).

**U C10L 10/00** Use of additives to fuels or fires for particular purposes (additives for liquid carbonaceous fuels characterised by their chemical nature [C10L 1/10](#); using binders for briquetting solid fuels [C10L 5/10](#); using additives to improve the combustion of solid fuels [C10L 9/10](#))

WARNING

IPC8 subgroups [C10L 10/00](#), introduced in the CPC scheme in June 2006, might be temporarily incomplete as a number of documents presently classified under the main group needs reclassification to these IPC subgroups

C10L 10/06 · for facilitating soot removal

WARNING

Groups [C10L 10/08](#) ~~to~~ [C10L 10/18](#) were introduced in May 2006. These groups might be incomplete as documents, presently classified in [C10L 10/00](#) and [C10L 10/04](#) are in the process of being reclassified to these groups

**C10L 2200/00** **Components of fuel compositions**

NOTE

Additives in liquid fuels present in concentrations lower than 5% get a class taken from [C10L 1/10](#) -[C10L 1/308](#) and corresponding [C10L 1/10](#) -[C10L 1/308](#). In groups [C10L 1/32](#) ~~to~~ [C10L 11/08](#) is such distinction between the terms additive and component not made.

**C10L 2300/00** **Mixture of two or more additives covered by the same group of [C10L 1/00](#) - [C10L 1/308](#)**

NOTE

After the code and separated therefrom by a + sign, the codes [C10L 2300/20](#) ~~to~~ [C10L 2300/40](#) are added according to the number of components in the mixture. Example: **[C10L1/16A](#) + [C10L 2300/20](#)** corresponds to a mixture of two well defined hydrocarbons, e.g. mixture of hexane and benzene

**Project: N/A (C10M)**

**C10M**

**LUBRICATING COMPOSITIONS (well drilling compositions [C09K 8/02](#)); USE OF CHEMICAL SUBSTANCES EITHER ALONE OR AS LUBRICATING INGREDIENTS IN A LUBRICATING COMPOSITION (lubricants for medical use [A61](#)); mould release, i.e. separating, agents for metals [B22C 3/00](#), for plastics or substances in a plastic state, in general [B29C 33/56](#), for glass [C03B 40/02](#); use of particular substances in particular apparatus or conditions, see [F16N](#) or the relevant groups for the application, e.g. [A21D 8/08](#), [B21C 9/00](#), [H01B 3/18](#); immersion oils for microscopy [G02B 21/33](#))**

NOTES

- In this subclass, the following terms are used with the meanings indicated:
  - "lubricant" or "lubricating composition" includes cutting oils, hydraulic fluids, metal drawing compositions, flushing oils, slushing oils, or the like;
  - "aliphatic" includes "cycloaliphatic".
- In respect of the classification of mixtures, attention is drawn to Note (4) (e) below.
- In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place. Thus, a compound having an aromatic ring is classified as aromatic regardless of whether the substituent(s) of interest are on the ring or on an aliphatic part of the molecule.
- In this subclass:
  - metal or ammonium salts of a compound are classified as that compound;

- b. salts or adducts formed between two or more organic compounds are classified according to all compounds forming the salt or adduct, if of interest;
  - c. a specified compound, e.g. phenols, acids, substituted by a macromolecular hydrocarbon radical is classified as that compound;
  - d. base-materials or thickeners or additives consisting of a mixture for which no specific main group is provided are classified in the most indented group covering all essential constituents of the mixture, for example,
    - a base-material mixture of ketone and amide - group [C10M 105/00](#)
    - a base-material mixture of ketone and ether - group [C10M 105/08](#)
    - an additive mixture of long and short chain esters - group [C10M 129/00](#)
    - an additive mixture of short chain aliphatic and aromatic carboxylic acids- group [C10M 129/26](#);
  - e. except for aqueous lubricating compositions containing more than 10% water, which are classified separately, classification is made according to the type of ingredient or mixture of types of ingredient (base-material, thickener or additive) which characterises the composition. Attention is drawn to the fact that a mixture of essential ingredients characterised by only one of its components, rather than by the mixture as a whole, is not classified as a mixture, e.g. a lubricating composition consisting of:
    - a known base-material and a new additive is classified only in the "additive" part of the classification scheme;
    - a known base-material with both a thickener and a further additive as essential ingredients, which may be individually classified as a mixture of thickener and additive;
    - known base-material with a combination of additives as essential ingredients, which may be individually known or not, is classified in the appropriate place for the additive mixture.
5. In this subclass, it is desirable to add the indexing codes of:
- subclass [C10M](#), relating to the chemical constitution of individual compounds of the lubricating compositions;
  - subclass [C10N](#), relating to physico-chemical aspects of the lubricating compositions or of their compounding ingredients.

For more information about the way of allocating these indexing codes, see the notes after the titles of the respective subclasses.

6. In this subclass, until May 2003, indexing codes were added, relating to:
- each of the essential ingredients of a mixture. However, in the case of an aqueous lubricating composition covered by group [C10M 173/00](#), the presence of water is not indicated;
  - each of the essential reactants of a reaction product covered by groups [C10M 109/02](#), [C10M 121/04](#) or [C10M 159/12](#)

The indexing codes, which are chosen from groups [C10M 101/00](#) ~~to~~ [C10M 109/00](#), [C10M 113/00](#) ~~to~~ [C10M 121/00](#), [C10M 125/00](#) ~~to~~ [C10M 139/00](#), [C10M 143/00](#) ~~to~~ [C10M 155/00](#), [C10M 159/00](#) or [C10M 163/00](#) ~~to~~ [C10M 167/00](#), were given using Combination Sets.

7. In this subclass, until May 2003, the indexing codes of subclass [C10N](#) were added.

Documents classified with Combination Sets according to internal Notes 2), 3) and 5) are in the state of being reclassified according to Note 1).

#### WARNING

The following groups are no longer used for the classification of new documents from January, 1978:

- [C10M 1/00](#) ~~to~~ [C10M 7/00](#)

The backlog of these groups is continuously being reclassified in groups [C10M 101/00](#) ~~to~~ [C10M 177/00](#).

- U C10M 105/00** Lubricating compositions characterised by the base-material being a non-macromolecular organic compound
- C10M 105/80 · containing atoms of elements not provided for in groups [C10M 105/02](#) to- [C10M 105/78](#)
- U C10M 107/00** Lubricating compositions characterised by the base-material being a macromolecular compound
- C10M 107/54 · containing atoms of elements not provided for in groups [C10M 107/02](#) to- [C10M 107/52](#)
- C10M 111/00** Lubrication compositions characterised by the base-material being a mixture of two or more compounds covered by more than one of the main groups [C10M 101/00](#) to- [C10M 109/00](#), each of these compounds being essential
- C10M 113/00 - C10M 123/00** **Thickeners**
- NOTE  
A thickener is an agent which solidifies other liquid components to form a grease (solid lubricants consisting of solid components [C10M 101/00](#) to- [C10M 111/00](#) ).
- U C10M 119/00** Lubricating compositions characterised by the thickener being a macromolecular compound
- C10M 119/30 · containing atoms of elements not provided for in groups [C10M 119/02](#) to- [C10M 119/28](#)
- C10M 123/00** Lubricating compositions characterised by the thickener being a mixture of two or more compounds covered by more than one of the main groups [C10M 113/00](#) to- [C10M 121/00](#), each of these compounds being essential (inorganic materials coated with organic compounds [C10M 113/16](#))
- C10M 139/00** Lubricating compositions characterised by the additive being an organic non-macromolecular compound containing atoms of elements not provided for in groups [C10M 127/00](#) to- [C10M 137/00](#)
- C10M 141/00** Lubricating compositions characterised by the additive being a mixture of two or more compounds covered by more than one of the main groups [C10M 125/00](#) to- [C10M 139/00](#), each of these compounds being essential
- C10M 141/12 · at least one of them being an organic compound containing atoms of elements not provided for in groups [C10M 141/02](#) to- [C10M 141/10](#)
- C10M 155/00** Lubricating compositions characterised by the additive being a macromolecular compound containing atoms of elements not provided for in groups [C10M 143/00](#) to- [C10M 153/00](#)
- C10M 157/00** Lubricating compositions characterised by the additive being a mixture of two or more macromolecular compounds covered by more than one of the main groups [C10M 143/00](#) to- [C10M 155/00](#), each of these compounds being essential
- C10M 157/10 · at least one of them being a compound containing atoms of elements not provided for in groups [C10M 157/02](#) to- [C10M 157/08](#)
- C10M 171/00** Lubricating compositions characterised by purely physical criteria, e.g. containing as base-material, thickener or additive, ingredients which are characterised exclusively by their numerically specified physical properties, i.e. containing ingredients which are physically well-defined but for which the chemical nature is either unspecified or only very vaguely indicated (chemically defined ingredients [C10M 101/00](#) to- [C10M 169/00](#); petroleum fractions [C10M 101/02](#), [C10M 121/02](#), [C10M 159/04](#))

**U C10M 2209/00 Organic macromolecular compounds containing oxygen as ingredients in lubricant compositions (oxidised hydrocarbons [C10M 2205/12](#))**

U C10M 2209/10 · Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds

U C10M 2209/103 · · Polyethers, i.e. containing di- or higher polyoxyalkylene groups

C10M 2209/107 · · · of two or more specified different alkylene oxides covered by groups [C10M 2209/104](#) to [C10M 2209/106](#)

C10M 2209/108 · · · etherified

**NOTE**

When applying indexing code [C10M 2209/108](#), it should be linked to the appropriate code for identifying the alkylene oxide involved, chosen from groups [C10M 2209/104](#) to [C10M 2209/107](#) and by using alpha-numerical order in the combination.

Example: [C10M 2209/107](#) +  
[C10M 2209/108](#)

C10M 2209/109 · · · esterified

**NOTE**

When applying indexing code [C10M 2209/109](#), it should be linked to the appropriate code for identifying the alkylene oxide involved, chosen from groups [C10M 2209/104](#) to [C10M 2209/107](#) and by using alpha-numerical order in the combination.

Example: [C10M 2209/107](#) +  
[C10M 2209/109](#)

**Project: N/A (C10N)**

**C10N 2210/00 Nature of the metal present as such or in compounds, i.e. in salts**

**NOTE**

Indexing codes [C10N 2210/01](#) to [C10N 2210/08](#) are only to be used as linked codes in combination with codes chosen from subclass [C10M](#) identifying the chemical nature of the compounds concerned:

Example: [C10M 2201/084](#) + [C10N 2210/02](#)

**U C10N 2220/00 Specified physical or chemical properties or characteristics, i.e. function, of single compounds in lubricating compositions**

U C10N 2220/14 · Characteristics associated with water

C10N 2220/30 · · Refrigerants

**NOTE**

Indexing codes [C10N 2220/301](#) to [C10N 2220/306](#) are only used in association with group [C10M 171/008](#) to provide information about the specific refrigerant.

**C10N 2270/00 Specific manufacturing methods for lubricant compositions or compounds not covered by groups [C10N 2210/00](#) to [C10N 2260/00](#)**

**Project: N/A (C11B)**

**C11B 5/00 Preserving by using additives, e.g. anti-oxidants**

**NOTE**

In groups [C11B 5/0007](#) to [C11B 5/0092](#), in the absence of an indication to the contrary, a composition is classified in the last appropriate place

**C11B 7/00**

**Separation of mixtures of fats or fatty oils into their constituents, e.g. saturated oils from unsaturated oils**

NOTE

In groups [C11B 7/0008](#) ~~to~~ [C11B 7/0091](#), in the absence of an indication to the contrary an invention is classified in the last appropriate place

**Project: N/A (C11D)****C11D**

**DETERGENT COMPOSITIONS (preparations specially adapted for washing the hair [A61Q 5/02](#), [A61K 8/00](#); methods or apparatus for disinfection or sterilisation [A61L](#); special washing compositions for cleaning semi-permeable membranes [B01D 65/06](#)); USE OF SINGLE SUBSTANCES AS DETERGENTS; SOAP OR SOAP-MAKING; RESIN SOAPS; RECOVERY OF GLYCEROL**

NOTE

Documents classified in groups [C11D 1/37](#), [C11D 1/645](#) ~~to~~ [C11D 1/655](#), [C11D 1/825](#) ~~to~~ [C11D 1/86](#), [C11D 1/94](#) ~~to~~ [C11D 1/945](#) and [C11D 10/00](#) ~~to~~ [C11D 10/047](#), are indexed using codes chosen from [C11D 1/00](#) ~~to~~ [C11D 1/92](#) to provide information on the individual ingredients on the compositions

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">C11D 1/68</a>	covered by	<a href="#">C11D 3/2003</a>
<a href="#">C11D 1/70</a>	covered by	<a href="#">C11D 3/2003</a>
<a href="#">C11D 3/44</a>	covered by	<a href="#">C11D 3/43</a>
<a href="#">C11D 3/46</a>	covered by	<a href="#">C11D 3/2079</a> , <a href="#">C11D 9/48</a>
<a href="#">C11D 3/60</a>	covered by	<a href="#">C11D 3/00</a>
<a href="#">C11D 7/18</a>	covered by	<a href="#">C11D 3/39</a>
<a href="#">C11D 7/38</a>	covered by	<a href="#">C11D 3/39</a>
<a href="#">C11D 7/42</a>	covered by	<a href="#">C11D 3/386</a>
<a href="#">C11D 7/52</a>	covered by	<a href="#">C11D 7/50</a>
<a href="#">C11D 7/54</a>	covered by	<a href="#">C11D 3/395</a>
<a href="#">C11D 7/56</a>	covered by	<a href="#">C11D 3/395</a>
<a href="#">C11D 7/60</a>	covered by	<a href="#">C11D 7/00</a>
<a href="#">C11D 9/20</a>	covered by	partly covered by <a href="#">C11D 9/444</a>
<a href="#">C11D 9/50</a>	covered by	<a href="#">C11D 3/48</a>
<a href="#">C11D 9/60</a>	covered by	<a href="#">C11D 9/00</a>
<a href="#">C11D 10/02</a>	covered by	<a href="#">C11D 3/00</a>
<a href="#">C11D 10/06</a>	covered by	<a href="#">C11D 9/00</a>

**C11D 1/00**

**Detergent compositions based essentially on surface-active compounds; Use of these compounds as a detergent**

NOTE

In groups [C11D 1/02](#) ~~to~~ [C11D 1/94](#), in the absence of an indication to the contrary, a compound is classified in the last appropriate place.

**U C11D 3/00**

**Other compounding ingredients of detergent compositions covered in group [C11D 1/00](#)**

NOTE

Documents classified in group [C11D 3/0005](#) are also classified in other groups of subclass [C11D](#) according to the chemical nature of the compounds as such

- U C11D 3/0005      · {Other compounding ingredients characterised by their effect}
- C11D 3/0078      · · {Compositions for cleaning contact lenses, spectacles, lenses (disinfecting contact lenses [A61L 2/00](#); mechanical cleaning [G02C 13/00](#))}
- NOTE
- In groups [C11D 3/02](#) ~~to~~ [C11D 3/39](#), in the absence of an indication to the contrary, a compound is classified in the last appropriate place.
- U C11D 3/16      · Organic compounds
- U C11D 3/20      · · containing oxygen {([C11D 3/162](#), [C11D 3/164](#), [C11D 3/166](#), [C11D 3/168](#) take precedence)}
- C11D 3/2003      · · · {Alcohols; Phenols}
- NOTES
1. In this group glycerol is not taken into account for applying the last place rule, when present in a mixture of alcohols or as an alternative from a series of alcohols
2. In case of mixtures of alcohols or of a list of alternatives, documents are classified in [C11D 3/2003](#), [C11D 3/2006](#) or [C11D 3/2041](#) and indexed for the individual alternatives using codes chosen from [C11D 3/2006](#) ~~to~~ [C11D 3/2065](#)
- U C11D 3/2075      · · · {Carboxylic acids-salts thereof}
- C11D 3/2079      · · · · {Monocarboxylic acids-salts thereof (soaps [C11D 10/00](#) ~~to~~ [C11D 10/04](#))}
- C11D 3/34      · · containing sulfur {([C11D 3/162](#), [C11D 3/164](#), [C11D 3/166](#), [C11D 3/168](#) take precedence)}
- NOTES
1. In this group in the absence of an indication to the contrary sulfur containing compounds are classified in the last appropriate place (see Note before group [C11D 3/00](#)) and indexed for the individual functional groups using codes chosen from [C11D 3/3409](#) ~~to~~ [C11D 3/349](#)
2. In case of mixtures or a list of alternatives or Markush formulae each individual compound is classified and indexed according to Note 1.
- U C11D 3/39      · Organic or inorganic per-compounds
- U C11D 3/3902      · · {combined with specific additives}
- C11D 3/3905      · · · {Bleach activators; Bleach catalysts}
- NOTES
1. In the absence of an indication to the contrary activators or catalysts are classified in the last appropriate place
2. In case of mixtures or a list of alternatives documents are classified in [C11D 3/3905](#) or [C11D 3/3907](#) only and indexed for the individual alternatives using codes chosen from [C11D 3/3907](#) ~~to~~ [C11D 3/3932](#)
- C11D 7/00      Compositions of detergents based essentially on non-surface-active compounds**
- NOTE
- In the absence of an indication to the contrary, in groups [C11D 7/02](#) ~~to~~ [C11D 7/46](#) a compound is classified in the last appropriate place.
- U C11D 9/00      **Compositions of detergents based essentially on soap (compositions containing resin soap [C11D 15/04](#))**
- U C11D 9/04      · containing compounding ingredients other than soaps

C11D 9/045

- {containing substances which prevent the deterioration of soaps, e.g. light or heat stabilisers, antioxidants}

NOTE

In groups [C11D 9/06](#) to [C11D 9/42](#), in the absence of an indication to the contrary, a compound is classified in the last appropriate place.

**Project: N/A (C12)**

C12

**BIOCHEMISTRY; BEER; SPIRITS; WINE; VINEGAR; MICROBIOLOGY; ENZYMOLOGY; MUTATION OR GENETIC ENGINEERING**NOTES

1. In subclasses [C12M](#) to [C12Q](#) and within each of these subclasses, in the absence of an indication to the contrary, classification is made in the last appropriate place.
2. In this class, viruses, undifferentiated human, animal or plant cells, protozoa, tissues, and unicellular algae are considered as micro-organisms.
3. In this class, unless specifically provided for, undifferentiated human, animal or plant cells, protozoa, tissues and unicellular algae are classified together with micro-organisms. Sub-cellular parts, unless specifically provided for, are classified with the whole cell.

**Project: N/A (C12C)**

C12C 13/00

Brewing devices, not covered by a single group of [C12C 1/00](#) to [C12C 12/04](#)

**Project: N/A (C12N)**

C12N

**MICRO-ORGANISMS OR ENZYMES; COMPOSITIONS THEREOF (biocides, pest repellants or attractants, or plant growth regulators, containing micro-organisms, viruses, microbial fungi, enzymes, fermentates or substances produced by or extracted from micro-organisms or animal material [A01N 63/00](#); food compositions [A21](#), [A23](#); medicinal preparations [A61K](#); chemical aspects of, or use of materials for, bandages, dressings, absorbent pads or surgical articles [A61L](#); fertilisers [C05](#)); PROPAGATING, PRESERVING OR MAINTAINING MICRO-ORGANISMS (preservation of living parts of humans or animals [A01N 1/02](#)); MUTATION OR GENETIC ENGINEERING; CULTURE MEDIA (micro-biological testing media [C12Q](#))**

NOTES

1. Documents relating to the use of vectors or hosts for the preparation of specific peptides, e.g. enzymes, are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes.
2. Attention is drawn to Notes (1) to (3) following the title of Class [C12](#).
3. When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

- [C12N 1/11](#) covered by [C12N 15/79](#)
- [C12N 1/13](#) covered by [C12N 15/79](#)
- [C12N 1/15](#) covered by [C12N 15/80](#)
- [C12N 1/19](#) covered by [C12N 15/81](#)
- [C12N 1/21](#) covered by [C12N 15/74](#)

C12N 5/02 covered by [C12N 5/00](#), [C12N 5/04](#) ~~to~~ [C12N 5/166](#)  
C12N 5/07 - C12N 5/095 covered by [C12N 5/06](#) and  
subgroups  
C12N 5/18 - C12N 5/28 covered by [C12N 5/16](#) and  
subgroups  
C12N 5/18 covered by [C12N 5/16](#)  
C12N 5/20 covered by [C12N 5/163](#)  
C12N 5/22 covered by [C12N 5/16](#)  
C12N 5/24 covered by [C12N 5/163](#)  
C12N 5/26 covered by [C12N 5/166](#)  
C12N 5/28 covered by [C12N 5/166](#)  
C12N 7/01 covered by [C12N 7/00](#)  
C12N 9/26 covered by [C12N 9/2408](#)  
C12N 9/38 covered by [C12N 9/2468](#)  
C12N 9/42 covered by [C12N 9/2434](#)  
C12N 9/44 covered by [C12N 9/2451](#)  
C12N 9/70 covered by [C07K 14/3153](#)  
C12N 15/05 covered by [C12N 5/14](#)  
C12N 15/06 covered by [C12N 5/16](#)  
C12N 15/07 covered by [C12N 5/16](#)  
C12N 15/08 covered by [C12N 5/166](#)  
C12N 15/12 covered by [C07K 14/435](#)  
C12N 15/13 covered by [C07K 16/00](#)  
C12N 15/14 covered by [C07K 14/765](#)  
C12N 15/15 covered by [C07K 14/81](#)  
C12N 15/16 covered by [C07K 14/575](#)  
C12N 15/17 covered by [C07K 14/62](#)  
C12N 15/18 covered by [C07K 14/61](#)  
C12N 15/19 covered by [C07K 14/52](#)  
C12N 15/20 covered by [C07K 14/555](#)  
C12N 15/21 covered by [C07K 14/56](#)  
C12N 15/22 covered by [C07K 14/565](#)  
C12N 15/23 covered by [C07K 14/57](#)  
C12N 15/24 covered by [C07K 14/54](#)  
C12N 15/25 covered by [C07K 14/545](#)  
C12N 15/26 covered by [C07K 14/55](#)  
C12N 15/27 covered by [C07K 14/53](#)  
C12N 15/28 covered by [C07K 14/525](#)  
C12N 15/29 covered by [C07K 14/415](#)  
C12N 15/30 covered by [C07K 14/44](#)  
C12N 15/31 covered by [C07K 14/195](#), [C07K 14/005](#)  
C12N 15/32 covered by [C07K 14/325](#)  
C12N 15/33 covered by [C07K 14/005](#)  
C12N 15/34 covered by [C07K 14/01](#)  
C12N 15/35 covered by [C07K 14/015](#)  
C12N 15/36 covered by [C07K 14/02](#)  
C12N 15/37 covered by [C07K 14/025](#)  
C12N 15/38 covered by [C07K 14/03](#)  
C12N 15/39 covered by [C07K 14/065](#)  
C12N 15/40 covered by [C07K 14/08](#)  
C12N 15/41 covered by [C07K 14/085](#)  
C12N 15/42 covered by [C07K 14/09](#)  
C12N 15/43 covered by [C07K 14/105](#)  
C12N 15/44 covered by [C07K 14/11](#)  
C12N 15/45 covered by [C07K 14/115](#)  
C12N 15/46 covered by [C07K 14/14](#)  
C12N 15/47 covered by [C07K 14/145](#)  
C12N 15/48 covered by [C07K 14/15](#)  
C12N 15/49 covered by [C07K 14/155](#)

C12N 15/50 covered by [C07K 14/165](#)  
C12N 15/51 covered by [C07K 14/02](#), [C07K 14/10](#), [C07K 14/18](#)  
C12N 15/53 covered by [C12N 9/02](#)  
C12N 15/54 covered by [C12N 9/10](#)  
C12N 15/55 covered by [C12N 9/14](#)  
C12N 15/56 covered by [C12N 9/24](#)  
C12N 15/57 covered by [C12N 9/48](#)  
C12N 15/58 covered by [C12N 9/6456](#)  
C12N 15/59 covered by [C12N 9/6483](#)  
C12N 15/60 covered by [C12N 9/88](#)  
C12N 15/61 covered by [C12N 9/90](#)  
C12N 15/83 covered by [C12N 15/82](#)  
C12N 15/84 covered by [C12N 15/82](#)

**U C12N 1/00**

**Micro-organisms, e.g. protozoa; Compositions thereof (medicinal preparations containing material from micro-organisms [A61K 35/66](#); preparing medicinal bacterial antigen or antibody compositions, e.g. bacterial vaccines [A61K 39/00](#)); Processes of propagating, maintaining or preserving micro-organisms or compositions thereof; Processes of preparing or isolating a composition containing a micro-organism; Culture media therefor**

- C12N 1/005 · {after treatment of microbial biomass not covered by [C12N 1/02](#) ~~to~~ [C12N 1/08](#)}
- C12N 1/14 · Fungi (culture of mushrooms [A01G 1/04](#); as new plants per se [A01H 15/00](#); {fungi per se [C12R 1/645](#) ~~to~~ [C12R 1/885](#)}) Culture media therefor
- C12N 1/20 · Bacteria {(bacteria per se [C12R 1/01](#) ~~to~~ [C12R 1/64](#))}; Culture media therefor

**U C12N 5/00**

**Undifferentiated human, animal or plant cells, e.g. cell lines; Tissues; Cultivation or maintenance thereof; Culture media therefor; (plant reproduction by tissue culture techniques [A01H 4/00](#))**

NOTE

In this group, the following words are used with the meanings indicated:

- a "totipotent" cell can differentiate into all somatic lineages (ectoderm, mesoderm, endoderm), the germ line and extra-embryonic tissues such as the placenta;
- a "pluripotent" cell is a somatic stem cell which can differentiate into cells of at least two of the three somatic lineages (ectoderm, mesoderm, endoderm);
- a "multipotent" cell is restricted to one lineage;
- "progenitor" and "precursor" cells are further restricted within the lineage. If not explicitly foreseen, totipotent cells are classified with pluripotent cells. Multipotent cells should not be classified with pluripotent cells. Unless provided for otherwise, committed progenitors are classified with their progeny.

**U C12N 5/0018**

- {Culture media for cell or tissue culture (media for specific animal cell type [C12N 5/06](#))}

**C12N 5/0031**

- {Serum-free culture media}

WARNING

This group is no longer used for the classification of new documents as from January 1, 2012. The backlog of this group is being continuously reclassified to [C12N 5/0037](#) ~~to~~ [C12N 5/0056](#)

- U C12N 15/00** **Mutation or genetic engineering; DNA or RNA concerning genetic engineering, vectors, e.g. plasmids, or their isolation, preparation or purification; Use of hosts therefor (mutants or genetically engineered micro-organisms, per se [C12N 1/00](#), [C12N 5/00](#), [C12N 7/00](#); new plants per se [A01H](#); plant reproduction by tissue culture techniques [A01H 4/00](#); new animals per se [A01K 67/00](#); use of medicinal preparations containing genetic material which is inserted into cells of the living body to treat genetic diseases, gene therapy [A61K 48/00](#))**
- U C12N 15/09** **Recombinant DNA-technology**
- C12N 15/10** **Processes for the isolation, preparation or purification of DNA or RNA (chemical preparation of DNA or RNA [C07H 21/00](#); preparation of non-structural polynucleotides from micro-organisms or with enzymes [C12P 19/34](#))**
- NOTE**  
After the symbol [C12N 15/10](#) **to-** [C12N 15/1096](#), and separated therefrom by a + sign, it is desirable to add the indexing codes selected from groups [C12Q 2500/00](#) **to-** [C12Q 2565/634](#), relating to relevant technical features of the invention. When more than one indexing code is selected, the different codes are separated by a + sign. Example : [C12N 15/1037](#) + [C12Q 2537/125](#) + [C12Q 2521/537](#)
- C12N 15/11** **DNA or RNA fragments; Modified forms thereof (DNA or RNA not used in recombinant technology, [C07H 21/00](#)); {Non-coding nucleic acids having a biological activity}**
- NOTE**  
Documents relating to DNA or its corresponding RNA and their use in recombinant DNA technology or the preparation of specific peptides, e.g. enzymes, are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their use in recombinant technology. Groups [C12N 15/11](#) **to-** [C12N 15/117](#) cover also the use of non-coding nucleic acids as active ingredients in medicinal preparations. The [C12N 2303/00](#) ICO scheme has to be applied to these groups. When documents classifiable in one or more subgroups disclose general principles of the technology applicable to the whole field, classification is also made in group [C12N 15/111](#)
- C12N 15/115** **Aptamers, i.e. nucleic acids binding a target molecule specifically and with high affinity without hybridising therewith; {Nucleic acids binding to non-nucleic acids, e.g. aptamers}**
- NOTE**  
Aptamers fused to compounds which are already classified in groups [C12N 15/11](#) **to-** [C12N 15/117](#), are classified with the corresponding compound
- U C12N 2500/00** **Specific components of cell culture medium**
- C12N 2500/99** **Serum-free medium**
- WARNING**  
This group is no longer used for the classification of new documents as from January 1, 2012. The backlog of this group is being continuously reclassified to [C12N 2500/90](#) **to-** [C12N 2500/98](#)

**Project: N/A (C12P)**

C12P 1/00

**Preparation of compounds or compositions, not provided for in groups [C12P 3/00](#) to [C12P 39/00](#), by using micro-organisms or enzymes**

NOTES

1. This group is used for the classification of documents relating to the production of compounds of unknown structure
2. When classifying in this group, classification should be made also in [C12R](#)

**U C12P 13/00**

**Preparation of nitrogen-containing organic compounds**

U C12P 13/04

· Alpha- or beta- amino acids {(other amino acids [C12P 13/005](#))}

C12P 13/22

· · Tryptophan; Tyrosine; Phenylalanine; 3,4-Dihydroxyphenylalanine

NOTE

Processes for the preparation of different amino acids covered by more than one of the groups [C12P 13/222](#) to [C12P 13/227](#) are classified in group [C12P 13/22](#)

C12P 17/00

**Preparation of heterocyclic carbon compounds with only O, N, S, Se or Te as ring hetero atoms ([C12P 13/04](#) to [C12P 13/24](#) take precedence)**

C12P 33/00

**Preparation of steroids**

NOTES

1. Attention is drawn to the definition of steroids in the note following the title of subclass [C07J](#).
2. In groups [C12P 33/02](#) to [C12P 33/20](#), the terms "acting", "forming", "hydroxylating", "dehydroxylating" and "dehydrogenating" refer to the action of a micro-organism or enzyme rather than other chemical action.

C12P 33/20

· containing heterocyclic rings {(reactions are also classified in groups [C12P 33/00](#) to [C12P 33/18](#))}

**Project: N/A (C12Q)**

C12Q

**MEASURING OR TESTING PROCESSES INVOLVING ENZYMES OR MICRO-ORGANISMS (immunoassay [G01N 33/53](#)); COMPOSITIONS OR TEST PAPERS THEREFOR; PROCESSES OF PREPARING SUCH COMPOSITIONS; CONDITION RESPONSIVE CONTROL IN MICROBIOLOGICAL OR ENZYMOLOGICAL PROCESSES**

NOTES

1. This subclass does not cover the observation of the progress or of the result of processes specified in this subclass by any of the methods specified in groups [G01N 3/00](#) to [G01N 29/00](#), which is covered by subclass [G01N](#).
2. In this subclass, the following expression is used with the meaning indicated: "involving", when used in relation to a substance, includes the testing for the substance as well as employing the substance as a determinant or reactant in a test for a different substance.
3. Attention is drawn to Notes (1) to (3) following the title of class [C12](#).
4. In this subclass, test media are classified in the appropriate group for the relevant test process.
5. Documents describing the use of an electrode for analysis of a specific analyte are classified in [C12Q 1/001](#) or subgroups and not according to the last place rule
6. Documents relating to new peptides, e.g. enzymes, or new DNA or its corresponding mRNA, encoding for the peptides, and their use in measuring or testing processes are classified in subclass [C07K](#) or in group [C12N 9/00](#)

according to the peptides, with the appropriate indexing codes relating to their use in diagnostics. However where the new nucleic acids are principally used in diagnostic processes, e.g. PCR, hybridisation reactions, the documents are also classified in group [C12Q 1/68](#)

7. When classifying in groups [C12Q 1/68](#) ~~to~~ [C12Q 1/70](#) it is desirable to classify with symbols from groups [C12Q 2500/00](#) ~~to~~ [C12Q 2565/634](#), relating to relevant technical features of the invention, using Combination Sets.

8. In groups [C12Q 1/6876](#) - [C12Q 1/6895](#) and [C12Q 1/70](#) - [C12Q 1/708](#) it is desirable to add the indexing codes [C12Q 2600/00](#) ~~to~~ [C12Q 2600/178](#) which reflect the use of the product in combination with the virus groups only if the application refers to products.

- U C12Q 1/00** **Measuring or testing processes involving enzymes, {nucleic acids} or micro-organisms (measuring or testing apparatus with condition measuring or sensing means, e.g. colony counters [C12M 1/34](#)); Compositions therefor; Processes of preparing such compositions**
- C12Q 1/007     • {involving isoenzyme profiles (for detection of an individual isoenzyme [C12Q 1/25](#) ~~to~~ [C12Q 1/66](#))}
- C12Q 1/25     • involving enzymes not classifiable in groups [C12Q 1/26](#) {~~to~~ [C12Q 1/66](#)}
- U C12Q 2537/00** **{Reactions characterised by the reaction format or use of a specific feature}**
- U C12Q 2537/10     • the purpose or use of
- C12Q 2537/155     • • Cyclic reactions (Not used with codes [C12Q 2531/101](#) ~~to~~ [C12Q 2531/149](#))

**Project: N/A (C13B)**

- U C13B 20/00** **Purification of sugar juices**
- NOTE
- When classifying in this group, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned
- C13B 20/005     • {using chemicals not provided for in groups [C13B 20/02](#) ~~to~~ [C13B 20/14](#)}

**Project: RP0306 (C13K)**

- U C13K 1/00** **Glucose (separation from invert sugar [C13K 3/00](#)); Glucose-containing syrups**
- C13K 1/02     • obtained by saccharification of cellulosic materials (manufacture of fodder [A23K 1/12](#) [A23K 10/32](#))

**Project: N/A (C14B)**

- U C14B 2700/00** **Mechanical treatment or processing of skins, hides or leather in general; Pelt-shearing machines; Making driving belts; Machines for splitting intestines**
- C14B 2700/28     • Processes or apparatus for the mechanical treatment of hides or leather not provided for in groups [C14B 2700/01](#) ~~to~~ [C14B 2700/27](#)

**Project: N/A (C21C)**

- C21C 7/00     **Treating molten ferrous alloys, e.g. steel, not covered by groups [C21C 1/00](#) ~~to~~ [C21C 5/00](#) (treating molten metals during moulding [B22D 1/00](#), [B22D 27/00](#)); remelting ferrous metals [C22B](#))**

**Project: N/A (C21D)**

- U C21D 8/00** **Modifying the physical properties by deformation combined with, or followed by, heat treatment (hardening articles or materials formed by forging or rolling with no further heating beyond that required for the formation [C21D 1/02](#))**

C21D 8/005 · {of ferrous alloys ([C21D 8/02](#) ~~to~~ [C21D 8/12](#) take precedence)}

**Project: N/A (C22B)**

**C22B** **PRODUCTION AND REFINING OF METALS (electrolytic [C25](#));  
PRETREATMENT OF RAW MATERIALS**

NOTE

In this subclass, groups for obtaining metals include obtaining the metals by non-metallurgical processes, and obtaining metal compounds by metallurgical processes, {as far as specifically indicated in the relevant groups} . Thus, for example, group [C22B 11/00](#) covers the production of silver by reduction of ammoniacal silver oxide in solution, and group [C22B 17/00](#) includes the production of cadmium oxide by a metallurgical process. Furthermore, although compounds of arsenic and antimony are classified in [C01G](#), production of the elements themselves is included in [C22B](#), as well as the production of their compounds by metallurgical processes.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

[C22B 3/26](#) ~~to~~ [C22B 3/40](#) covered by  
[C22B 3/0005](#)

- U C22B 3/00** **Extraction of metal compounds from ores or concentrates by wet processes**

NOTE

This group covers methods directed to the extraction of three or more metals. For the recovery of one or two metals, see the other groups of this subclass concerning these metals

- U C22B 3/20** · Treatment or purification of solutions, e.g. obtained by leaching ([C22B 3/18](#) takes precedence)
- C22B 3/44 · · by chemical processes ([C22B 3/0005](#) ~~to~~ [C22B 3/0097](#) take precedence)

- U C22B 7/00** **Working up raw materials other than ores, e.g. scrap, to produce non-ferrous metals and compounds thereof; {Methods of a general interest or applied to the winning of more than two metals (briquetting of scrap [C22B 1/248](#); preliminary treatment of scrap [C22B 1/005](#))}**

C22B 7/009 · {General processes for recovering metals or metallic compounds from spent catalysts (for recovering specific metals [C22B 11/00](#) ~~to~~ [C22B 61/00](#))}

- U C22B 34/00** **Obtaining refractory metals**

- U C22B 34/10** · Obtaining titanium, zirconium or hafnium
- C22B 34/12 · · Obtaining titanium {or titanium compounds from ores or scrap by metallurgical processing; preparation of titanium compounds from other titanium compounds see [C01G 23/00](#) ~~to~~ [C01G 23/08](#)}

**Project: N/A (C22C)**

C22C

**ALLOYS (flints [C06C 15/00](#); treatment of alloys [C21D](#), [C22F](#))****NOTES**

1. In this subclass, the following terms or expressions are used with the meanings indicated:

"alloys" includes also:

- a. metallic composite materials containing a substantial proportion of fibres or other somewhat larger particles;
- b. ceramic compositions containing free metal bonded to carbides, diamond, oxides, borides, nitrides or silicides, e.g. cermets, or other metal compounds, e.g. oxynitrides or sulfides, other than as macroscopic reinforcing agents;

"based on" requires at least 50% by weight of the specified constituent or of the specified group of constituents.

2. In the absence of an indication to the contrary, in groups [C22C 5/00](#) ~~to~~ [C22C 32/00](#) an alloy is classified in the last appropriate place.

3. In this subclass it is desirable to classify the individual aspects of combinations of processes or materials for powder metallurgy using Combination Sets with symbols chosen from groups [C22C 1/00](#) ~~to~~ [C22C 43/00](#) or from groups [B22F 1/00](#) ~~to~~ [B22F 9/00](#).

4. In this subclass the special database "ALLOYS" is used. This system includes patent documents classified in groups [C22C 1/04](#) and [C22C 5/00](#) ~~to~~ [C22C 49/14](#) and provides information on the composition of the alloys, their uses and characteristics.

C22C 28/00

**Alloys based on a metal not provided for in groups [C22C 5/00](#) ~~to~~ [C22C 27/00](#)****U C22C 35/00****Master alloys for iron or steel**

C22C 35/005

- {based on iron, e.g. ferro-alloys}

**NOTE**

In the absence of an indication to the contrary, in groups [C22C 37/00](#) ~~to~~ [C22C 38/00](#) an alloy is classified in the last appropriate place that provides for one of the alloying components.

**U C22C 38/00****Ferrous alloys, e.g. steel alloys (cast-iron alloys [C22C 37/00](#))**

C22C 38/002

- {containing In, Mg, or other elements not provided for in one single group [C22C 38/001](#) ~~to~~ [C22C 38/60](#)}

**Project: N/A (C23C)****U C23C 14/00****Coating by vacuum evaporation, by sputtering or by ion implantation of the coating forming material (discharge tubes with provision for introducing objects or material to be exposed to the discharge [H01J 37/00](#))**

U C23C 14/22

- characterised by the process of coating

U C23C 14/24

- • Vacuum evaporation

C23C 14/28

- • • by wave energy or particle radiation ([C23C 14/32](#) ~~to~~ [C23C 14/48](#) take precedence)

C23C 14/32

- • • by explosion; by evaporation and subsequent ionisation of the vapours {e.g. ion-plating} ([C23C 14/34](#) ~~to~~ [C23C 14/48](#) take precedence)

	<b>C23C 16/00 - C23C 20/00</b>	<b><u>Chemical deposition or plating by decomposition; Contact plating (solid state diffusion <a href="#">C23C 8/00</a> to- <a href="#">C23C 12/00</a>)</u></b>
U	C23C 16/44	· characterised by the method of coating ( <a href="#">C23C 16/04</a> takes precedence)
U	C23C 16/50	· · using electric discharges {(generation and control of plasma in discharge tubes for surface treatment <a href="#">H01J 37/32</a> , <a href="#">H01J 37/34</a> )}
	C23C 16/517	· · · using a combination of discharges covered by two or more of groups <a href="#">C23C 16/503</a> to- <a href="#">C23C 16/515</a>
U	<b>C23C 18/00</b>	<b><u>Chemical coating by decomposition of either liquid compounds or solutions of the coating forming compounds, without leaving reaction products of surface material in the coating (chemical surface reaction <a href="#">C23C 8/00</a>, <a href="#">C23C 22/00</a>); Contact plating</u></b>
		<u>NOTE</u> This groups covers also suspensions containing reactive liquids and non-reactive solid particles.
U	C23C 18/02	· by thermal decomposition
	C23C 18/12	· · characterised by the deposition of inorganic material other than metallic material
		<u>WARNING</u> Groups <a href="#">C23C 18/1204</a> to- <a href="#">C23C 18/1295</a> are not complete pending a reorganisation. See also this group
U	C23C 18/16	· by reduction or substitution, e.g. electroless plating ( <a href="#">C23C 18/54</a> takes precedence)
U	C23C 18/1601	· · {Process or apparatus}
U	C23C 18/1603	· · · {coating on selected surface areas}
	C23C 18/1605	· · · · {by masking}
		<u>WARNING</u> the groups <a href="#">C23C 18/1605</a> to- <a href="#">C23C 18/1616</a> are not complete, pending reorganisation. See also <a href="#">C23C 18/1603</a>
	C23C 18/1619	· · · {Apparatus for electroless plating}
		<u>WARNING</u> the groups <a href="#">C23C 18/1619</a> to- <a href="#">C23C 18/1698</a> are not complete, pending reorganisation. See also <a href="#">C23C 18/1601</a>
U	C23C 18/18	· · Pre-treatment of the material to be coated
	C23C 18/1803	· · · {of metallic material surfaces or of a non-specific material surfaces}
		<u>WARNING</u> the groups <a href="#">C23C 18/1803</a> to- <a href="#">C23C 18/1848</a> are not complete, pending reorganisation. See also <a href="#">C23C 18/18</a>
U	C23C 18/1851	· · · {of surfaces of non-metallic or semiconducting in organic material}
	C23C 18/1855	· · · · {by mechanical pretreatment, e.g. grinding, sanding}
		<u>WARNING</u> the groups <a href="#">C23C 18/1855</a> to- <a href="#">C23C 18/1896</a> are not complete, pending reorganisation. See also <a href="#">C23C 18/18</a>
U	C23C 18/20	· · · of organic surfaces, e.g. resins
	C23C 18/2006	· · · · {by other methods than those of <a href="#">C23C 18/22</a> to- <a href="#">C23C 18/30</a> }

- C23C 18/2013 . . . . {by mechanical pretreatment, e.g. grinding, sanding}  
WARNING  
the groups [C23C 18/2013](#) ~~to~~ [C23C 18/2093](#) are not complete, pending reorganisation. See also [C23C 18/2006](#)
- C23C 18/52 . . using reducing agents for coating with metallic material not provided for in a single one of groups [C23C 18/32](#) ~~to~~ [C23C 18/50](#)
- C23C 22/00** **Chemical surface treatment of metallic material by reaction of the surface with a reactive liquid, leaving reaction products of surface material in the coating, e.g. conversion coatings, passivation of metals (wash primers [C09D 5/12](#))**  
NOTES  
1. This group covers also suspensions containing reactive liquids and non-reactive solid particles.  
2. In groups [C23C 22/02](#) ~~to~~ [C23C 22/86](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.  
3. Rejuvenating of the bath is classified in the appropriate place for the specific bath composition.
- C23C 24/00** **Coating starting from inorganic powder (spraying of the coating material in molten state [C23C 4/00](#); solid state diffusion [C23C 8/00](#) ~~to~~ [C23C 12/00](#); manufacture of composite layers, workpieces or articles by sintering metallic powder [B22F 7/00](#); friction welding [B23K 20/12](#))**
- C23C 26/00** **Coating not provided for in groups [C23C 2/00](#) ~~to~~ [C23C 24/00](#)**
- C23C 28/00** **Coating for obtaining at least two superposed coatings either by methods not provided for in a single one of groups [C23C 2/00](#) ~~to~~ [C23C 26/00](#) or by combinations of methods provided for in subclasses [C23C](#) and [C25C](#) or [C25D](#)**
- U C23C 28/04 . . only coatings of inorganic non-metallic material  
C23C 28/044 . . {coatings specially adapted for cutting tools or wear applications:}

**Project: N/A (C23F)**

- C23F** **NON-MECHANICAL REMOVAL OF METALLIC MATERIAL FROM SURFACE (working metal by laser beams [B23K 26/00](#); desurfacing by applying flames [B23K 7/00](#); working of metal by electro-erosion [B23H](#); producing decorative effects by removing surface material, e.g. by engraving, by etching, [B44C 1/22](#); electrolytic etching or polishing [C25F](#)); INHIBITING CORROSION OF METALLIC MATERIAL OR INCRUSTATION IN GENERAL; MULTI-STEP PROCESSES FOR SURFACE TREATMENT OF METALLIC MATERIAL INVOLVING AT LEAST ONE PROCESS PROVIDED FOR IN CLASS [C23](#) AND AT LEAST ONE PROCESS COVERED BY SUBCLASS [C21D](#) OR [C22F](#) OR CLASS [C25](#).**

NOTES

1. protective layers or coating compositions or methods of applying them; these are classified in the appropriate places, e.g. [B05](#), [B44](#), [C09D](#), [C23C](#).
2. mechanical devices or constructional features of particular articles for inhibiting incrustation; these are classified in the appropriate places, e.g. in pipes or pipe fittings [F16L 58/00](#).
3. articles characterised by being made of materials selected for their properties of resistance to corrosion or incrustation; these are classified in the appropriate places, e.g. turbine blades [F01D 5/28](#).

**Project: N/A (C23G)**

- U C23G 1/00** **Cleaning or pickling metallic material with solutions or molten salts (with organic solvents [C23G 5/02](#))**
- U C23G 1/02 · with acid solutions
- U C23G 1/04 · · using inhibitors
- C23G 1/06 · · · organic inhibitors
- NOTE**  
In groups [C23G 1/061](#) ~~to~~ [C23G 1/068](#) an invention is classified in the last appropriate place
- C23G 1/08 · · Iron or steel
- NOTE**  
In groups [C23G 1/081](#) ~~to~~ [C23G 1/088](#) an invention is classified in the last appropriate place

**Project: RP0218 (C25B)**

- M C25B** **ELECTROLYTIC OR ELECTROPHORETIC PROCESSES FOR THE PRODUCTION OF COMPOUNDS OR NON-METALS; APPARATUS THEREFOR (*anodic or cathodic protection [C23F 13/00](#); single-crystal growth [C30B](#)*)**
- NOTES**
1. In this subclass, in the absence of an indication to the contrary, classification is made in the last appropriate place.
  2. Compounds of particular interest are also classified in the relevant classes, e.g. [C01](#), [C07](#).
- WARNING**
- The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:
- [C25B 11/06](#) covered by [B01J](#), [C25B 11/0442](#)  
[C25B 11/08](#) covered by [B01J](#), [C25B 11/0442](#)  
[C25B 11/10](#) covered by [C25B 11/0442](#)

**Project: N/A (C25C)**

- U C25C 1/00** **Electrolytic production, recovery or refining of metals by electrolysis of solutions ([C25C 5/00](#) takes precedence)**
- C25C 1/22 · of metals not provided for in groups [C25C 1/02](#) ~~to~~ [C25C 1/20](#)
- U C25C 3/00** **Electrolytic production, recovery or refining of metals by electrolysis of melts ([C25C 5/00](#) takes precedence)**
- C25C 3/34 · of metals not provided for in groups [C25C 3/02](#) ~~to~~ [C25C 3/32](#)
- C25C 7/00** **Constructional parts, or assemblies thereof, of cells; Servicing or operating of cells (for the production of aluminium [C25C 3/06](#) ~~to~~ [C25C 3/22](#))**
- C25C 7/002 · {of cells comprising at least an electrode made of particles ([C25C 7/005](#), [C25C 7/02](#) ~~to~~ [C25C 7/06](#) take precedence)}
- C25C 7/005 · {of cells for the electrolysis of melts ([C25C 7/02](#) ~~to~~ [C25C 7/06](#) take precedence)}
- C25C 7/007 · {of cells comprising at least a movable electrode ([C25C 7/002](#), [C25C 7/02](#) ~~to~~ [C25C 7/06](#) take precedence)}

- C25C 7/02
- Electrodes (consumable anodes for the refining the metals [C25C 1/00](#) ~~to~~ [C25C 5/00](#)); Connections thereof

**Project: N/A (C25D)**

- U C25D 3/00 Electroplating: Baths therefor**
- C25D 3/02
- from solutions ([C25D 5/34](#) ~~to~~ [C25D 5/46](#) take precedence)
- C25D 3/54
- • of metals not provided for in groups [C25D 3/04](#) ~~to~~ [C25D 3/50](#)

**Project: MP0129 (C25D)**

- U C25D 11/00 Electrolytic coating by surface reaction, i.e. forming conversion layers**
- U C25D 11/02
- Anodisation
- U C25D 11/04
- • of aluminium or alloys based thereon
- M C25D 11/18
- • • After-treatment, e.g. pore-sealing (~~lacquering B44D~~)

**Project: N/A (C25D)**

- C25D 11/34
- • of metals or alloys not provided for in groups [C25D 11/04](#) ~~to~~ [C25D 11/32](#)

**Project: MP0129 (C25D)**

- M C25D 13/00 Electrophoretic coating *characterised by the process* ([C25D 15/00](#) takes precedence; ~~apparatus for continuously conveying articles into baths B65G, e.g. B65G 49/00; compositions for electrophoretic coating C09D 5/44~~)**

**Project: N/A (C30B)**

- C30B 23/00 Single-crystal growth by condensing evaporated or sublimed material**

NOTE

Groups [C30B 23/002](#) ~~to~~ [C30B 23/005](#) take precedence over groups [C30B 23/007](#) ~~to~~ [C30B 23/08](#)

WARNING

Group [C30B 23/002](#) ~~to~~ [C30B 23/005](#) are not complete, see also [C30B 23/02](#)

- C30B 29/00 Single crystals or homogeneous polycrystalline material with defined structure characterised by the material or by their shape (alloys [C22C](#))**

NOTE

In groups [C30B 29/02](#) ~~to~~ [C30B 29/58](#), in the absence of an indication to the contrary, a material is classified in the last appropriate place.

- C30B 30/00 Production of single crystals or homogeneous polycrystalline material with defined structure characterised by the action of electric or magnetic fields, wave energy or other specific physical conditions**

NOTE

When classifying in this group, classification is also made in groups [C30B 1/00](#) ~~to~~ [C30B 27/00](#) according to the process of crystal growth.

**Project: N/A (C40B)**

- U C40B 40/00 Libraries per se, e.g. arrays, mixtures**

- U C40B 40/04
- Libraries containing only organic compounds
- NOTE  
Libraries containing salts of organic compounds are classified in the groups for the libraries containing the parent compound
- C40B 40/14
- Libraries containing macromolecular compounds and not covered by groups [C40B 40/06](#) to [C40B 40/12](#)

**Project: N/A (D01F)**

- U D01F 1/00
- General methods for the manufacture of artificial filaments or the like**
- D01F 1/02
- Addition of substances to the spinning solution or to the melt (addition of substances to viscose [D01F 2/08](#) to [D01F 2/20](#))

U D01F 6/00

**Monocomponent artificial filaments or the like of synthetic polymers; Manufacture thereof**

- D01F 6/28
- from copolymers obtained by reactions only involving carbon-to-carbon unsaturated bonds

NOTE

For the purposes of groups [D01F 6/30](#) to [D01F 6/96](#), the percentage for determining the major constituent is expressed in mole percent.

**Project: N/A (D01H)**

## D01H 5/00

**Drafting machines or arrangements {Threading of roving into drafting machine} (arrangements in which draft is dependent on linear movement of take-up spindles, e.g. in mules, [D01H 3/00](#); devices for combing or orienting fibres for open-end spinning machines [D01H 4/30](#); {increasing the strength of a roving or sliver by false-twisting [D01H 7/92](#), during drafting [D01H 5/28](#), after drafting and before spinning according to groups [D01H 1/02](#) to [D01H 1/08](#), [D01H 7/90](#); depositing materials in cans after drafting [B65H 54/76](#) + T})**

- U D01H 5/18
- Drafting machines or arrangements without fallers or like pinned bars
- U D01H 5/70
- Constructional features of drafting elements
- D01H 5/72
- Fibre-condensing guides (guides for slivers, rovings, or yarns applicable solely for spinning, twisting, curling, or crimping purposes [D01H 13/04](#); {combined with false twisting before drafting or before spinning according to groups [D01H 1/02](#) to [D01H 1/08](#) : [D01H 7/92](#)})

## Project: N/A (D04H)

## D04H

**MAKING TEXTILE FABRICS, e.g. FROM FIBRES OR FILAMENTARY MATERIAL (weaving [D03](#); knitting [D04B](#); braiding {or lace-making} [D04C](#); net-making {or making knotted carpets} [D04G](#); sewing [D05B](#); tufting [D05C](#), {e.g. [D05C 15/04](#)}; finishing non-woven fabrics [D06](#)); FABRICS MADE BY SUCH PROCESSES OR APPARATUS, e.g. FELTS, NON-WOVEN FABRICS; COTTON-WOOL; WADDING {NON-WOVEN FABRICS FROM STAPLE FIBRES, FILAMENTS OR YARNS, BONDED WITH AT LEAST ONE WEB-LIKE MATERIAL DURING THEIR CONSOLIDATION} (non-woven fabrics having an intermediate or external layer of a different kind, e.g. of woven fabric, [B32B](#); {manufacturing hats [A42C](#); filtering material [B01D 39/00](#); making board or the like from wood fibre [B27N](#); producing shaped articles from mixtures containing fibres [B28B 1/52](#); making layered products from solid layers, at least one of which contains synthetic resin as an essential component [B32B 27/00](#); making or treating glass wool and mineral wool [C03B 37/00](#); compounding ingredients used as fillers for mortars and the like [C04B 14/38](#), [C04B 16/06](#), [C04B 20/0048](#); sintering plastics particles [C08J 9/24](#); manufacturing by extrusion of synthetic filaments and fibres in general [D01D](#); paper [D21C](#) to [D21H](#); making shaped articles from liquid suspensions of cellulose fibres [D21J](#)})**

NOTES

1. In this subclass, the following expression is used with the meaning indicated:
  - "non-woven fabrics" means fabrics formed wholly or partly of textile material by processes comprising operations other than the weaving, knitting, braiding, lacing, or knotting of yarns, threads, or filaments for which provision is made in other subclasses of Section D. This expression includes felts, cotton-wool, and wadding.
2. In this subclass:
  - some of the non-woven fabrics can also be regarded as "layered products" within the meaning of subclass [B32B](#), and further classification in that subclass should be considered in accordance with the notes thereto;
  - in cases where the making of non-woven fabrics involves the use of particular chemical compounds or compositions, e.g. for treating or bonding fibres, filaments, or yarns, further classification in other appropriate subclasses should also be considered.
3. By varying the proportions of fibres or threads, and the chemical compounds or compositions, the final products may be given the appearance of paper, cardboard, leather or the like.
4. In this subclass, a number of groups, e.g. [D04H 1/067](#), correspond to IPC2012.01

WARNING

Documents of the complete subclass [D04H](#) including all subgroups are in the process of being reorganised to the new groups corresponding to the IPC 2012.01 classification scheme defined below.

U [D04H 1/00](#)

**Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres**

U [D04H 1/40](#)

- from fleeces or layers composed of fibres without existing or potential cohesive properties

WARNING

Groups [D04H 1/407](#) and [D04H 1/413](#) are not complete pending a reorganisation. See also group [D04H 1/40](#)

Group [D04H 1/407](#) is not complete pending a reorganisation. See also group [D04H 1/40](#)

- D04H 1/42
- characterised by the use of certain kinds of fibres insofar as this use has no preponderant influence on the consolidation of the fleece
- WARNING  
Groups [D04H 1/4209](#) ~~to~~ [D04H 1/52](#) are not complete pending a reorganisation. See also group [D04H 1/4209](#) and other subgroups of [D04H 1/42](#)
- D04H 1/54
- by welding together the fibres, e.g. by partially melting or dissolving (in combination with needling [D04H 1/485](#))
- WARNING  
Groups [D04H 1/54](#) ~~to~~ [D04H 1/565](#) are not complete pending a reorganisation. See also group [D04H 1/541](#) and other subgroups of [D04H 1/54](#)
- D04H 1/58
- by applying, incorporating or activating chemical or thermoplastic bonding agents, e.g. adhesives (in combination with needling [D04H 1/488](#))
- WARNING  
Groups [D04H 1/587](#) ~~to~~ [D04H 1/68](#) are not complete pending a reorganisation. See also groups [D04H 1/64](#) and other subgroups of [D04H 1/58](#)
- D04H 1/70
- characterised by the method of forming fleeces or layers, e.g. reorientation of fibres
- WARNING  
Groups [D04H 1/72](#) ~~to~~ [D04H 1/76](#) are not complete pending a reorganisation. See also group [D04H 1/72](#)
- D04H 5/00**
- Non woven fabrics formed of mixtures of relatively short fibres and yarns or like filamentary material of substantial length**
- WARNING  
Groups [D04H 5/02](#) ~~to~~ [D04H 5/12](#) are not complete pending a reorganisation. See also group [D04H 5/02](#) and other subgroups of [D04H 5/00](#)

**Project: N/A (D05B)**

- D05B 19/00**
- Programme-controlled sewing machines (with devices for automatically controlling movement of work-carrier [D05B 21/00](#); devices for stopping drive when sewing tools have reached a predetermined position [D05B 69/22](#))**
- WARNING  
Group [D05B 19/003](#) is no longer used for classification of new documents. The backlog of this group is being continuously reclassified to groups [D05B 19/02](#) ~~to~~ [D05B 19/16](#)

**Project: RP0169 (D05B)**

- U D05B 35/00** **Work-feeding or -handling elements not otherwise provided for**
- D D05B 2035/005** • {Sewing machines for uniting carpets with or without presence of a seaming ribbon}

**Project: N/A (D06B)**

**D06B** **TREATING TEXTILE MATERIALS BY LIQUIDS, GASES OR VAPOURS** (applying liquids to surfaces in general [B05](#); conveying in general, handling webs or filaments in general [B65](#); treating leather [C14C](#); mechanical removal of impurities from animal fibres [D01B](#); laundering [D06F](#); chemical matters, see [D06L](#) ~~to~~ [D06Q](#))

NOTE

In this subclass, the following terms or expressions are used with the meaning indicated:

- "fabric" includes yarns in warp or sheet form;
- "textile material" includes fabrics, yarns or other fibrous materials;
- "indefinite length" means an extent of material having the characteristic that the longitudinal dimension is effectively infinite in so far as the procedure for advancing or moving the material is concerned.

**U D06B 15/00** **Removing liquids, gases or vapours from textile materials in association with treatment of the materials by liquids, gases or vapours (drying [F26B](#))**

D06B 15/005 · {by squeezing, otherwise than by rollers}

NOTE

Group [D06B 15/12](#) takes precedence over groups [D06B 15/02](#) ~~to~~ [D06B 15/10](#)

**D06B 19/00** **Treatment of textile materials by liquids, gases or vapours, not provided for in groups [D06B 1/00](#) ~~to~~ [D06B 17/00](#)**

D06B 19/0005 · {Fixing of chemicals, e.g. dyestuffs, on textile materials ([D06B 9/02](#), [D06B 17/00](#) ~~to~~ [D06B 17/06](#) take precedence)}

**D06B 23/00** **Component parts, details, or accessories of apparatus or machines, specially adapted for the treating of textile materials, not restricted to a particular kind of apparatus, provided for in groups [D06B 1/00](#) ~~to~~ [D06B 21/00](#)**

**Project: N/A (D06C)**

**D06C** **FINISHING, DRESSING, TENTERING OR STRETCHING TEXTILE FABRICS** (chemical matters, see [D06L](#) ~~to~~ [D06Q](#); drying [F26B](#))

NOTE

In this subclass, the following term is used with the meaning indicated:

- "fabric" includes yarns in warp or sheet form

**Project: N/A (D06F)**

**D06F 37/00** **Details of washing machines of kinds covered by groups [D06F 21/00](#) ~~to~~ [D06F 25/00](#), restricted to machines of these kinds (details of more general application [D06F 39/00](#); details concerning drying only [D06F 58/00](#))**

**D06F 39/00** **Details of washing machines in so far as such details are not special to washing machines of groups [D06F 21/00](#) ~~to~~ [D06F 25/00](#) or to any particular type of washing machine defined in groups [D06F 9/00](#) ~~to~~ [D06F 19/00](#) or [D06F 27/00](#)**

**D06F 43/00** **Dry-cleaning apparatus {or methods} using volatile solvents ([D06F 9/00](#) ~~to~~ [D06F 41/00](#) take precedence)**

**Project: MP0192 (D06F)**

**U D06F 58/00** **Domestic laundry driers (drying in general [F26B](#))**

- U D06F 58/20      · General details of domestic laundry driers ([D06F 59/00](#) takes precedence)
- U D06F 58/28      · · Controlling or regulating (controlling or regulating in general [G05](#))
- U D06F 2058/2816      · · · {Automatic detection of the humidity or dryness of the laundry directly or indirectly by measuring}
- M D06F 2058/2841      · · · · {the [launery/laundry](#) temperature}

**Project: N/A (D06F)**

D06F 60/00

Drying not provided for in groups [D06F 53/00](#) ~~to~~ [D06F 59/00](#)**Project: N/A (D06M)**

D06M

**TREATMENT, NOT PROVIDED FOR ELSEWHERE IN CLASS [D06](#), OF FIBRES, THREADS, YARNS, FABRICS, FEATHERS, OR FIBROUS GOODS MADE FROM SUCH MATERIALS (surface treatment of fibres or filaments from glass, minerals or slags {also in the form of fabrics if the chemical aspects of the treatment are important} [C03C 25/00](#); treatment of textiles by mechanical means, see [D06B](#) ~~to~~ [D06J](#))**

NOTES

1. In each of the groups [D06M 11/00](#) ~~to~~ [D06M 15/00](#), in the absence of an indication to the contrary, a substance is classified in the last appropriate place.
2. Within each one of main groups [D06M 11/00](#) ~~to~~ [D06M 15/00](#), a mixture of substances is classified at least according to the essential ingredient. If more than one ingredient is essential, the mixture is classified, in the absence of an indication to the contrary, according to the essential ingredient which belongs to the last appropriate place in the sequence of substances;
3. Treatment by mixtures of substances covered by two or more of main groups [D06M 11/00](#) ~~to~~ [D06M 15/00](#) is classified in each appropriate main group.
4. In this subclass, the treatment of textiles, not provided for for elsewhere in class [D06](#), is classified according to the following principles:
  - Treatment of textiles characterised by the treating agent in groups [D06M 11/00](#) ~~to~~ [D06M 16/00](#);
  - Treatment of textiles characterised by the process in group [D06M 23/00](#).

D06M 14/00

**Graft polymerisation of monomers containing carbon-to-carbon unsaturated bonds on to fibres, threads, yarns, fabrics, or fibrous goods made from such materials (on to unshaped polymers [C08F 251/00](#) ~~to~~ [C08F 292/00](#))**

**Project: N/A (D06P)**

D06P

**DYEING OR PRINTING TEXTILES; DYEING LEATHER, FURS, OR SOLID MACROMOLECULAR SUBSTANCES IN ANY FORM (for mechanical matters, see [B41F](#), [D06B](#), [D06C](#); printing on surfaces of materials other than textiles [B41M](#); surface treatment of fibres or filaments from glass, mineral, or slags [C03C 25/00](#); mordanting [D06M](#); dyeing paper [D21H](#))**

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">D06P 3/84</a>	covered by	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/85</a>	" "	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/852</a>	" "	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/86</a>	" "	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/87</a>	" "	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/872</a>	" "	<a href="#">D06P 3/82</a>
<a href="#">D06P 3/874</a>	" "	<a href="#">D06P 3/82</a>

[D06P 5/24](#) ~~to~~ [D06P 5/28](#) " " [D06P 5/003](#) and s.gr.

- U D06P 1/00** **General processes of dyeing or printing textiles, or general processes of dyeing leather, furs, or solid macromolecular substances in any form, classified according to the dyes, pigments, or auxiliary substances employed**
- U D06P 1/22  
D06P 1/227
  - using vat dyestuffs {including indigo}
  - {Specific dyes not provided for in groups [D06P 1/228](#) ~~to~~ [D06P 1/28](#)}
- U D06P 5/00** **Other features in dyeing or printing textiles, or dyeing leather, furs, or solid macromolecular substances in any form**
- D06P 5/02
  - After-treatment

NOTE  
In groups [D06P 5/04](#) ~~to~~ [D06P 5/10](#) a compound is always classified in the last appropriate place.

**Project: N/A (D06Q)**

**D06Q**

**DECORATING TEXTILES (for treatment of textiles by mechanical means, see [D06B](#) ~~to~~ [D06J](#); metallising the entire surface of textiles [D06M 11/83](#); textile threads, filaments, yarns or tow, glued on macromolecular material [D06N 7/00](#); dyeing or printing [D06P](#))**

NOTE

In this subclass, the following term is used with the meaning indicated:

- "decorating" means "local treatment" or "local effects produced" as to change, e.g. optically, the appearance or the properties of textile materials

**Project: RP0092-F (D07B)**

- U D07B 2201/00** **Ropes or cables**
- U D07B 2201/10
  - Rope or cable structures
- M D07B 2201/1012
  - · characterised by their internal structure

**WARNING**  
Group [D07B 2201/1012](#) is impacted by reclassification into group [D07B 2201/1014](#).  
Groups [D07B 7/18](#) and [D07B 7/187](#) should be considered in order to perform a complete search.
- M D07B 2201/1014
  - · characterised by being laid or braided from several sub-ropes or sub-cables, e.g. hawsers

**WARNING**  
Group [D07B 2201/1014](#) is incomplete pending reclassification of documents from group [D07B 2201/1012](#).  
Groups [D07B 2201/1012](#) and [D07B 2201/1014](#) should be considered in order to perform a complete search.
- U D07B 2201/20
  - Rope or cable components
- M D07B 2201/2083
  - · Jackets or coverings

**WARNING**  
Group [D07B 2201/2083](#) is impacted by reclassification into groups [D07B 2201/20903](#) and [D07B 2201/20907](#).

~~Groups D07B 2201/2083, D07B 2201/20903, and D07B 2201/20907 should be considered in order to perform a complete search.~~

M D07B 2201/20903 . . . comprising woven structures

**WARNING**

~~Group D07B 2201/20903 is incomplete pending reclassification of documents from group D07B 2201/2083.  
Groups D07B 2201/2083 and D07B 2201/20903 should be considered in order to perform a complete search.~~

M D07B 2201/20907 . . . comprising knitted structures

**WARNING**

~~Group D07B 2201/20907 is incomplete pending reclassification of documents from group D07B 2201/2083.  
Groups D07B 2201/2083 and D07B 2201/20907 should be considered in order to perform a complete search.~~

**Project: N/A (D10B)**

**U D10B 2331/00** **Fibres made from polymers obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds, e.g. polycondensation products**

D10B 2331/30 . polycondensation products not covered by indexing codes [D10B 2331/02](#) ~~to-~~ [D10B 2331/14](#)

**Project: N/A (D21C)**

**D21C 9/00** **After-treatment of cellulose pulp, e.g. of wood pulp, or cotton linters; {Treatment of dilute or dewatered pulp or process improvement taking place after obtaining the raw cellulosic material and not provided for elsewhere (polysaccharides, derivatives thereof [C08B](#); paper-making [D21B](#) ~~to-~~ [D21H](#))}**

**Project: N/A (D21H)**

**D21H** **PULP COMPOSITIONS; PREPARATION THEREOF NOT COVERED BY SUBCLASSES [D21C](#) OR [D21D](#); IMPREGNATING OR COATING OF PAPER; TREATMENT OF FINISHED PAPER NOT COVERED BY CLASS [B31](#) OR SUBCLASS [D21G](#); PAPER NOT OTHERWISE PROVIDED FOR**

**NOTES**

1. This subclass covers also pulp compositions for the preparation of fireboard or other fibrous articles by wet processes.
2. In this subclass, the following terms are used with the meaning indicated:
  - "pulp" means a dispersion, { e.g. an aqueous sus-pension,} comprising paper-making fibres and optional additives, which is to be processed, and covers the term "stock"; it also means dry paper-making fibres which are to be made into paper by either wet or dry processes;
  - "paper" means paper, cardboard or wet-laid non-woven fabrics.
3. In groups [D21H 11/00](#) ~~to-~~ [D21H 15/00](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.
4. Attention is drawn to the use of Combination Sets as specified in the Notes after groups [D21H 17/00](#), [D21H 17/69](#), [D21H 17/71](#), [D21H 19/00](#), [D21H 21/00](#), [D21H 21/14](#), [D21H 23/00](#), [D21H 23/22](#), [D21H 25/00](#) and [D21H 27/00](#).

**U D21H 5/00** **Special paper or cardboard not otherwise provided for (duplicating or recording paper [B41M](#))**

- U D21H 5/0005
- {Processes or apparatus specially adapted for applying liquids or other fluent materials to finished paper or board, e.g. impregnating, coating (applying liquids to surfaces in general [B05](#); treating textile materials by liquids, gases or vapours [D06B](#); impregnated or coated fibreboard [D21J 1/08](#); apparatus for making patterned paper [D21H 5/06](#); printing machines [B41F](#))}
- NOTE  
Equipment related to specific chemical treatment, see relevant sub-groups for this treatment; e.g. parchmentising or vulcanising [D21H 5/08](#), treatment with viscose [D21H 17/25](#)
- U D21H 5/006
- · {Controlling or regulating (controlling or regulating in general [G05](#))}
- D21H 5/0062
- · · {Regulating the amount or the distribution, e.g. smoothing, of essentially fluent material already applied to the paper; Recirculating excess coating material applied to paper (after-treatment [D21H 25/00](#) ~~te~~ [D21H 25/18](#))}
- D21H 5/0092
- {Post-treated paper (after-treatment following application of substances to finished paper [D21H 25/00](#) ~~te~~ [D21H 25/18](#), [D21H 5/0062](#); after-treatment of printed works [B41M 7/00](#); working paper [B31F](#); paper from fibres which can be modified [D21H 5/1272](#))}
- U D21H 5/12
- characterised by the use of special fibrous materials (felts or other non-woven fabrics [D04](#))
- D21H 5/1272
- · {of fibres which can be physically or chemically modified during or after web formation (after treatment of coated or impregnated papers [D21H 25/00](#) ~~te~~ [D21H 25/18](#))}
- D21H 17/00**
- Non-fibrous material added to the pulp, characterised by its constitution; Paper-impregnating material characterised by its constitution**
- NOTES
1. In this group, in the absence of an indication to the contrary, a material is classified in the last appropriate place.
  2. In this group, it is desirable to classify the individual constituents of fibres used in the pulp or paper using Combination Sets with symbols chosen from groups [D21H 11/00](#) ~~te~~ [D21H 15/00](#).
- D21H 19/00**
- Coated paper (coated fibreboard [D21J 1/08](#)); Coating material (recording sheets characterised by the coating used to improve ink, dye or pigment receptivity [B41M 5/50](#))**
- NOTE  
In this group, it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, using Combination Sets with symbols chosen from groups [D21H 11/00](#) ~~te~~ [D21H 17/00](#) or [D21H 21/14](#) ~~te~~ [D21H 21/56](#).
- D21H 21/00**
- Non-fibrous material added to the pulp, characterised by its function, form or properties; Paper-impregnating or coating material, characterised by its function, form or properties**
- NOTE  
In groups [D21H 21/00](#) ~~te~~ [D21H 21/12](#), it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, using Combination Sets with symbols chosen from groups [D21H 11/00](#) ~~te~~ [D21H 17/00](#).

- D21H 21/14
- characterised by function or properties in or on the paper ([D21H 19/66](#), [D21H 27/02](#) take precedence)

**NOTE**

In groups [D21H 21/14](#) ~~to~~ [D21H 21/56](#), it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, using Combination Sets with symbols chosen from groups [D21H 11/00](#) ~~to~~ [D21H 19/00](#).

- D21H 23/00**
- Processes or apparatus for adding material to the pulp or to the paper (applying liquids or other fluent material to surfaces, in general [B05](#); processes for making continuous lengths of paper [D21F 11/00](#))**

**NOTES**

1. In groups [D21H 23/00](#) ~~to~~ [D21H 23/20](#), it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, as Combination Sets with symbols chosen from groups [D21H 11/00](#) ~~to~~ [D21H 17/00](#) or [D21H 21/00](#).

2. Processes or apparatus used for addition to the paper during its manufacture, i.e. on-machine, are classified in groups [D21H 23/24](#) ~~to~~ [D21H 23/28](#) if they are specially influenced by, or specially adapted to the paper-making process.

- U D21H 23/02
- characterised by the manner in which substances are added
- D21H 23/22
- • Addition to the formed paper

**NOTE**

In groups [D21H 23/22](#) ~~to~~ [D21H 23/78](#), it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, using Combination Sets with symbols chosen from groups [D21H 11/00](#) ~~to~~ [D21H 21/00](#).

- D21H 25/00**
- After-treatment of paper not provided for in groups [D21H 17/00](#) ~~to~~ [D21H 23/00](#)**

**NOTE**

In this group, it is desirable to classify the individual constituents of the fibres used in the pulp or the paper, the non-fibrous material added to the pulp or the impregnating or coating material, using Combination Sets with symbols chosen from groups [D21H 11/00](#) ~~to~~ [D21H 21/00](#).

- D21H 27/00**
- Special paper not otherwise provided for, e.g. made by multi-step processes**

**NOTES**

1. This group provides for the classification of paper with special properties or applications which are only partially or not at all provided for elsewhere in the classification. Whenever possible, however, these papers are classified according to the criteria used in the other groups of this subclass.

2. In this group, it is desirable to classify the individual constituents using Combination Sets with symbols chosen from groups [D21H 11/00](#) ~~to~~ [D21H 25/00](#).

**Project: N/A (E01B)**

- U E01B 11/00
- E01B 11/56
- Special arrangements for supporting rail ends (foot supports [E01B 11/08](#) ~~to~~ [E01B 11/14](#))
- E01B 11/62
- • Bridge chairs (chairs [E01B 9/54](#) ~~to~~ [E01B 9/58](#))

- E01B 31/00** Working rails, sleepers, baseplates, or the like, in or on the line; Machines, tools, or auxiliary devices specially designed therefor (characterised by features independent of use on assembled track [B21](#), [B23](#) ~~to~~ [B25](#), [B27](#))
- U E01B 31/02 · Working rail or other metal track components on the spot
- E01B 31/18 · · Reconditioning or repairing worn or damaged parts on the spot, e.g. applying inlays, building-up rails by welding ([E01B 31/04](#) ~~to~~ [E01B 31/12](#) take precedence); Heating or cooling of parts on the spot, e.g. for reducing joint gaps, for hardening rails
- E01B 37/00** Making, maintaining, renewing, or taking-up the ballastway or the track, not provided for in a single one of groups [E01B 27/00](#) ~~to~~ [E01B 35/00](#)

## Project: N/A (E01C)

- U E01C 5/00 Pavings made of prefabricated single units (specially adapted for playgrounds or sports grounds [E01C 13/04](#), for footpaths, sidewalks or cycle tracks [E01C 15/00](#); making artificial stones [C04B](#); building stones [E04C](#); flooring [E04F](#))
- E01C 5/22 · made of units composed of a mixture of materials covered by two or more of groups {[E01C 5/008](#)}, [E01C 5/02](#) ~~to~~ [E01C 5/20](#) {except embedded reinforcing materials}
- U E01C 7/00 Coherent pavings made in situ (specially adapted for playgrounds or sports grounds [E01C 13/06](#); for footpaths, sidewalks or cycle tracks [E01C 15/00](#))
- U E01C 7/08 · made of road-metal and binders {([E01C 7/36](#) takes precedence)}
- U E01C 7/35 · · Toppings or surface dressings; Methods of mixing, impregnating, or spreading them {(devices therefor [E01C 19/00](#); mortar-macadam pavings [E01C 7/12](#); bituminous penetration coverings [E01C 7/18](#))}
- E01C 7/358 · · {with a combination of two or more binders according to groups [E01C 7/351](#) ~~to~~ [E01C 7/356](#)}
- U E01C 9/00 Special pavings (specially adapted for playgrounds or sports grounds [E01C 13/00](#), for footpaths, sidewalks or cycle tracks [E01C 15/00](#)); Pavings for special parts of roads or airfields (pavement lights [E01C 17/00](#); manhole or like covers or frames [E02D 29/14](#))
- E01C 9/10 · Steel gratings {; Gratings made of material other than steel} {([E01C 9/001](#) ~~to~~ [E01C 9/02](#), [E01C 9/06](#) take precedence; metal gratings for bridge floorings [E01D 19/125](#); } gully gratings [E03F 5/06](#)}
- U E01C 11/00 Details of pavings {([E01C 1/005](#), [E01C 5/003](#), [E01C 5/005](#), [E01C 7/145](#), [E01C 7/185](#), [E01C 7/325](#) take precedence)}
- U E01C 11/02 · Arrangement or construction of joints {(for pavings consisting of prefabricated units [E01C 5/00](#))}; Methods of making joints {(machines therefor [E01C 23/02](#), [E01C 23/09](#); removable joint shutterings [E01C 23/021](#))}; Packing for joints (sealing joints not restricted to road or airfield paving [E04B 1/68](#))
- U E01C 11/04 · · for cement concrete paving {([E01C 9/001](#) takes precedence)}
- E01C 11/14 · · · Dowel assembly; {Design or construction of reinforcements in the area of joints (coupling devices for prefabricated units [E01C 5/005](#); combined with characteristic packings [E01C 11/08](#) ~~to~~ [E01C 11/12](#); removable holders [E01C 23/045](#))}
- U E01C 19/00 Machines, tools or auxiliary devices for preparing or distributing paving materials, for working the placed materials, or for forming, consolidating, or finishing the paving (surface stabilisation [E01C 21/00](#); apparatus specially adapted for reconditioning or repairing paving [E01C 23/00](#))

- E01C 19/02
  - for preparing the materials ({[E01C 19/002](#), [E01C 19/45](#), [E01C 19/46](#), [E01C 21/00](#), [E01C 23/065](#) take precedence; producing hydraulic cement concrete in general [B28C 5/00](#) ~~to~~ [B28C 9/00](#))}
- U E01C 19/10
  - • Apparatus or plant for premixing or precoating aggregate or fillers with non-hydraulic binders, e.g. with bitumen, with resins, {i.e. producing mixtures or coating aggregates otherwise than by penetrating or surface dressing}; Apparatus for premixing non-hydraulic mixtures prior to placing or for reconditioning salvaged non-hydraulic compositions ({[E01C 19/08](#), [E01C 19/21](#), [E01C 21/00](#), [E01C 23/065](#) take precedence)}
- U E01C 19/1013
  - • • {Plant characterised by the mode of operation or the construction of the mixing apparatus; Mixing apparatus; ([E01C 19/1004](#), [E01C 19/1054](#) take precedence)}
- E01C 19/105
  - • • • {Mixing or coating by a combination of methods covered by [E01C 19/1018](#) ~~to~~ [E01C 19/104](#), excluding [E01C 19/1036](#)}
- U E01C 19/12
  - for distributing granular or liquid materials ({[E01C 19/002](#), [E01C 19/45](#), [E01C 19/46](#), [E01C 19/48](#), [E01C 23/03](#), [E01C 23/065](#)}, [E01C 23/07](#) take precedence; for filling joints or grooves [E01C 23/02](#), [E01C 23/09](#))
- U E01C 19/20
  - • Apparatus for distributing, e.g. spreading, granular or pulverulent materials, e.g. sand, gravel, salt, dry binders ({[E01C 19/21](#), [E01C 19/4813](#), [E01C 19/482](#), [E01C 23/098](#), [E01C 23/166](#) take precedence; } fertiliser distributors [A01C 15/00](#); {permanently-installed devices for applying gritting or thawing materials [E01H 10/005](#); mobile spreaders specially adapted for treating wintry roads [E01H 10/007](#))}
- U E01C 19/201
  - • • {with driven loosening, discharging or spreading parts, e.g. power-driven, drive derived from road-wheels ([E01C 19/205](#) takes precedence)}
- E01C 19/2045
  - • • • {spreading by means of an endless belt or like ~~conveyer~~ [conveyor](#)}
- U E01C 19/22
  - for consolidating or finishing laid-down unset materials ({[E01C 19/002](#), [E01C 19/48](#), [E01C 21/00](#)} [E01C 23/02](#) {[E01C 23/065](#)} take precedence; apparatus for generating vibrations in general [B06B](#))
- U E01C 19/23
  - • Rollers therefor; Such rollers usable also for compacting soil ({[E01C 19/41](#), } [E01C 19/43](#), {[E01C 19/52](#), [E01C 23/065](#)} take precedence; specially adapted for agricultural purposes [A01B 29/00](#); garden rollers [A01G 1/12](#); making or maintaining surfaces of snow or ice [E01H 4/00](#); solely for soil compaction [E02D 3/026](#))
- E01C 19/24
  - • • hand propelled ({[E01C 19/235](#), } [E01C 19/27](#) ~~to~~ [E01C 19/29](#), {[E01C 19/41](#)} take precedence)
- E01C 19/25
  - • • propelled by animals or vehicles ({[E01C 19/235](#)}, [E01C 19/26](#) ~~to~~ [E01C 19/29](#) take precedence)
- E01C 19/26
  - • • self-propelled or fitted to road vehicles ({[E01C 19/231](#), [E01C 19/235](#)}, [E01C 19/27](#) ~~to~~ [E01C 19/29](#) take precedence)
- U E01C 19/28
  - • • Vibrated rollers or rollers subjected to impacts, e.g. hammering blows ({[E01C 19/235](#), } [E01C 19/29](#), {[E01C 19/41](#)} take precedence; {combined with non-vibrated elastically-deformable rolling elements [E01C 19/233](#))}
- E01C 19/281
  - • • • {propelled by hand or by vehicles, e.g. towed ([E01C 19/285](#) ~~to~~ [E01C 19/288](#) take precedence)}
- E01C 19/282
  - • • • {self-propelled, e.g. with an own traction-unit ([E01C 19/285](#) ~~to~~ [E01C 19/288](#) take precedence)}
- U E01C 19/30
  - • Tamping or vibrating apparatus other than rollers {;Devices for ramming individual paving elements}{([E01C 19/41](#), [E01C 19/43](#), [E01C 19/4833](#), [E01C 19/488](#), [E01C 19/4886](#), [E01C 19/52](#), [E01C 21/00](#), } [E01C 23/02](#), [E01C 23/04](#) take precedence; vibrated depositing devices [E01C 19/12](#); tamping or vibrating rollers [E01C 19/28](#); portable percussion tools [B25D](#); tamping or vibrating soil [E02D 3/046](#))}

- U E01C 19/34
  - • • Power-driven rammers or tampers, {e.g. air-hammer impacted shoes for ramming stone-sett paving; Hand-actuated ramming or tamping machines, e.g. tampers with manually hoisted dropping weight}
- E01C 19/35
  - • • • Hand-held or hand-guided tools ([E01C 19/36](#) to- [E01C 19/40](#) take precedence)
- E01C 19/50
  - Removable forms or shutterings for road-building purposes ([E01C 23/02](#), [E01C 23/04](#) take precedence; permanent forms [E01C 3/00](#) to- [E01C 7/00](#), {[E01C 9/00](#) to- [E01C 17/00](#)}; slip forms [E01C 19/48](#)); Devices or arrangements for forming individual paving elements, e.g. kerbs, in situ
- U E01C 23/00
 

**Auxiliary devices or arrangements for constructing, repairing, reconditioning, or taking-up road or like surfaces (apparatus for reconditioning of salvaged non-hydraulic compositions {for- in plant recycling of salvaged bituminous mixtures} [E01C 19/10](#))**
- E01C 23/06
  - Devices or arrangements for working the finished surface (working freshly laid paving [E01C 19/42](#) to- [E01C 19/44](#), [E01C 23/02](#); mining picks [E21C 35/18](#)); Devices for repairing {or reconditioning} the surface of damaged paving; {Recycling in place or on the road}

**Project: N/A (E01D)**

- E01D 1/00
 

**Bridges in general (characterised by their structural type [E01D 4/00](#) to- [E01D 15/00](#))**
- E01D 12/00
 

**Bridges characterised by a combination of structures not covered as a whole by a single one of groups [E01D 2/00](#) to- [E01D 11/00](#)**
- U E01D 15/00
 

**Movable or portable bridges; Floating bridges**
- U E01D 15/14
  - Floating bridges, e.g. pontoon bridges (landing bridges [E01D 15/24](#); floating bodies or pontoons [B63B](#))
- E01D 15/145
  - • {displaceable or with sections movable to allow passing of water-borne traffic (movable bridges actuated by floating bodies [E01D 15/005](#) to- [E01D 15/10](#))}
- U E01D 19/00
 

**Structural or constructional details of bridges**
- E01D 19/04
  - Bearings {([E01D 19/005](#) takes precedence; specially for movable bridges [E01D 15/005](#) to- [E01D 15/10](#))}; Hinges
- E01D 19/06
  - Arrangement, construction or bridging of expansion joints ({[E01D 19/005](#) takes precedence; in movable bridges [E01D 15/005](#) to- [E01D 15/10](#)}; sealing joints not restricted to expansion joints for bridges [E04B 1/68](#))

**Project: N/A (E01F)**

- U E01F 15/00
 

**Safety arrangements for slowing, redirecting or stopping errant vehicles, e.g. guard posts or bollards; Arrangements for reducing damage to roadside structures due to vehicular impact (arrangements for fastening signs or signals to safety barriers or the like [E01F 9/669](#); for forcibly arresting vehicles [E01F 13/00](#))**
- U E01F 15/02
  - Continuous barriers extending along roads or between traffic lanes (crossable-lane separators [E01F 9/588](#))
- E01F 15/025
  - • {Combinations of at least two of the barrier member types covered by [E01F 15/04](#) to- [E01F 15/08](#), e.g. rolled steel section or plastic strip backed up by cable, safety kerb topped by rail barrier}

**Project: N/A (E01H)**

- E01H 1/00** Removing undesirable matter from roads or like surfaces, with or without moistening of the surface (for snow or ice [E01H 5/00](#); cleaning tramway rails [E01H 8/00](#); obstruction removers on vehicles [B60R 19/00](#); in combination with application of bitumen or the like [E01C 19/16](#); in combination with application of traffic line [E01C 23/16](#); {Sweeping apparatus, particularly for lawns [A01G 1/12](#); Removing undesirable matter from floors and similar surfaces [A47L 5/00](#) ~~to~~ [A47L 13/00](#)})
- E01H 1/02
- Brushing apparatus, {e.g. with auxiliary instruments for mechanically loosening dirt} ({[E01H 1/003](#), [E01H 1/005](#), [E01H 1/006](#) and} [E01H 1/08](#) ~~to~~ [E01H 1/14](#) take precedence; {loosening by means of gas jets or streams [E01H 1/0818](#), [E01H 1/0872](#); with brushes functioning under vacuum or combined with independent suction nozzles [E01H 1/0827](#); loosening by means of liquid streams [E01H 1/101](#); mechanical loosening instruments other than brushes [E01H 1/105](#); for railway tracks [E01H 8/00](#)}; brushes in general [A46B](#); {for floors or similar surfaces [A47L 11/22](#), [A47L 11/24](#)})
- E01H 1/08
- Pneumatically dislodging or taking-up undesirable matter {or small objects} ({[E01H 1/006](#) and [E01H 1/005](#) take precedence; } suction cleaners in general [A47L 5/00](#) ~~to~~ [A47L 9/00](#); {sucking-off liquids or semi-liquids [E01H 1/108](#)}); Drying by heat only or by streams of gas (permanently-installed heating or blowing devices [E01C 11/26](#); heating or drying for road- building or repairing [E01C 23/14](#); {devices for melting snow or ice in situ [E01H 5/10](#), [E01H 8/08](#); for scorching undesirable vegetation [E01H 11/00](#)}); Cleaning by projecting abrasive particles (sand-blasting in general [B24C](#); {roughening of road surfaces [E01C 23/08](#); cleaning of road joints [E01C 23/0906](#)})
- U E01H 1/10
- Hydraulically loosening or dislodging undesirable matter (stationary flushing devices [E01H 3/04](#)); Raking or scraping apparatus (hand implements [E01H 1/12](#)); {Removing liquids or semi-liquids e.g., absorbing water, sliding-off mud (removing pneumatically [E01H 1/08](#); steam-cleaning [E01H 11/00](#)})
- E01H 1/101
- • {Hydraulic loosening or dislodging, combined or not with mechanical loosening or dislodging, e.g. road washing machines with brushes or wipers ([E01H 1/005](#) takes precedence; cleaning rails [E01H 8/105](#), [E01H 8/125](#); applying liquids in general [E01H 3/00](#); scrubbing machines for floors or similar surfaces [A47L 11/26](#) ~~to~~ [A47L 11/30](#)})
- U E01H 5/00** Removing snow or ice from roads or like surfaces; Grading or roughening snow or ice (by applying de-icing agents [E01H 10/00](#); obstruction removers on vehicles [B60R 19/00](#); sand, gravel or salt spreaders [E01C 19/20](#))
- U E01H 5/04
- Apparatus propelled by animal or engine power; Apparatus propelled by hand with driven dislodging or conveying {levelling} elements, conveying pneumatically {for the dislodged material}([E01H 5/10](#), [E01H 5/12](#) take precedence)
- U E01H 5/06
- • dislodging essentially by non-driven elements, e.g. scraper blades, {snow-plough blades, scoop blades}
- U E01H 5/07
- • • and conveying dislodged material by driven or pneumatic means {(removing and melting [E01H 5/104](#); picking-up installations scraping off dirt [E01H 1/105](#)})
- E01H 5/073
- • • • {by belt or chain ~~conveyers~~ [conveyors](#) (dislodging by means of elements secured to endless belts or chains [E01H 5/08](#)})
- E01H 8/00** Removing undesirable matter from the permanent way of railways; Removing undesirable matter from tramway rails ([E01H 1/00](#) ~~to~~ [E01H 6/00](#) take precedence; {controlling vegetation [E01H 11/00](#); removing ballast from rails or sleepers [E01B 27/023](#); removing, cleaning the ballast itself [E01B 27/04](#), [E01B 27/06](#)})

- E01H 11/00** Control of undesirable vegetation on roads {or similar surfaces} or permanent ways of railays, {e.g. devices for scorching weeds or for applying herbicides} (destruction of undesirable vegetation in general [A01M 7/00](#) ~~to~~ [A01M 15/00](#), [A01M 21/00](#); weeding involving working the ballast [E01B 27/00](#); mowers for embankments [A01D 34/86](#); hedge shearing machines [A01G 3/04](#)); Applying liquids, e.g. water, weed-killer bitumen, to permanent ways (specially to rails [E01H 8/10](#) {[E01H 8/105](#), [E01H 8/125](#)}); for preserving sleepers [E01B 31/20](#))

**Project: N/A (E02B)**

- U E02B 7/00** Barrages or weirs; Layout, construction, methods of, or devices for, making same (for protecting banks, coasts, or harbours [E02B 3/04](#); sealings or joints [E02B 3/16](#); handling building or like materials for hydraulic engineering [E02D 15/00](#); foundations in general [E02D 27/00](#))
- U E02B 7/20** · Movable barrages; Lock {or dry-dock} gates
- E02B 7/205** · · {Barrages controlled by the variations of the water level; automatically functioning barrages (level regulators [G05D 9/00](#); the documents are filed in this subdivision and the relevant subdivision [E02B 7/26](#) ~~to~~ [E02B 7/50](#))}
- U E02B 17/00** Artificial islands mounted on piles or like supports, e.g. platforms on raisable legs {or offshore constructions}; construction methods therefor ({construction methods for floating platforms [B63B 9/065](#)}; anchoring floating platforms [B63B 21/00](#); floating platforms, e.g. anchored, [B63B 35/44](#); {underwater reservoirs [B65D 88/78](#)})
- U E02B 17/04** · Equipment specially adapted for raising, lowering, or immobilising the working platform relative to the supporting construction (platform lifts in general [B66F 7/00](#))
- U E02B 17/08** · · for raising or lowering
- E02B 17/0818** · · · {with racks actuated by pinions (lifting jacks [B66F 3/02](#) ~~to~~ [B66F 3/06](#))}

**Project: N/A (E02D)**

- U E02D 5/00** Bulkheads, piles, or other structural elements specially adapted to foundation engineering (engineering elements in general [F16](#))
- U E02D 5/22** · Piles (sheet piles, {i.e. elements shaped to mutually lock or mate} [E02D 5/02](#); {pile shoes [E02D 5/72](#); foundations on piles [E02D 27/12](#), [E02D 27/20](#)})
- E02D 5/24** · · Prefabricated piles
- NOTE**  
Documents covered both by [E02D 5/26](#) ~~to~~ [E02D 5/32](#) and by one or several of the groups [E02D 5/48](#) ~~to~~ [E02D 5/64](#) are classified in all relevant groups unless specific priority rules to the contrary are given
- E02D 5/34** · · Concrete or concrete-like piles cast in position; {Apparatus for making same ([E02D 5/50](#) takes precedence; moulds [E02D 5/665](#); placing, removing moulds [E02D 7/00](#) ~~to~~ [E02D 11/00](#); placing the concrete [E02D 15/04](#))}
- E02D 5/36** · · · making without use of mouldpipes or other moulds
- NOTE**  
Documents covered both by [E02D 5/34](#) ~~to~~ [E02D 5/46](#) and by one or several of the groups [E02D 5/48](#) ~~to~~ [E02D 5/64](#) are classified in all relevant groups unless specific priority rules to the contrary are given
- U E02D 5/38** · · · making by use of mould-pipes or other moulds

- E02D 5/385 . . . {with removal of the outer mould-pipes (documents also covered by one or several of the groups [E02D 5/40](#) ~~to~~ [E02D 5/44](#) are classified in all the relevant groups)}
- U E02D 7/00** **Methods or apparatus for placing sheet pile bulkheads, piles, mouldpipes, or other moulds (for both placing and removing [E02D 11/00](#); {accessories for coupling driver to piles or the like [E02D 13/10](#); for trees or other plants [A01G 17/16](#); placing posts [E04H 17/26](#)})**
- E02D 7/02 . Placing by driving {([E02D 7/18](#) ~~to~~ [E02D 7/24](#) take precedence)}
- E02D 23/00** **Caissons; Construction or placing of caissons (tunnels submerged into or built in open water [E02D 29/063](#); {moles, piers, quays, breakwaters incorporating caissons [E02B 3/06](#); foundation formed by caissons [E02D 27/18](#) ~~to~~ [E02D 27/22](#); caisson-like artificial islands [E02B 17/00](#)})**
- U E02D 27/00** **Foundations as substructures**
- E02D 27/26 . Compacting soil locally before forming foundations; Construction of foundation structures by forcing binding substances into gravel fillings (consolidating foundation soil in general [E02D 3/02](#) ~~to~~ [E02D 3/12](#); {for piles [E02D 5/02](#), [E02D 5/46](#)})
- U E02D 27/32** . Foundations for special purposes {(for paving of roads [E01C 3/00](#))}
- E02D 27/52 . . Submerged foundations, {i.e. submerged in open water ([E02D 27/12](#) ~~to~~ [E02D 27/24](#) take precedence)}
- U E02D 29/00** **{Independent} underground or underwater structures (underground tanks [B65D 88/76](#); hydraulic engineering, e.g. sealings or joints, [E02B](#); underground garages [E04H 6/00](#); underground air-raid shelters [E04H 9/12](#); burial vaults [E04H 13/00](#)); Retaining walls**
- U E02D 29/02** . Retaining or protecting walls (piers or quay walls [E02B 3/06](#))
- E02D 29/0258 . . {not used, see subgroups ([E02D 29/0208](#) ~~to~~ [E02D 29/025](#) take precedence)}

**Project: MP0143 (E02F)****M E02F** **DREDGING; SOIL-SHIFTING (winning peat [E21C 49/00](#))**NOTE

This subclass covers :

- primarily equipment for excavating or loosening earth or for moving loose earth;
- equipment for working similarly on other materials and similar equipment for loading or unloading materials

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

~~E02F 3/32~~ — covered by — ~~E02F 3/30, E02F 3/425~~

~~E02F 3/39~~ — covered by — ~~E02F 3/286, E02F 3/306, E02F 3/3402~~

~~E02F 3/78~~ — " " — ~~E02F7/76~~ + s.gr.

~~E02F 3/85~~ — " " — ~~E02F 3/841, E02F 3/842, E02F 3/844, E02F 3/845,~~ — ~~E02F 3/847~~

~~E02F 5/04~~ — " " — ~~E21B~~

~~E02F 5/06~~ — " " — ~~E02F 3/08~~

~~E02F 5/08~~ — " " — ~~E02F 3/18~~

~~E02F 5/16~~ — " " — ~~E21B~~

~~E02F 5/18~~ — " " — ~~E21B~~

~~E02F 5/20~~ — " " — ~~E21B~~

*The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:*

*E02F 3/39 covered by E02F 3/286, E02F 3/306, E02F 3/3402  
E02F 3/85 covered by E02F 3/841, E02F 3/842, E02F 3/844, E02F 3/845,  
E02F 3/847*

**Project: N/A (E02F)**

- U E02F 3/00 Dredgers; Soil-shifting machines (for special purposes [E02F 5/00](#); other machines or apparatus for mining [E21C](#); tunnelling [E21D](#))**
- U E02F 3/04
    - mechanically-driven
  - U E02F 3/08
    - • with digging elements on an endless chain, {e.g. bucket-type chains (for digging trenches or ditches [E02F 5/06](#); cutting machines for mining or quarrying [E21C 25/22](#))}
  - E02F 3/082
    - • • {including a belt-type ~~conveyer~~conveyor for transporting the excavated material}
  - E02F 3/083
    - • • {including a screw-type ~~conveyer~~conveyor for transporting the excavated material}
  - U E02F 3/18
    - • with digging wheels turning round an axis, {e.g. bucket-type wheels (for digging trenches [E02F 5/08](#); for laying cables underwater [E02F 5/109](#); cutting machines [E21C 25/00](#); methods or apparatus for making tunnels or galleries [E21D 9/00](#))}
  - E02F 3/181
    - • • {including a ~~conveyer~~conveyor}
  - U E02F 3/28
    - • with digging tools mounted on a dipper- or bucket-arm, {i.e. there is either one arm or a pair of arms}, e.g. dippers, buckets
  - U E02F 3/34
    - • • with bucket-arms {i.e. a pair of arms, e.g. manufacturing processes, form, geometry, material of bucket-arms (with a single arm [E02F 3/283](#))} directly pivoted on the frames of tractors or self-propelled machines
  - E02F 3/342
    - • • • Buckets emptying overhead ([E02F 3/348](#) ~~to~~ [E02F 3/358](#) take precedence)
  - E02F 3/345
    - • • • Buckets emptying side-ways ([E02F 3/348](#) ~~to~~ [E02F 3/358](#) take precedence)
  - U E02F 3/348
    - • • • Buckets emptying into a collecting or conveying device
  - E02F 3/3483
    - • • • • {Buckets discharging on a ~~conveyer~~conveyor or elevator mounted on the machine}
  - U E02F 3/36
    - • • Component parts
  - U E02F 3/40
    - • • • Dippers; Buckets {Grab device, e.g. manufacturing processes for buckets, form, geometry, material of buckets (devices to connect tools to arms or booms [E02F 3/3604](#); teeth therefor [E02F 9/28](#))}
  - E02F 3/402
    - • • • • {with means for facilitating the loading thereof, e.g. ~~conveyers~~conveyors}
  - U E02F 3/76
    - • Graders, bulldozers, or the like with scraper plates or ploughshare-like elements (soil-working [A01B](#)); Levelling {scarifying} devices {(street cleaning [E01H](#); construction of roads [E01C 19/00](#), [E01C 23/00](#))}
  - E02F 3/7695
    - • • {Graders, bulldozers or the like comprising elevators or ~~conveyers~~conveyors}
  - U E02F 7/00 **Equipment for conveying or separating excavated material (barges adapted for carrying-away material from floating dredgers [B63B 35/28](#))**

- E02F 7/02
- Conveying equipment mounted on dredgers or excavators (~~conveyers in general B65G~~ *conveyors in general B65G*) {(in combination with graders or bulldozers [E02F 3/7695](#); in combination with rotating digging wheels [E02F 3/181](#); in combination with bucket-arms [E02F 3/348](#); in combination with digging elements mounted on an endless chain [E02F 3/082](#), [E02F 3/083](#)}

- E02F 9/00
- Component parts of dredgers or soil-shifting machines, not restricted to one of the kinds covered by groups [E02F 3/00](#) to [E02F 7/00](#) (laying-out or take-up devices for trailing electric cables [B66C](#))**

**Project: N/A (E03B)**

- U E03B 3/00** **Methods or installations for obtaining or collecting drinking water or tap water (treatment of water [C02F](#))**
- U E03B 3/06
- from underground {(consolidating foundation soil by draining, e.g. by lowering the water level [E02D 3/00](#); subsoil filtering [E21B 43/02](#)}
- U E03B 3/08
- • Obtaining and confining water by means of wells (applicable to a combination of water and other liquids or to other liquids only [E21B 43/00](#))
- U E03B 3/16
- • • Component parts of wells
- E03B 3/18
- • • • Well filters (filters in general [B01D 24/00](#) to [B01D 35/00](#))

**Project: N/A (E03D)**

- U E03D 1/00** **Water flushing devices with cisterns; {Setting up a range of flushing devices or water-closets; Combinations of several flushing devices}**
- U E03D 1/24
- Low-level flushing systems
- E03D 1/26
- • Bowl with flushing cistern mounted on the rearwardly extending end of the bowl (shape or material of the cistern [E03D 1/01](#); constructional features of the bowl [E03D 11/02](#) to [E03D 11/12](#))

**Project: N/A (E04B)**

- U E04B 1/00** **Constructions in general; Structures which are not restricted either to walls, e.g. partitions, or floors or ceilings or roofs (scaffolds, shutterings [E04G](#); structures specially adapted for buildings for special purposes, general layout of buildings, e.g. modular co-ordination, [E04H](#); the particular parts of buildings, see the relevant groups for those parts)**
- E04B 1/02
- Structures consisting primarily of load-supporting, block-shaped, or slab-shaped elements ([E04B 1/32](#) to [E04B 1/36](#) take precedence)
- E04B 1/16
- Structures made from masses, e.g. of concrete, cast or similarly formed in situ with or without making use of additional elements, such as permanent forms, substructures to be coated with load-bearing material ([E04B 1/32](#) to [E04B 1/36](#) take precedence)
- E04B 1/18
- Structures comprising elongated load-supporting parts, e.g. columns, girders, skeletons ([E04B 1/32](#) to [E04B 1/36](#) take precedence; elongated load-supporting parts as elements, trusses, truss-like structures [E04C 3/00](#))
- U E04B 1/19
- • Three-dimensional framework structures {(folded structures and grid-like formations acting as shell structures [E04B 7/10](#))}
- U E04B 1/1903
- • • {Connecting nodes specially adapted therefor}
- E04B 1/1912
- • • • {with central cubical connecting element}

**NOTE**

Subgroup [E04B 1/19](#) takes precedence over subgroups [E04B 1/20](#) to [E04B 1/30](#)

**Project: MP0143 (E04B)**

- U E04B 1/38
- Connections for building structures in general
- NOTE**
- Connections specially adapted for particular building parts or for particular building structures are classified in the groups for those parts or structures, e.g. in groups [E04B 1/21](#), [E04B 2/00](#), [E04B 5/00](#), [E04B 7/00](#) or [E04B 9/00](#). Joints not specially adapted for building construction, or of more general application, are classified in the appropriate subclasses, e.g. [F16B](#).

- M E04B 1/40
- • Separate connecting elements (for forms, falsework, or shutterings [E04G 17/00](#); releasable clips or clamps, hooks, wedges, wall-dowels, nails, bolts, rivets, screws, wood-screws [F16B](#))

**WARNING**

Group E04B-1/40 is no longer used for the classification of new documents. The backlog of this group is in the process of being reorganised to group E04B-1/41 and subgroups

**Project: N/A (E04B)**

- E04B 1/62
- Insulation or other protection; Elements or use of specified material therefor (chemical compositions [C01 to- C11](#); implements for applying insulation or sealings [E04F 21/00](#); buildings to withstand or to provide protection against external undesired influences [E04H 9/00](#); sealing pipes in walls or partitions [F16L 5/02](#); shielding against dangerous radiation [G21F](#); constructions of particular parts of buildings, see the relevant groups for those parts)
- E04B 1/74
- • Heat, sound or noise insulation, absorption, or reflection (forms of, or arrangements in, rooms for influencing or directing sound [E04B 1/99](#)). Other building methods affording favourable thermal or acoustical conditions, e.g. accumulating of heat within walls (fire protection [E04B 1/94](#); elements chiefly adapted for structural purposes [E04C 1/00 to- E04C 3/00](#); chiefly adapted for surface covering [E04F 13/00](#); as underlayers for floor coverings [E04F 15/18](#); closures for wall or like openings [E06B](#))
- U E04B 5/00
- Floors; Floor construction with regard to insulation; Connections specially adapted therefor (elements for floors, e.g. bricks, stones, filling bodies, girders, [E04C](#); flooring as finishing work, insulation of flooring, sectional false floors, e.g. for computers [E04F 15/00](#))**
- E04B 5/02
- Load-carrying floor structures formed substantially of prefabricated units ([E04B 5/43 to- E04B 5/48](#) take precedence)
- E04B 5/16
- Load-carrying floor structures wholly or partly cast or similarly formed in situ ([E04B 5/43 to- E04B 5/48](#) take precedence; floors merely characterised by the prefabricated elements [E04C](#))

**Project: N/A (E04C)**

- U E04C 1/00
- Building elements of block or other shape for the construction of parts of buildings (of relatively thin form [E04C 2/00](#); structural elongated elements designed for load-supporting [E04C 3/00](#), e.g. columns or pillars [E04C 3/30](#); manufacture or material of building bricks, stones, or the like [B28](#), [C03](#), [C04](#); paving elements [E01C](#); general building constructions [E04B](#), e.g. walls [E04B 2/00](#), floors [E04B 5/00](#), roofs [E04B 7/00](#), ceilings [E04B 9/00](#); {roof coverings [E04D](#); coverings for walls or ceilings [E04F 13/00](#); floorings [E04F 15/00](#) } structural elements specially designed for built-in conduit shafts [E04F 17/00](#); {elements for buildings for particular purposes [E04H 7/00](#)}; special elements for building ovens or furnaces [F24B](#), [F27D](#))**

- E04C 1/24
- Elements for building-up floors, ceilings, roofs, arches, or beams ([E04C 1/39](#) ~~to~~ [E04C 1/42](#) take precedence; flooring [E04F 15/00](#))

**Project: N/A (E04D)**

- U E04D 1/00** **Roof covering by making use of tiles, slates, shingles, or other small roofing elements (roofing supports {and underlayers} [E04D 12/00](#))**
- U E04D 1/02
- E04D 1/10
- Grooved or vaulted roofing elements ([E04D 1/28](#), [E04D 1/30](#) take precedence)
  - • of specified materials {not covered by any one of groups [E04D 1/04](#) ~~to~~ [E04D 1/085](#)}, or of combinations of materials, {where at least one is} not covered by any one of groups [E04D 1/04](#) ~~to~~ [E04D 1/085](#)
- U E04D 1/12
- E04D 1/22
- Roofing elements shaped as plain tiles or shingles, i.e. with flat outer surface ([E04D 1/28](#), [E04D 1/30](#) take precedence)
  - • of specified materials {not covered by any one of groups [E04D 1/14](#) ~~to~~ [E04D 1/205](#)}, or of combinations of materials, {where at least one is} not covered by any one of groups [E04D 1/14](#) ~~to~~ [E04D 1/205](#)
- U E04D 3/00** **Roof covering by making use of flat or curved slabs or stiff sheets ([E04D 1/00](#) takes precedence; built-up roofs [E04D 11/02](#))**
- U E04D 3/24
- E04D 3/34
- with special cross-section, e.g. with corrugations on both sides, with ribs, flanges, or the like ([E04D 3/35](#) takes precedence)
  - • of specified materials, or of combinations of materials, not covered by any one of groups [E04D 3/26](#) ~~to~~ [E04D 3/32](#)
- U E04D 3/36
- E04D 3/3601
- Connecting; Fastening
  - • {of roof covering supported by the roof structure with interposition of a insulating layer ([E04D 3/3607](#), [E04D 3/3608](#), [E04D 3/361](#) ~~to~~ [E04D 3/369](#) take precedence)}
- E04D 3/3605
- • {of roof covering supported directly by the roof structure ([E04D 3/3607](#), [E04D 3/3608](#), [E04D 3/361](#) ~~to~~ [E04D 3/369](#) take precedence)}
- E04D 3/3608
- • {for double roof covering or overroofing}
- NOTE**  
In groups [E04D 3/361](#) ~~to~~ [E04D 3/368](#), additional small fastening elements, e.g. nails, screws, are not to be considered to be separate connecting elements.

- E04D 5/00** **Roof covering by making use of flexible material, e.g. supplied in roll form (using stiff sheets [E04D 3/00](#); gravelling of flat roofs [E04D 7/00](#); {granulated roof covering [E04D 7/005](#)}; built-up roofs [E04D 11/02](#))**

**NOTE**

Group [E04D 5/12](#) takes precedence over groups [E04D 5/02](#) ~~to~~ [E04D 5/10](#)

- E04D 11/00** **Roof covering, as far as not restricted to features covered by only one of groups [E04D 1/00](#) ~~to~~ [E04D 9/00](#); Roof covering in ways not provided for by groups [E04D 1/00](#) ~~to~~ [E04D 9/00](#), {e.g. built-up roofs, elevated load-supporting roof coverings}**

**Project: N/A (E04F)**

- U E04F 11/00** **Stairways, ramps, or like structures (mounting or marking-off stairways [E04F 21/26](#); of temporary {use during building} construction [E04G 27/00](#); means for facilitating access to swimming pools [E04H 4/144](#); {means for facilitating access to swimming pools [E04H 4/144](#); appliances for aiding patients or disabled persons to walk [A61H 3/00](#)}); Balustrades; Handrails (ladders permanently attached to fixed structures [E06C 9/00](#))**

- U E04F 11/02 · Stairways; Layouts thereof
- U E04F 11/104 · · Treads
- E04F 11/1041 · · · {having means to adjust the height, the depth and/or the slope of the stair steps ([E04F 11/1042](#) to- [E04F 11/116](#) take precedence)}

**Project: MP0143 (E04G)****M E04G 1/00 Scaffolds primarily resting on the ground****WARNING**

New subgroups E04G 1/17 and E04G 1/38, corresponding to IPC8, are not complete. Documents from main groups E04G 1/00 respectively E04G 1/00 and E04G 3/00 are in the process of being reorganised to these new subgroups

**Project: N/A (E04H)**

- U E04H 6/00 **Buildings for parking cars, rolling stock, aircraft, vessels or like vehicles, e.g. garages (tents for use as garages [E04H 15/00](#); bicycle stands [B62H](#); storing of vessels on land [B63C 15/00](#); construction of ground-supported surfaces [E01C](#); marking of parking areas on the ground [E01F 9/50](#); building construction in general [E04B 1/00](#))**
- U E04H 6/08 · Garages for many vehicles
- U E04H 6/12 · · with mechanical means for shifting or lifting vehicles
- E04H 6/14 · · · with endless **conveyorconveyor** chains having load-carrying parts moving vertically, e.g. paternoster lifts {also similar transport in which cells are continuously mechanically linked together}
- U E04H 6/18 · · · with means for transport in vertical direction only or independently in vertical and horizontal directions ([E04H 6/14](#) takes precedence)
- E04H 6/20 · · · · characterised by the use of **conveyorconveyor** chains or rotatable rollers for horizontal transport
- U E04H 6/30 · · · with means for transport in horizontal direction only
- E04H 6/32 · · · · characterised by use of **conveyorconveyor** chains or rotatable rollers
- E04H 6/40 · · · · characterised by use of turntables or rotary rings {([E04H 6/32](#) to- [E04H 6/38](#) take precedence)}

**Project: N/A (E05)****E05****LOCKS; KEYS; WINDOW OR DOOR FITTINGS; SAFES****NOTE**

In this class, the following terms are used with the meanings indicated :

- "Wing" is a general term for swingable, slidable, or otherwise movable doors or windows. This term also includes other movable structures such as drawers, lids of chests, car boots, or car bonnets, to which the operating, mounting, latching, or locking means covered by this class may be applied;
- "Frame" means any member to which a wing may be held by a fastening device. It does not include a framework forming part of the wing, but it may be another wing;
- "Lock" means primarily a device for releasing or securing any member, which requires a key or a permutation mechanism for release. In groups [E05B 1/00](#) to- [E05B 9/00](#), [E05B 13/00](#) to- [E05B 17/00](#), [E05B 39/00](#) to- [E05B 47/00](#), [E05B 51/00](#), [E05B 53/00](#), [E05B 63/00](#) and [E05B 65/00](#) however, the term "lock" may include other fastening devices;
- "Bolt" means a sliding, pivoted, or otherwise movable member such as is normally carried by a door to hold it shut by engagement with a keeper on

the frame. It may be operated by hand directly or through mechanism or by a key; it may be a latch (see (5) below);

- "Latch" means a bolt arranged to be moved to the releasing position against the force of a spring, or some other returning force, when a wing meets the frame on closing, so that it does not have to be operated by hand to secure the wing, but only to open it;
- "Hasp" means a member hinged to the frame or wing so that it can be moved towards the face of the wing or frame and secured thereto, e.g. by a turn-button, by a padlock and staple.

**Project: N/A (E05B)**

**E05B**

**LOCKS; ACCESSORIES THEREFOR; HANDCUFFS**

NOTES

1. Operating or controlling of locks for vehicle wings are classified in groups [E05B 77/00-E05B 81/00](#).

2. Knobs, handles or press buttons for locks of vehicle wings are classified in [E05B 79/00-E05B 85/00](#).

- U E05B 17/00** Accessories in connection with locks (buffers [E05F 5/00](#); means for preventing rattling of wings [E05F 7/04](#); means for taking the weight of the wing [E05F 7/06](#))
- E05B 17/22
- Means for operating or controlling lock or fastening device accessories, i.e. other than the fastening members, e.g. switches, indicators ({[E05B 39/00](#) to-[E05B 45/00](#) take precedence)}
- U E05B 47/00** Operating or controlling locks or other fastening devices by electric or magnetic means (electric permutation locks [E05B 49/00](#); holding in open position or limiting movement of wings by magnetic or electromagnetic attraction [E05C 17/56](#); {[E05B 17/0029](#), [E05B 17/147](#), [E05B 81/00](#), [E05C 19/16](#) take precedence})
- U E05B 47/0001
- {with electric actuators; Constructional features thereof (for vehicles [E05B 81/04](#))}
- U E05B 2047/0014
- {Constructional features of actuators or power transmissions therefor (for vehicles [E05B 81/24](#))}
- E05B 2047/0037
- . . {Powered actuators with automatic return to the neutral position by non-powered means, e.g. springs:}

**Project: MP0186 (E05B)**

- U E05B 65/00** Locks {or fastenings} for special use {(for dishwashers [A47L 15/4259](#); hatch fastenings [B63B 19/24](#); for container closures [B65D 55/02](#); for elevator doors [B66B 13/16](#); for lids or covers of refuse receptacles [B65F 1/1615](#); for laundry washing machines [D06F 37/42](#), [D06F 39/14](#); for two wings [E05C 7/00](#); safety devices [F16P 3/08](#); for furnaces [F24C 15/022](#); coin freed locks [G07F 17/12](#), [G07F 17/14](#); switches operated by key or combination [H01H 27/00](#))}
- M E05B 65/06
- for swing doors; {*or windows*, i.e. opening inwards *and/or* outwards}

**Project: N/A (E05C)**

- U E05C 9/00** Arrangements of simultaneously actuated bolts or other securing devices at well-separated positions on the same wing ({Locking, cross or security bars [E05C 19/003](#); locks for safes or the like [E05B 65/0075](#); of the vertical-rod type for panic or emergency doors [E05B 65/1006](#)}; similar constructions for engineering closures [F16J 13/08](#))

- E05C 9/10      · Actuating mechanisms for bars ({~~E05C 9/02~~ - ~~E05C 9/06~~ take precedence)}
- U E05C 19/00      Other devices specially designed for securing wings, {e.g. with suction cups}(movable draft sealings additionally used for bolting [E06B 7/18](#))**
- U E05C 19/18      · Portable devices specially adapted for securing wings ({[E05C 17/54](#), [E05C 19/003](#), [E05B 65/0894](#), [E05B 67/00](#) take precedence); preventing operation of handles [E05B 13/00](#))
- E05C 19/188      · · {Removably mounted securing devices, e.g. devices clamped to the wing or the frame (~~E05C 19/182~~ - ~~E05C 19/186~~ take precedence)}

**Project: N/A (E05D)**

- U E05D 15/00      Suspension arrangements for wings (arrangements of wings not characterised by the construction of the supporting means [E06B 3/32](#))**
- U E05D 15/06      · for wings sliding horizontally more or less in their own plane
- E05D 15/0621      · · {Details, e.g. suspension or supporting guides ([E05D 15/0604](#), [E05D 15/08](#) ~~to~~ [E05D 15/14](#) take precedence)}
- U E05D 15/0626      · · · {for wings suspended at the top}
- E05D 15/0652      · · · · {Tracks (~~E05D 15/063~~ - ~~E05D 15/0647~~ and [E05D 15/0656](#) take precedence)}
- U E05D 15/066      · · · {for wings supported at the bottom}
- E05D 15/0686      · · · · {Tracks ([E05D 15/0665](#) ~~to~~ [E05D 15/0682](#) and [E05D 15/0691](#) take precedence)}
- U E05D 15/16      · for wings sliding vertically more or less in their own plane
- E05D 15/165      · · {Details, e.g. sliding or rolling guides ([E05D 15/18](#) ~~to~~ [E05D 15/24](#) take precedence)}
- U E05D 15/40      · supported on arms movable in vertical planes
- E05D 15/401      · · {specially adapted for overhead wings (~~E05D 15/403~~ - ~~E05D 15/46~~ take precedence)}

**Project: N/A (E05F)**

- U E05F 11/00      Man-operated mechanisms for operating wings, including those which also operate the fastening (connecting mechanisms for a plurality of wings [E05F 17/00](#))**
- U E05F 11/38      · for sliding windows, e.g. vehicle windows, to be opened or closed by vertical movement
- E05F 11/382      · · {for vehicle windows (~~E05F 11/40~~ - ~~E05F 11/52~~ take precedence)}

**Project: N/A (E05G)**

- E05G 7/00      Safety transaction partitions, e.g movable pay-plates; {Bank drive-up windows}; (non-safety paying counters, e.g. for supermarkets [A47F 9/02](#); {secure depositories for food [A47G 29/14](#); secure transfers between a building and a vehicle [B60P 3/03](#))**

**Project: N/A (E06B)**

- U E06B 1/00      Border constructions of openings in walls, floors, or ceilings; Frames to be rigidly mounted in such openings ([E06B 5/00](#) takes precedence; features relating also to inner frames or wing frames, features relating solely to the mounting of inner frames [E06B 3/00](#); corner joints or edge joints [E06B 3/96](#))**
- U E06B 1/56      · Fastening frames to the border of openings {or to similar contiguous frames ([E06B 1/003](#) takes precedence)}
- U E06B 1/60      · · by mechanical means, e.g. anchoring means

- E06B 1/6015 . . . {Anchoring means ([E06B 1/6007](#), [E06B 1/6046](#) ~~to~~ [E06B 1/6092](#) take precedence)}
- U E06B 3/00** **Window sashes, door leaves, or like elements for closing {wall or like} openings; Layout of fixed or moving closures, e.g. windows {in wall or like openings}; Features of rigidly-mounted outer frames relating to the mounting of wing frames ([E06B 5/00](#) takes precedence; shutters or the like [E06B 9/00](#); glass panes [C03](#))**
- U E06B 3/32 . Arrangements of wings characterised by the manner of movement; Arrangements of movable wings in openings; Features of wings or frames relating solely to the manner of movement of the wing {(fittings or supporting means, separable from the frame, for guiding or controlling the movement of wings, arrangements of wings characterised by particular forms of such means [E05D](#))}
- U E06B 3/34 . . with only one kind of movement ([E06B 3/48](#) takes precedence)
- U E06B 3/42 . . . Sliding wings; Details of frames with respect to guiding {([E06B 3/26347](#) and [E06B 3/92](#) take precedence)}
- U E06B 3/46 . . . . Horizontally-sliding wings {([E06B 3/487](#) takes precedence)}
- E06B 3/4609 . . . . . {for windows ([E06B 3/4654](#) ~~to~~ [E06B 3/4681](#) take precedence)}
- E06B 3/4636 . . . . . {for doors ([E06B 3/4609](#) and [E06B 3/4654](#) ~~to~~ [E06B 3/4681](#) take precedence; Sliding shower doors [A47K 3/34](#))}

**Project: MP0143 (E06B)**

- U E06B 3/50 . . with more than one kind of movement ([E06B 3/48](#) takes precedence) {([E06B 3/92](#) takes precedence)}
- M E06B 3/509 . . . {where one of the sliding and rotating movements necessarily precedes the other}

**WARNING**

Group E06B 3/509 is not complete pending a reorganisation. See also groups E06B 3/5009 and E06B3/50Z

**Project: N/A (E06B)**

- U E06B 3/54 . Fixing of glass panes or like plates
- E06B 3/64 . . Fixing of more than one pane to a frame
- NOTE**  
Fixing of multiple glazing units to frames is classified in the relevant groups [E06B 3/5409](#) ~~to~~ [E06B 3/62](#), except for the fixing thereof to frames designed for one pane only, which is classified in group [E06B 3/645](#)
- U E06B 3/66 . Units comprising two or more parallel glass or like panes permanently secured together {(reforming and uniting glass sheets by fusing [C03B 23/00](#); joining glass to glass or to other materials [C03C 27/00](#); laminated glass [B32B 17/10](#))}
- U E06B 3/673 . . Assembling the units ([E06B 3/677](#) takes precedence; {making hollow glass sheets or bricks [C03B 23/24](#))}
- E06B 3/67365 . . . {Transporting or handling panes, spacer frames or units during assembly ([E06B 3/67304](#) ~~to~~ [E06B 3/67339](#) take precedence)}
- U E06B 3/70 . Door leaves (wing frames [E06B 3/04](#))
- E06B 3/72 . . consisting of frame and panels, {e.g. of raised panel type ([E06B 3/7001](#) ~~to~~ [E06B 3/7015](#) and [E06B 3/82](#) take precedence)}
- E06B 3/76 . . . with metal panels {([E06B 3/721](#) ~~to~~ [E06B 3/725](#) take precedence)}
- E06B 3/78 . . . with panels of plastics {([E06B 3/721](#) ~~to~~ [E06B 3/725](#) take precedence)}

- U E06B 3/96 · Corner joints or edge joints for windows, doors, or the like frames or wings  
{([E06B 3/663](#) takes precedence)}
- E06B 3/964 · · using separate connection pieces, e.g. T-connection pieces ([E06B 3/9604](#) ~~to-~~  
[E06B 3/9636](#) and [E06B 3/984](#) ~~to-~~ [E06B 3/99](#) take precedence)
- U E06B 7/00 **Special arrangements or measures in connection with doors or windows  
{arrangements against burglary at the edges of the wings [E06B 5/113](#) ;  
screening or similar protective devices [E06B 9/00](#)}**
- U E06B 7/02 · for providing ventilation, e.g. through double windows; Arrangement of  
ventilation roses (airflow control members per se [F24F 13/08](#))
- E06B 7/08 · · Louvre doors, windows or grilles {(shutters [E06B 9/04](#); louvre awnings  
[E04F 10/08](#) ~~to-~~ [E04F 10/10](#))}
- E06B 7/12 · Measures preventing the formation of condensed water (double glazing  
[E06B 3/24](#) ~~to-~~ [E06B 3/28](#) {and [E06B 3/677](#)} ; heating arrangements specially  
adapted for transparent or reflecting areas [H05B 3/84](#))
- E06B 11/00 **Means for allowing passage through fences, barriers or the like, e.g.  
stiles (general features of doors [E06B 1/00](#) ~~to-~~ [E06B 9/00](#); {cattle grids  
[A01K 3/002](#); features peculiar to electrified wire fencing [A01K 3/005](#)})**

## Project: N/A (E21B)

- E21B **EARTH DRILLING, e.g. DEEP DRILLING (mining, quarrying [E21C](#); making  
shafts, driving galleries or tunnels [E21D](#)); OBTAINING OIL, GAS, WATER,  
SOLUBLE OR MELTABLE MATERIALS OR A SLURRY OF MINERALS  
FROM WELLS**
- WARNING
- The following IPC groups are not used in the CPC scheme. Subject matter  
covered by these groups is classified in the following CPC groups:
- [E21B 1/12](#) ~~to-~~ [E21B 1/38](#) covered by [E21B 1/00](#)
- [E21B 7/08](#) covered by [E21B 7/06](#)
- [E21B 11/04](#) covered by [E21B 27/00](#)
- [E21B 23/12](#) covered by [E21B 23/002](#)
- [E21B 31/08](#) covered by [E21B 27/00](#)
- [E21B 43/22](#) covered by [C09K 8/58](#)
- U E21B 17/00 **Drilling rods or pipes; Flexible drill strings; Kellies; Drill collars; Sucker  
rods; {Cables}; Casings; Tubings (rod couplings in general [F16D](#); tubes or  
tube couplings in general [F16L](#))**
- U E21B 17/10 · Wear protectors; Centralising devices, {e.g. stabilisers}(drives used in the  
borehole with anchoring means [E21B 4/18](#); guiding or centralising devices  
outside the borehole [E21B 19/24](#))
- E21B 17/1078 · · {Stabilisers or centralisers for casing, tubing or drill pipes (devices for off-  
center positioning [E21B 17/10](#); [E21B 17/1007](#) ~~to-~~ [E21B 17/1064](#) take  
precedence)}
- U E21B 23/00 **Apparatus for displacing, setting, locking, releasing, or removing tools,  
packers or the like in the boreholes or wells (setting of casings, screens or  
liners [E21B 43/10](#))**
- E21B 23/01 · for anchoring the tools or the like ([E21B 23/02](#) ~~to-~~ [E21B 23/06](#) take  
precedence; anchoring of drives in the borehole [E21B 4/18](#); {packers  
[E21B 33/12](#)})
- E21B 23/02 · for locking the tools or the like in landing nipples or in recesses between  
adjacent sections of tubing ([E21B 23/03](#) ~~to-~~ [E21B 23/06](#) take precedence)
- E21B 41/00 **Equipment or details not covered by groups [E21B 15/00](#) ~~to-~~ [E21B 40/00](#)**

**Project: N/A (E21C)**

- U E21C 25/00** **Cutting machines, i.e. for making slits approximately parallel or perpendicular to the seam (dislodging machines with slitting means [E21C 27/02](#), [E21C 27/10](#), [E21C 27/18](#))**
- E21C 25/20
- Machines slitting solely by one or more reciprocating sawing implements or reciprocating cutter chains; Shaker ~~conveyers~~ *conveyors* with cutting means
- U E21C 25/22**
- Machines slitting solely by one or more cutter chains moving unidirectionally along jibs
- U E21C 25/28**
- · Chains or chain guides
- U E21C 25/34**
- · · Chains
- U E21C 25/36**
- · · · Couplings for links
- E21C 25/365
- · · · · {allowing the bending into at least two planes (~~chains for conveyers which are allowed to bend into at least two planes B65G 17/385~~ *chains for conveyors which are allowed to bend into at least two planes B65G 17/385*)}
- E21C 25/56
- Slitting by cutter cables or cutter chains or by tools drawn along the working face by cables or the like, in each case guided parallel to the face, e.g. by a ~~conveyer~~ *conveyor*, by a guide parallel to a ~~conveyer~~ *conveyor* (~~pressing the conveyer equipped with tools towards the working face E21C 35/14~~ *pressing the conveyor equipped with tools towards the working face E21C 35/14*)
- U E21C 29/00** **Propulsion of machines for slitting or completely freeing the mineral from the seam**
- U E21C 29/04**
- by cable or chains
- U E21C 29/06**
- · anchored at one or both ends to the mine working face {(propulsion using fixed racks along which the machine is running [E21C 29/02](#))}
- E21C 29/08
- · · Anchoring arrangements (~~for anchoring of conveyers only E21F 13/00~~ *for anchoring of conveyors only E21F 13/00*)
- U E21C 35/00** **Miscellaneous items relating to machines for slitting or completely freeing the mineral from the seam**
- U E21C 35/08**
- Guiding the machine
- E21C 35/12
- · along a ~~conveyer~~ *conveyor* for the cut mineral
- E21C 35/125
- · · {Means for inclining the ~~conveyer~~ *conveyor*}
- E21C 35/14
- · · Equipment for pressing the ~~conveyer~~ *conveyor* towards the working face
- E21C 41/00** **Methods of underground or surface mining ([E21C 45/00](#) takes precedence); Lay-outs therefor (for peat [E21C 49/00](#))**
- WARNING
- Groups ~~E21C 41/28 to~~ [E21C 41/14](#) are no longer used for classification. Documents are reclassified to groups [E21C 41/16](#), [E21C 41/26](#) and [E21C 41/32](#)
- E21C 41/16
- Methods of underground mining (winning machines therefor ~~E21C 25/00 to~~ [E21C 39/00](#)); Layouts therefor
- WARNING
- Group [E21C 41/16](#) is incomplete. See Warning after [E21C 41/00](#)
- U E21C 47/00** **Machines for obtaining or the removal of materials in open-pit mines (obtaining peat [E21C 49/00](#))**
- U E21C 47/02**
- for coal, brown coal, or the like (dredgers or soil-shifting machines in general [E02F](#))
- E21C 47/04
- · ~~Conveyer~~ *Conveyor* bridges used in co-operation with the winning apparatus

- E21C 47/06
- • Cableway **conveyersconveyors** used in co-operation with the winning apparatus (underground hauling [E21F 13/00](#))

**Project: N/A (E21D)**

- E21D 7/00 **Shaft equipment, e.g. timbering within the shaft** {(lifts in hoistways or mines [B66B 15/00](#) ~~to~~ [B66B 19/00](#))}
- E21D 8/00 **Shafts not provided for in groups** [E21D 1/00](#) ~~to~~ [E21D 7/00](#)
- U E21D 9/00 **Tunnels or galleries, with or without linings; Methods or apparatus for making thereof** ([E02D 29/045](#), [E02D 29/063](#) take precedence; linings per se [E21D 11/00](#)); **Layout of tunnels or galleries**
- U E21D 9/12
- Devices for removing or hauling away excavated material or spoil; Working or loading platforms (underground transport [E21F 13/00](#))
- U E21D 9/126
- • {Loading devices or installations (loading platforms [E21D 9/122](#); soil-shifting machines [E02F 3/00](#))}
- E21D 9/128
- • • {Loader-**conveyersconveyors** with gathering arms}
- E21D 11/00 **Lining tunnels, galleries or other underground cavities, e.g. large underground chambers; Linings therefor; Making such linings in situ, e.g. by assembling** ([E21D 15/00](#) ~~to~~ [E21D 23/00](#) take precedence; specially for shafts [E21D 5/00](#); {driving shields in combination with means for lining the tunnel [E21D 9/06](#)}; lining pressure water galleries, linings therefor [E02B 9/06](#))
- E21D 23/00 **Mine roof supports for step- by- step movement, e.g. in combination with provisions for shifting of **conveyersconveyors**, mining machines, or guides therefor** ({transport of mine roof support units [E21F 13/008](#); } shifting of mine **conveyersconveyors** at the working face [E21F 13/08](#))
- U E21D 23/04
- Structural features of the supporting construction, e.g. linking members between adjacent frames or sets of props; Means for counteracting lateral sliding on inclined floor ([E21D 23/14](#) takes precedence)
- E21D 23/0445
- • {Extensions of the base member supporting the **conveyerconveyor**}
- U E21D 23/08
- Advancing mechanisms ([E21D 23/16](#) takes precedence)
- U E21D 23/081
- • {forming parts of the roof supports}
- E21D 23/085
- • • {acting on a **conveyerconveyor** or a guide for the mining machine}
- U E21D 23/12
- Control, e.g. using remote control ([E21D 23/16](#) takes precedence)
- E21D 23/14
- • Effecting automatic sequential movement of supports, e.g. one behind the other {(advancing of mining machines toward the working face [E21C 29/02](#); **advancing of conveyers toward the working face** [E21D 23/085](#); **advancing of conveyors toward the working face** [E21D 23/085](#))}

**Project: N/A (E21F)**

- U E21F 1/00 **Ventilation of mines or tunnels; Distribution of ventilating currents (ventilating rooms or spaces in general** [F24F](#))
- E21F 1/003
- {Ventilation of traffic tunnels (during construction [E21F 1/04](#) ~~to~~ [E21F 3/00](#))}
- E21F 1/18
- Gravity flow ventilation ([E21F 1/02](#) ~~to~~ [E21F 1/16](#) take precedence)
- U E21F 13/00 **Transport specially adapted to underground conditions (mine cars** [B61D](#); **transport in general, loading {unless specially adapted to underground conditions}** [B65G](#))
- U E21F 13/06
- {Transport of mined material} at or adjacent to the working face
- E21F 13/061
- • {Chutes and braking **conveyersconveyors** for average and steep slopes, adapted for mining purposes (chutes in general [B65G 11/00](#))}

- E21F 13/066
  - E21F 13/08
  - E21F 13/083
  - E21F 13/086
  - E21F 13/10
  - U E21F 17/00**
  - E21F 17/02
- {Scraper chain **conveyersconveyors** (in general [B65G 19/00](#))}
  - Shifting **conveyersconveyors** or other transport devices from one location at the working face to another (guiding mining machines along **conveyersconveyors** for the cut mineral [E21C 35/12](#); in combination with mine roof supports for step-by-step movement [E21D 23/00](#))
  - {**ConveyorConveyor** belts removing methods or devices}
  - {Armoured **conveyersconveyors** shifting devices}
  - Anchorings for **conveyersconveyors**
- Methods or devices for use in mines or tunnels, not covered elsewhere (mine lighting [F21](#), [H05B](#))**
- Suspension devices for tubes or the like, e.g. for ventilating ducts (supporting pipes, cables or protective tubing in general [F16L 3/00](#) to [F16L 7/00](#))

**Project: MP0254 (F)**

F

**MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING ENGINES OR PUMPS**NOTE

Guide to the use of this subsection (classes [F01](#) to [F04](#))

The following notes are meant to assist in the use of this part of the classification scheme.

1. In this subsection, subclasses or groups designating "engines" or "pumps" cover methods of operating the same, unless otherwise specifically provided for.
2. In this subsection, the following terms or expressions are used with the meanings indicated:
  - "engine" means a device for continuously converting fluid energy into mechanical power. Thus this term includes, for example, steam piston engines or steam turbines, PER SE, or internal-combustion piston engines, but it excludes single- stroke devices. "Engine" also includes the fluid-motive portion of a meter unless such portion is particularly adapted for use in a meter;
  - "pump" means a device for continuously raising, forcing, compressing, or exhausting fluid by mechanical or other means; thus this term includes fans or blowers;
  - "machine" means a device which could equally be an engine and a pump, and not a device which is restricted to an engine or one which is restricted to a pump;
  - "positive displacement" means the way the energy of a working fluid is transformed into mechanical energy, in which variations of volume created by the working fluid in a working chamber produce equivalent displacements of the mechanical member transmitting the energy, the dynamic effect of the fluid being of minor importance; and VICE-VERSA;
  - "non-positive displacement" means the way the energy of a working fluid is transformed into mechanical energy, by transformation of the energy of the working fluid into kinetic energy; and VICE-VERSA;
  - "oscillating-piston machine" means a positive-displacement machine in which a fluid-engaging work-transmitting member oscillates. This definition applies also to engines and pumps;
  - "rotary-piston machine" means a positive-displacement machine in which a fluid-engaging work-transmitting member rotates about a fixed axis or about an axis moving along a circular or similar orbit. This definition applies also to engines and pumps;
  - "rotary piston" means the work-transmitting member of a rotary-piston machine and may be of any suitable form, e.g. like a toothed gear;

- "co-operating members" means the "oscillating piston" or "rotary piston" and another member, e.g. the working-chamber wall, which assists in the driving or pumping action;
  - "movement of the co-operating members" is to be interpreted as relative, so that one of the "co-operating members" may be stationary, even though reference may be made to its rotational axis, or both may move;
  - "teeth or tooth-equivalents", include lobes, projections or abutments;
  - "internal-axis type" means that the rotational axes of the inner and outer co-operating members remain at all times within the outer member, e.g. in a similar manner to that of a pinion meshing with the internal teeth of a ring gear;
  - "free-piston" means a piston of which the length of stroke is not defined by any member driven thereby;
  - "cylinders" means positive-displacement working chambers in general and thus this term is not restricted to cylinders of circular cross-section;
  - "main shaft" means the shaft which converts reciprocating piston motion into rotary motion or VICE-VERSA;
  - "plant" means an engine together with such additional apparatus as is necessary to run the engine. For example, a steam engine plant includes a steam engine and means for generating the steam;
  - "working fluid" means the driven fluid in a pump and the driving fluid in an engine. The working fluid may be in a gaseous state, i.e. compressible, or liquid. In the former case coexistence of two states is possible;
  - "steam" includes condensable vapours in general, and "special vapour" is used when steam is excluded;
  - "reaction type" as applied to non-positive-displacement machines or engines means machines or engines in which pressure/velocity transformation takes place wholly or partly in the rotor; machines or engines with no, or only slight, pressure/velocity transformation in the rotor are called "impulse type".
3. In this subsection:
- cyclically operating valves, lubricating, gas-flow silencers or exhaust apparatus, or cooling should be classified in subclasses [F01L](#), [F01M](#), [F01N](#), [F01P](#) irrespective of their stated application, unless their classifying features are peculiar to their application, in which case they should be classified only in the relevant subclass of classes [F01](#) to [F04](#);
  - lubricating, gas-flow silencers or exhaust apparatus, or cooling of machines or engines should be classified in subclasses [F01M](#), [F01N](#), [F01P](#) except for those peculiar to steam engines which should be classified in subclass [F01B](#).
4. For use of this subsection with a good understanding, it is essential to remember, so far as subclasses [F01B](#), [F01C](#), [F01D](#), [F03B](#), [F04B](#), [F04C](#) and [F04D](#), which form its skeleton, are concerned:
- the principle which resides in their elaboration
  - the classifying characteristics which they call for, and
  - their complementarity
    - i. Principle

*This concerns essentially the subclasses listed above. Other subclasses, notably those of class [F02](#), which cover better-defined matter, are not considered here.*

~~This concerns essentially the subclasses listed above. Other subclasses, notably those of class [F02](#), which cover better-defined matter, are not considered here.~~ Each subclass covers fundamentally a genus of apparatus (engine or pump) and by extension covers equally

"machines" of the same kind. Two different subjects, one having a more general character than the other, are thus covered by in the same subclass ~~Subclasses F01B, F03B, F04B, beyond the two subjects which they cover, have further a character of generality in relation to other subclasses concerning the different species of apparatus in the genus concerned. This generality applies as well for the two subjects dealt with, without these always being in relation to the same subclasses. Thus, subclass F03B, in its part dealing with "machines" should be considered as being the general class relating to subclasses F04B, F04C and in its part dealing with "engines" as being general in relation to subclass F03C.~~

*Subclasses F01B, F03B, F04B, beyond the two subjects which they cover, have further a character of generality in relation to other subclasses concerning the different species of apparatus in the genus concerned.*

*This generality applies as well for the two subjects dealt with, without these always being in relation to the same subclasses.*

*Thus, subclass F03B, in its part dealing with "machines" should be considered as being the general class relating to subclasses F04B, F04C and in its part dealing with "engines" as being general in relation to subclass F03C.*

ii. Characteristics

The principal classifying characteristic of the subclass is that of genera of apparatus, of which there are three possible:

Machines; engines; pumps.

As stated above, "machines" are always associated with one of the other two genera. These main genera are subdivided according to the general principles of operation of the apparatus:

Positive displacement; non-positive displacement.

The positive displacement apparatus are further subdivided according to the ways of putting into effect the principle of operation, that is, to the kind of apparatus:

Simple reciprocating piston; rotary or oscillating piston; other kind.

Another classifying characteristic is that of the working fluid, in respect of which three kinds of apparatus are possible, namely:

Liquid and elastic fluid; elastic fluid; liquid.

iii. Complementarity

This resides in association of pairs of the subclasses listed above, according to the characteristics under consideration in respect of kind of apparatus or working fluid.

The subclasses concerned with the various principles, characteristics and complementarity are shown in the following table:

Kind positive non- Working fluid  
Relations \_\_\_\_\_ posi- \_\_\_\_\_ of  
of \_\_\_\_\_ of  
gene- rotary tive rality  
dis- in  
in reciprocating or oscillating liquid  
place- respect  
ment pro- cillat- and of  
kind  
cating ing elastic elastic of  
dis- piston piston other fluid fluid liquid  
placement

MACHINES

X		X		X	X	<a href="#">F01B</a>
X			X	X		<a href="#">F01C</a>
X	X	X		<a href="#">F01D</a>		
X			X	<a href="#">F03B</a>		
X		X			X	<a href="#">F04B</a>
X					X	<a href="#">F04C</a>

ENGINES

X		X		X	X	<a href="#">F01B</a>
X			X	X		<a href="#">F01C</a>
X	X	X		<a href="#">F01D</a>		
X			X	<a href="#">F03B</a>		
X	X	X			X	<a href="#">F03C</a>

PUMPS

X		X		X	X	X	<a href="#">F04B</a>
X			X	X	X		<a href="#">F04C</a>
X	X	X	X	<a href="#">F04D</a>			

It is seen from the table that :  
 - For the same kind of apparatus in a given genus, the characteristic of "working fluid" associates:  
[F01B](#) and [F04B](#) )  
[F01C](#) and [F04C](#) ) Machines  
[F01D](#) and [F03B](#) )  
[F01B](#) and [F03C](#) )  
[F01C](#) and [F03C](#) ) Engines  
[F01D](#) and [F03B](#) )  
 - For the same kind of working fluid, the "apparatus" characteristic relates subclasses in the same way as considerations of relative generality.

Project: N/A (F01B)

F01B

**MACHINES OR ENGINES, IN GENERAL OR OF POSITIVE-DISPLACEMENT TYPE, e.g. STEAM ENGINES (of rotary-piston or oscillating-piston type [F01C](#); of non-positive-displacement type [F01D](#); internal-combustion aspects of reciprocating-piston engines [F02B 57/00](#), [F02B 59/00](#); crankshafts, crossheads, connecting-rods [F16C](#); flywheels [F16F](#); gearings for interconverting rotary motion and reciprocating motion in general [F16H](#); pistons, piston rods, cylinders, for engines in general [F16J](#))**

NOTES

1. This subclass covers, with the exception of the matter provided for in subclasses [F01C](#) to [F01P](#) :

- engines for elastic fluids, e.g. steam engines;
- engines for liquids and elastic fluids;
- machines for elastic fluids;
- machines for liquids and elastic fluids.

2. Attention is drawn to the note preceding class [F01](#), especially as regards the definitions of "steam" and "special vapour".

**U F01B 17/00 Reciprocating-piston machines or engines characterised by use of uniflow principle**

- U F01B 17/02 · Engines
- F01B 17/04 · · Steam engines

NOTE

in this group the following indexing codes are used:

[F01B 2170/0411](#) ~~to~~ [F01B 2170/0494](#)

**F01B 25/00 Regulating, controlling, or safety means (regulating or controlling in general [G05](#))**

NOTE

in this group the following indexing codes are used:

[F01B 2250/001](#) ~~to~~ [F01B 2250/009](#)

**Project: N/A (F01C)**

**F01C 1/00**

**Rotary-piston machines or engines (with axes of co-operating members non parallel [F01C 3/00](#); with the working-chamber walls at least partly resiliently deformable [F01C 5/00](#); with fluid ring or the like [F01C 7/00](#); rotary-piston machines or engines in which the working fluid is exclusively displaced by, or exclusively displaces, one or more reciprocating pistons [F01B 13/00](#))**

NOTE

Group [F01C 1/30](#) takes precedence over groups [F01C 1/02](#) ~~to~~ [F01C 1/28](#).

**F01C 21/00**

**Component parts, details or accessories not provided for in groups [F01C 1/00](#) ~~to~~ [F01C 20/00](#)**

**Project: N/A (F01D)**

**U F01D 5/00**

**Blades; Blade-carrying members (nozzle boxes [F01D 9/02](#)); Heating, heat-insulating, cooling or anti-vibration means on the blades or the members {{special arrangements in rotors dealing with breaking off of part thereof [F01D 21/045](#)}}**

U F01D 5/12

- Blades (specially adapted for radial flow machines or engines [F01D 5/04](#)); blade roots [F01D 5/30](#); rotors with blades adjustable in operation [F01D 7/00](#); stator blades [F01D 9/02](#))

U F01D 5/14

- · Form or construction (selecting particular materials, measures against erosion or corrosion [F01D 5/28](#))

F01D 5/141

- · · {Shape, i.e. outer, aerodynamic form ([F01D 5/148](#) ~~to~~ [F01D 5/20](#) take precedence; blade construction [F01D 5/147](#))}

**Project: N/A (F01L)**

F01L	<b>CYCLICALLY OPERATING VALVES FOR MACHINES OR ENGINES (valves in general <a href="#">F16K</a>)</b>
	<b>NOTES</b>
	1. Groups <a href="#">F01L 1/00</a> <del>to</del> <a href="#">F01L 13/00</a> cover only valve-gear or valve arrangements without provision for variable fluid distribution.
	2. Valve gear or valve arrangements specially adapted for steam engines are covered by groups <a href="#">F01L 15/00</a> <del>to</del> <a href="#">F01L 35/00</a> .
	3. Valve-gear arrangements specially adapted for machines or engines with variable working-fluid distribution are covered by groups <a href="#">F01L 15/00</a> <del>to</del> <a href="#">F01L 35/00</a> .
	4. Attention is drawn to the notes preceding class <a href="#">F01</a> , especially Note (3).
	5. As regards the above-mentioned Note (3), attention is drawn to <a href="#">F01B 3/10</a> , <a href="#">F01B 15/06</a> , <a href="#">F01C 21/18</a> , <a href="#">F02B 53/06</a> , <a href="#">F03C 1/08</a> , <a href="#">F04B 1/18</a> , <a href="#">F04B 7/00</a> , <a href="#">F04B 39/08</a> , <a href="#">F04B 39/10</a> , and <a href="#">F04C 15/06</a> , <a href="#">F04C 29/12</a> .
F01L 1/00 - F01L 13/00	<b><u>Valve-gear for internal combustion piston engines or for other machines or engines with positive working-fluid displacement (valve gear specially for steam engines or specially for other machines or engines with variable fluid distribution <a href="#">F01L 15/00</a> <del>to</del> <a href="#">F01L 35/00</a>)</u></b>
F01L 15/00	Valve-gear or valve arrangements, e.g. with reciprocatory slide valves, other than provided for in groups <a href="#">F01L 17/00</a> <del>to</del> <a href="#">F01L 29/00</a> (valve drive or external valve-adjustment during operation, see the relevant groups, e.g. <a href="#">F01L 31/00</a> ; tripping-gear or tripping of valves <a href="#">F01L 31/00</a> )
F01L 27/00	Distribution or expansion valve-gear peculiar to free-piston machines or engines and not provided for in <a href="#">F01L 21/00</a> <del>to</del> <a href="#">F01L 25/00</a>
F01L 31/00	Valve drive, valve adjustment during operation, or other valve control, not provided for in groups <a href="#">F01L 15/00</a> <del>to</del> <a href="#">F01L 29/00</a> (sensing elements measuring the variable or condition to be controlled or regulated <a href="#">F01B</a> )
F01L 33/00 - F01L 35/00	<b><u>Rotary or oscillatory slide valve-gear or lift-valve-gear or such valve arrangements specially for steam engines or specially for other machines or engines with variable working-fluid distribution (drive adjustment during operation, tripping-gear, reversing-gear, use of working pistons or piston-rods as valves or as valves-supporting elements, valve-gear or valve arrangements peculiar to free-piston machines or engines <a href="#">F01L 15/00</a> <del>to</del> <a href="#">F01L 31/00</a>)</u></b>
F01L 33/00	Rotary or oscillatory slide valve-gear or valve arrangements, specially adapted for machines or engines with variable fluid distribution (drive, adjustment during operation, tripping-gear, reversing-gear, use of working pistons or piston-rods as valves or as valve-supporting elements, valve-gear or valve arrangements peculiar to free-piston machines or engines <a href="#">F01L 15/00</a> <del>to</del> <a href="#">F01L 31/00</a> )
F01L 35/00	Lift valve-gear or valve arrangements specially adapted for machines or engines with variable fluid distribution (drive, adjustment during operation, tripping-gear, reversing-gear, use of working pistons or piston-rods as valves or as valve-supporting elements, valve-gear or valve arrangements peculiar to free-piston machines or engines <a href="#">F01L 15/00</a> <del>to</del> <a href="#">F01L 31/00</a> )

**Project: N/A (F01M)**

U F01M 1/00	<b>Pressure lubrication</b>
F01M 1/12	- Closed-circuit lubricating systems not provided for in groups <a href="#">F01M 1/02</a> <del>to</del> <a href="#">F01M 1/10</a>

**F01M 9/00** Lubrication means having pertinent characteristics not provided for in, or of interest apart from, groups [F01M 1/00](#) ~~to~~ [F01M 7/00](#)

**F01M 11/00** Component parts, details or accessories, not provided for in, or of interest apart from, groups [F01M 1/00](#) ~~to~~ [F01M 9/00](#)

### Project: N/A (F01N)

- U F01N 3/00** Exhaust or silencing apparatus having means for purifying, rendering innocuous, or otherwise treating exhaust (electric control [F01N 9/00](#); monitoring or diagnostic devices for exhaust-gas treatment apparatus [F01N 11/00](#); {collecting or removing exhaust gases of vehicle engines in workshops [B08B 15/00](#), on highways [E01C 1/005](#)})
- U F01N 3/08** · for rendering innocuous (using electric or electrostatic separators [F01N 3/01](#); chemical aspects [B01D 53/92](#))
- U F01N 3/10** · · by thermal or catalytic conversion of noxious components of exhaust (by using other chemical processes, chemical aspects of catalytic conversion, e.g. using specified catalysts, [B01D 53/34](#))
- U F01N 3/24** · · · characterised by constructional aspects of converting apparatus (filtering in combination with catalytic reactors [F01N 3/035](#))
- U F01N 3/28** · · · · Construction of catalytic reactors
- U F01N 3/2839** · · · · · {Arrangements for mounting catalyst support in housing, e.g. with means for compensating thermal expansion or vibration}
- F01N 3/2842** · · · · · {specially adapted for monolithic supports, e.g. of honeycomb type ([F01N 3/2853](#) ~~to~~ [F01N 3/2871](#) take precedence)}
- F01N 3/2875** · · · · · {by using elastic means, e.g. spring leaves, for retaining catalyst body in the housing ([F01N 3/2853](#) ~~to~~ [F01N 3/2871](#) take precedence)}
- F01N 13/00** Exhaust or silencing apparatus characterised by constructional features; {Exhaust or silencing apparatus, or parts thereof, having pertinent characteristics not provided for in, or of interest apart from, groups [F01N 1/00](#) ~~to~~ [F01N 5/00](#), [F01N 9/00](#), [F01N 11/00](#)}

### Project: N/A (F01P)

**F01P 9/00** Cooling having pertinent characteristics not provided for in, or of interest apart from, groups [F01P 1/00](#) ~~to~~ [F01P 7/00](#) (profiting from waste heat of combustion-engine cooling [F02G 5/00](#))

**F01P 11/00** Component parts, details, or accessories not provided for in, or of interest apart from, groups [F01P 1/00](#) ~~to~~ [F01P 9/00](#)

### Project: N/A (F02B)

**F02B 1/00** Engines characterised by fuel-air mixture compression (characterised by both fuel-air mixture compression and air compression, or characterised by both positive ignition and compression ignition [F02B 11/00](#); characterised by precombustion chambers [F02B 19/00](#); characterised by air-storage chambers [F02B 21/00](#); characterised by special shape or construction of combustion chambers [F02B 23/00](#))

#### NOTE

in this group the following indexing codes are used:

[F02B 2700/02](#) ~~to~~ [F02B 2720/30](#)

**F02B 3/00** Engines characterised by air compression and subsequent fuel addition (characterised by both fuel-air mixture compression and air compression, or characterised by both positive ignition and compression ignition [F02B 11/00](#); characterised by precombustion chambers [F02B 19/00](#); characterised by air-storage chambers [F02B 21/00](#); characterised by special shape or construction of combustion chambers [F02B 23/00](#))

NOTE

in this group the following indexing codes are used:

[F02B 2700/02](#) to- [F02B 2720/30](#)

**F02B 9/00** Engines characterised by other types of ignition (characterised by both fuel-air mixture compression and air compression, or characterised by both positive ignition and compression ignition [F02B 11/00](#); characterised by precombustion chambers [F02B 19/00](#); characterised by air-storage chambers [F02B 21/00](#); characterised by special shape or construction of combustion chambers [F02B 23/00](#))

NOTE

- in this group the following indexing codes are used:

[F02B 2700/02](#) to- [F02B 2720/30](#)

**U F02B 19/00** Engines characterised by precombustion chambers (engines with incandescent chambers [F02B 9/08](#))

F02B 19/10 · with fuel introduced partly into pre-combustion chamber, and partly into cylinder ([F02B 19/02](#) to- [F02B 19/08](#) take precedence)

F02B 19/12 · with positive ignition ([F02B 19/02](#) to- [F02B 19/10](#) take precedence)

F02B 19/14 · with compression ignition ([F02B 19/02](#) to- [F02B 19/10](#) take precedence)

F02B 19/16 · Chamber shapes or constructions not specific to sub-groups [F02B 19/02](#) to- [F02B 19/10](#)

**F02B 23/00** Other engines characterised by special shape or construction of combustion chambers to improve operation (engines with incandescent chambers [F02B 9/08](#))

NOTE

- in this group the following indexing codes are used:

[F02B 2700/02](#) to- [F02B 2720/30](#)

**F02B 25/00 - F02B 31/00** Engines characterised by provisions for charging or scavenging (aspects concerned with driven charging or scavenging pumps [F02B 33/00](#) to- [F02B 39/00](#))

**F02B 25/00** Engines characterised by using fresh charge for scavenging cylinders (aspects characterised by provision of driven charging or scavenging pumps [F02B 33/00](#) to- [F02B 39/00](#))

NOTE

- in this group the following indexing codes are used:

[F02B 2700/02](#) to- [F02B 2700/038](#)

F02B 25/20 · Means for reducing the mixing of charge and combustion residues or for preventing escape of fresh charge through outlet ports not provided for in, or of interest apart from, subgroups [F02B 25/02](#) to- [F02B 25/18](#)

F02B 25/26 · Multi-cylinder engines other than those provided for in, or of interest apart from, groups [F02B 25/02](#) to- [F02B 25/24](#) (internal-combustion aspects of rotary engines with movable cylinders [F02B 57/00](#))

- F02B 27/00** Use of kinetic or wave energy of charge in induction systems, or of combustion residues in exhaust systems, for improving quantity of charge or for increasing removal of combustion residues (aspects characterised by provision of driven charging or scavenging pumps [F02B 33/00](#) ~~to-~~ [F02B 39/00](#), e.g. use of driven apparatus for immediate conversion of combustion gas pressure into pressure of fresh charge [F02B 33/42](#))
- F02B 29/00** Engines characterised by provision for charging or scavenging not provided for in groups [F02B 25/00](#), [F02B 27/00](#) or [F02B 33/00](#) ~~to-~~ [F02B 39/00](#); Details thereof
- U F02B 33/00** Engines characterised by provision of pumps for charging or scavenging (characterised by the introduction of liquid fuel into cylinders by use of auxiliary fluid [F02B 13/00](#); characterised by after-charging [F02B 29/06](#); characterised by provision of pumps for sucking combustion residues from cylinders [F02B 35/00](#); characterised by provision of exhaust-driven pumps [F02B 37/00](#))
- NOTE  
- in this group the following indexing code is used:  
[F02M 2700/33](#)
- U F02B 33/02** · Engines with reciprocating-piston pumps; Engines with crankcase pumps
- F02B 33/28** · · Component parts, details or accessories of crankcase pumps, not provided for in, or of interest apart from, subgroups [F02B 33/02](#) ~~to-~~ [F02B 33/26](#)
- F02B 39/00** **Component parts, details, or accessories relating to, driven charging or scavenging pumps, not provided for in groups [F02B 33/00](#) ~~to-~~ [F02B 37/00](#)**
- F02B 43/00** Engines characterised by operating on gaseous fuels; Plants including such engines (engines characterised by the gas-air charge being ignited by compression ignition of an additional fuel [F02B 7/06](#); engines convertible from gas to other fuel consumption [F02B 69/04](#))
- NOTE  
- in this group the following indexing codes are used:  
[F02B 2700/02](#) ~~to-~~ [F02B 2720/30](#)
- F02B 53/00** **Internal-combustion aspects of rotary-piston or oscillating-piston engines (internal-combustion aspects of rotary pistons or outer members for co-operation therewith [F02B 55/00](#))**
- NOTE  
- in this group the following indexing codes are used:  
[F02B 2730/01](#) ~~to-~~ [F02B 2730/09](#)

**Project: N/A (F02C)**

- F02C 7/00** Features, components parts, details or accessories, not provided for in, or of interest apart from groups [F02C 1/00](#) ~~to-~~ [F02C 6/00](#); Air intakes for jet-propulsion plants (controlling [F02C 9/00](#))
- F02C 7/36** · Power transmission arrangements between the different shafts of the gas turbine plant, or between the gas-turbine plant and the power user ({[F02C 3/107](#) ~~to-~~ [F02C 3/13](#) and} [F02C 7/32](#) take precedence; couplings for transmitting rotation [F16D](#); gearing in general [F16H](#))
- U F02C 9/00** Controlling gas-turbine plants; Controlling fuel supply in air-breathing jet-propulsion plants (controlling air intakes [F02C 7/057](#); controlling turbines [F01D](#); controlling compressors [F04D 27/00](#); controlling in general [G05](#))

- U F02C 9/26                   · Control of fuel supply ([F02C 9/48](#) takes precedence; fuel valves [F02C 7/232](#))
- F02C 9/28                   · · Regulating systems responsive to plant or ambient parameters, e.g. temperature, pressure, rotor speed ([F02C 9/30](#) ~~to~~ [F02C 9/38](#), [F02C 9/44](#) take precedence)

**Project: N/A (F02D)**

**F02D 41/00 -  
F02D 45/00**

**Electrical control of combustion engines****NOTES**

1. Groups [F02D 41/00](#) ~~to~~ [F02D 45/00](#) cover electrical aspects of electrically controlled devices.
2. Groups [F02D 41/00](#) ~~to~~ [F02D 45/00](#) do not cover
  - non-electrical aspects of electrically controlled devices, which are covered by groups [F02D 1/00](#) ~~to~~ [F02D 39/00](#) or by subclass [F02M](#);
  - both electrical and non-electrical aspects of electrically controlled devices, which are covered by groups [F02D 1/00](#) ~~to~~ [F02D 39/00](#) or by subclass [F02M](#)

- U F02D 41/24                   · characterised by the use of digital means
- U F02D 41/26                   · · using computer, e.g. microprocessor
- U F02D 41/28                   · · · Interface circuits
- U F02D 2041/281               · · · · {between sensors and control unit}
- F02D 2041/285               · · · · · {the sensor having a signal processing unit external to the engine control unit.}

**F02D 45/00**

**Electrical control not provided for in groups [F02D 41/00](#) ~~to~~ [F02D 43/00](#) (electrical control of exhaust gas treating apparatus [F01N 9/00](#); electrical control of one of the functions; ignition, lubricating, cooling, starting, intake-heating, see relevant subclasses for such functions)**

**Project: N/A (F02K)**

- U F02K 1/00                   **Plants characterised by the form or arrangement of the jet pipe or nozzle; Jet pipes or nozzles peculiar thereto (rocket nozzles [F02K 9/97](#))**
- U F02K 1/06                   · Varying effective area of jet pipe or nozzle ([F02K 1/30](#) takes precedence)
- U F02K 1/12                   · · by means of pivoted flaps
- F02K 1/1207                 · · · {of one series of flaps hinged at their upstream ends on a fixed structure ([F02K 1/1215](#) ~~to~~ [F02K 1/1276](#) take precedence)}

**Project: N/A (F02M)**

- U F02M 3/00                   **Idling devices (with means for facilitating idling below operational temperatures [F02M 1/00](#))**
- U F02M 3/08                   · Other details of idling devices (fighting ice-formation by heating idling ports [F02M 15/02](#))
- F02M 3/09                   · · Valves responsive to engine conditions, e.g. manifold vacuum ([F02M 1/00](#), [F02M 5/00](#) ~~to~~ [F02M 33/00](#) take precedence)
- U F02M 9/00                   **Carburettors having air or fuel-air mixture passage throttling valves other than of butterfly type (register-type carburettors [F02M 11/00](#)); Carburettors having fuel-air mixing chambers of variable shape or position**
- U F02M 9/12                   · having other specific means for controlling the passage, or for varying cross-sectional area, of fuel-air mixing chambers
- F02M 9/125                 · · {specially shaped throttle valves not otherwise covered in groups [F02M 9/121](#) ~~to~~ [F02M 9/124](#)}

- F02M 19/00** Details, component parts, or accessories of carburettors, not provided for in, or of interest apart from, the apparatus of groups [F02M 1/00](#) to-  
[F02M 17/00](#) (measuring or testing apparatus in general [G01](#))
- F02M 21/00** Apparatus for supplying engines with non-liquid fuels, e.g. gaseous fuels stored in liquid form
- NOTE  
- in this group the following indexing codes are used: [F02M 2700/12](#) to-  
[F02M 2700/13](#)

**Project: MP0144 (F02M)**

- U F02M 25/00** Engine-pertinent apparatus for adding non-fuel substances or small quantities of secondary fuel to combustion-air, main fuel, or fuel-air mixture ([F02M 43/00](#) takes precedence; adding secondary air to fuel-air mixture [F02M 23/00](#); adding exhaust gases [F02M 26/00](#))
- U F02M 25/08** · adding fuel vapours drawn from engine fuel reservoir {(electrical control of purge system [F02D 41/003](#))}
- U F02M 25/0809** · · {Judging failure of purge control system}
- M F02M 25/0827** · · · {by monitoring engine running conditions}

**WARNING**

~~Not complete, see also F02M 25/0809. The backlog is being continuously reclassified~~

**Project: N/A (F02M)**

- F02M 25/14** · adding anti-knock agents, not provided for in subgroups [F02M 25/022](#) to-  
[F02M 25/10](#)
- F02M 59/00** Pumps specially adapted for fuel-injection and not provided for in groups [F02M 39/00](#) to- [F02M 57/00](#), {e.g. rotary cylinder-block type pumps}(general features of pumps [F04](#))
- NOTE  
- in this group the following indexing codes are used: [F02M 2700/1323](#),  
[F02M 2700/1341](#), [F02M 2700/1352](#), [F02M 2700/1388](#)
- F02M 59/44** · Details, components parts, or accessories not provided for in, or of interest apart from, the apparatus of groups [F02M 59/02](#) to- [F02M 59/42](#); {Pumps having transducers, e.g. to measure displacement of pump rack or piston}
- F02M 61/00** Fuel-injectors not provided for in groups [F02M 39/00](#) to- [F02M 57/00](#) or [F02M 67/00](#)
- NOTE  
- in this group the following indexing codes are used: [F02M 2700/07](#),  
[F02M 2700/074](#)
- F02M 61/16** · Details not provided for in, or of interest apart from, the apparatus of groups [F02M 61/02](#) to- [F02M 61/14](#)
- U F02M 61/18** · · Injection nozzles, e.g. having valve seats; {Details of valve member seated ends, not otherwise provided for}
- F02M 61/1886** · · · {Details of valve seats not covered by groups [F02M 61/1866](#) to-  
[F02M 61/188](#)}

F02M 61/1893      · · · {Details of valve member ends not covered by groups [F02M 61/1866](#) ~~to~~ [F02M 61/188](#)}

**F02M 63/00**      **Other fuel-injection apparatus having pertinent characteristics not provided for in groups [F02M 39/00](#) ~~to~~ [F02M 57/00](#) or [F02M 67/00](#); Details, component parts, or accessories of fuel-injection apparatus, not provided for in, or of interest apart from, the apparatus of groups [F02M 39/00](#) ~~to~~ [F02M 61/00](#) or [F02M 67/00](#); {Combination of fuel pump with other devices, e.g. lubricating oil pump}**

NOTE

- in this group the following indexing codes are used: [F02M 2700/05](#), [F02M 2700/072](#)

U    F02M 63/0012      · {Valves (for fuel metering see the relevant groups, e.g. [F02M 59/34](#); inlet or outlet check valves for fuel injection pumps [F02M 59/46](#); for fuel injectors see the relevant groups, e.g. [F02M 61/00](#))}

F02M 63/007      · · {Details not provided for in, or of interest apart from, the apparatus of the groups [F02M 63/0014](#) ~~to~~ [F02M 63/0059](#)}

**U    F02M 69/00**      **Low-pressure fuel-injection apparatus (electrically operated [F02M 51/00](#)); {Apparatus with both continuous and intermittent injection; Apparatus injecting different types of fuel}**

NOTE

- in this group the following indexing codes are used: [F02B 2720/15](#)

F02M 69/46      · Details, component parts or accessories not provided for in, or of interest apart from, the apparatus covered by groups [F02M 69/02](#) ~~to~~ [F02M 69/44](#)

**Project: N/A (F02N)**

**F02N 15/00**      **Other power-operated starting apparatus; Component parts, details, or accessories, not provided for in, or of interest apart from groups [F02N 5/00](#) ~~to~~ [F02N 13/00](#)**

**Project: N/A (F02P)**

**U    F02P 1/00**      **Installations having electric ignition energy generated by magneto- or dynamo- electric generators without subsequent storage {(combination starter-magneto [F02N 11/06](#); magneto- or dynamo-electric generators [H02K 21/00](#))}**

F02P 1/005      · {Construction and fastening of elements of magnetos other than the magnetic circuit and the windings ([F02P 1/02](#) ~~to~~ [F02P 1/08](#) take precedence)}

**U    F02P 3/00**      **Other installations**

U    F02P 3/02      · having inductive energy storage, e.g. arrangements of induction coils {(ignition coils structurally combined with sparking plugs [F02P 13/00](#); constructional details of ignition coils [H01F 38/12](#))}

U    F02P 3/04      · · Layout of circuits

F02P 3/0407      · · · {Opening or closing the primary coil circuit with electronic switching means ([F02P 3/045](#) ~~to~~ [F02P 3/055](#) take precedence)}

**U    F02P 7/00**      **Arrangements of distributors, circuit-makers or -breakers, {e.g. of distributor and circuit-breaker combinations} or pick-up devices (advancing or retarding ignition or control therefor [F02P 5/00](#); such devices *per se*, see the relevant classes of Section H, e.g. rotary switches [H01H 19/00](#), contact-breakers, distributors [H01R 39/00](#), generators [H02K](#))**

- U F02P 7/06 · of circuit-makers or -breakers, or pick-up devices adapted to sense particular points of the timing cycle
- F02P 7/061 · · {pick-up devices without mechanical contacts ([F02P 7/067](#) ~~to~~ [F02P 7/077](#) take precedence)}
- F02P 13/00 **Sparking plugs structurally combined with other parts of internal-combustion engines** ({connection of ignition coil to spark plug connector [F02P 3/02](#)}; with fuel injectors [F02M 57/06](#); {spark plug connectors per se [H01T 13/04](#) ~~to~~ [H01T 13/06](#); predominant aspects of sparking plug, see [H01T 13/40](#) ~~to~~ [H01T 13/44](#)}; predominant aspects of the parts, see the relevant subclasses)
- F02P 15/00 **Electric spark ignition having characteristics not provided for in, or of interest apart from, groups [F02P 1/00](#) ~~to~~ [F02P 13/00](#)** {and combined with layout of ignition circuits (not combined [F02B](#), [F02C](#), [F02G](#), [F02K](#))}

**Project: N/A (F02W)**

- U F02W 2746/00 **Indexing scheme associated with former IdT class 46F**
- U F02W 2746/00006 · Turbines; Gas turbines
- F02W 2746/00092 · · Turbines other than those according to groups [R02C746/00F1](#) ~~to~~ [R02C746/00F15](#), counter-rotating turbines
- U F02W 2746/0021 · · Plants with specific use of turbines; Construction of power stations with gas turbines
- U F02W 2746/0023 · · · Propulsion plants, e.g. marine turbines
- F02W 2746/00243 · · · · Control of the gas turbines in propulsion plants, e.g. for ships or turbo-propulsion (control of gas turbines in general [R02C746/00F30](#), control of fuel supply [R02C746/00F45](#) ~~to~~ [R02C746/00F48](#))
- U F02W 2746/00289 · · Control systems for the fuel supply to the combustors of gas turbines plants (control of gas turbines in general [R02C746/00F30A](#), control of gas turbines in propulsion plants except for the jet propulsion [R02C746/00F40C2](#), fuel supply systems [R02C746/00F30N1](#))
- F02W 2746/00296 · · · using a fuel pump with adjustable flow ([R02C746/00F45C](#) ~~to~~ [R02C746/00F45F](#) take precedence)
- F02W 2746/00802 · · · Components and parts of control systems according to [R02C746/00F45B](#) ~~to~~ [R02C746/00F45J](#)

**Project: RP0298 (F03B)**

- U F03B 11/00 **Parts or details not provided for in, or of interest apart from, the preceding groups (controlling [F03B 15/00](#)), {e.g. wear-protection couplings, between turbine and generator}**
- F03B 11/002 · {Injecting air or other fluid (~~[F03D 11/0025](#)~~ [F03D 80/40](#), [F03B 11/04](#), [F03B 15/00](#) take precedence)}

**Project: N/A (F03C)**

- F03C 2/00 **Rotary-piston engines (in which the liquid exclusively displaces one or more piston reciprocating in rotary cylinders [F03C 1/24](#))**
- NOTE  
Group [F03C 2/30](#) takes precedence over groups [F03C 2/02](#) ~~to~~ [F03C 2/24](#).

**Project: RP0298 (F03D)**

- U F03D 1/00 **Wind motors with rotation axis substantially in wind direction (controlling [F03D 7/00](#))**

- F03D 1/001 · {Assembly thereof (fixing wind engaging part to rotor [F03D 1/0658](#)); Erecting methods; Equipments therefor (foundations ~~F03D 11/045~~[F03D 13/22](#))}
- C F03D 1/02 · having a plurality of rotors
- WARNING**  
*Group F03D 1/02 is impacted by reclassification into groups [F03D 1/04](#), [F03D 9/34](#), [F03D 9/35](#), [F03D 9/37](#), [F03D 9/39](#), [F03D 9/41](#), [F03D 9/43](#), [F03D 9/45](#) and [F03D 9/46](#).  
All groups listed in this Warning should be considered in order to perform a complete search.*
- C F03D 1/025 · {coaxially arranged}
- WARNING**  
*Group F03D 1/025 is impacted by reclassification into groups [F03D 1/04](#), [F03D 9/34](#), [F03D 9/35](#), [F03D 9/37](#), [F03D 9/39](#), [F03D 9/41](#), [F03D 9/43](#), [F03D 9/45](#) and [F03D 9/46](#).  
All groups listed in this Warning should be considered in order to perform a complete search.*
- C F03D 1/04 · having stationary wind-guiding means, e.g. with shrouds or channels (~~F03D 1/02~~[F03D 9/35](#) takes precedence)
- WARNING**  
*Group F03D 1/04 is impacted by reclassification into groups [F03D 9/34](#), [F03D 9/35](#), [F03D 9/37](#), [F03D 9/39](#), [F03D 9/41](#), [F03D 9/43](#), [F03D 9/45](#) and [F03D 9/46](#).  
All groups listed in this Warning should be considered in order to perform a complete search.*
- U F03D 3/00 Wind motors with rotation axis substantially at right-angles to wind direction (controlling [F03D 7/00](#))**
- C F03D 3/02 · having a plurality of rotors
- WARNING**  
*Group F03D 3/02 is impacted by reclassification into groups [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#), [F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#), [F03D 9/34](#), [F03D 9/35](#), [F03D 9/37](#), [F03D 9/39](#), [F03D 9/41](#), [F03D 9/43](#), [F03D 9/45](#) and [F03D 9/46](#).  
All groups listed in this Warning should be considered in order to perform a complete search.*
- C F03D 3/04 · having stationary wind-guiding means ~~{or means stationary only with respect to the current wind direction}~~, e.g. with shrouds or channels (~~F03D 3/02~~[F03D 9/35](#) takes precedence)
- WARNING**  
*Group F03D 3/04 is impacted by reclassification into groups [F03D 9/34](#), [F03D 9/35](#), [F03D 9/37](#), [F03D 9/39](#), [F03D 9/41](#), [F03D 9/43](#), [F03D 9/45](#) and [F03D 9/46](#).  
All groups listed in this Warning should be considered in order to perform a complete search.*
- C F03D 3/0409 · {having stationary guiding vanes surrounding the rotor ([F03D 3/0427](#) takes precedence)}
- WARNING**  
*Group F03D 3/0409 is impacted by reclassification into groups [F03D 9/34](#), [F03D 9/35](#), [F03D 9/37](#), [F03D 9/39](#), [F03D 9/41](#), [F03D 9/43](#), [F03D 9/45](#) and [F03D 9/46](#).*

*All groups listed in this Warning should be considered in order to perform a complete search.*

- C F03D 3/0418      • • • {the vanes being adjustable}

**WARNING**

*Group F03D 3/0418 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*

*All groups listed in this Warning should be considered in order to perform a complete search.*

- C F03D 3/0427      • • {with augmenting action, i.e. the guiding means intercepting an area greater than the effective rotor area ([F03D 3/0463](#), [F03D 3/049](#) take precedence)}

**WARNING**

*Group F03D 3/0427 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*

*All groups listed in this Warning should be considered in order to perform a complete search.*

- C F03D 3/0436      • • {having shield means on one side of the rotor}

**WARNING**

*Group F03D 3/0436 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*

*All groups listed in this Warning should be considered in order to perform a complete search.*

- C F03D 3/0445      • • • {fixed with respect to rotor, orientable together}

**WARNING**

*Group F03D 3/0445 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*

*All groups listed in this Warning should be considered in order to perform a complete search.*

- C F03D 3/0454      • • • • {and only with concentrating action, i.e. only increasing the airflow speed into the rotor ([F03D 3/0463](#) takes precedence)}

**WARNING**

*Group F03D 3/0454 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*

*All groups listed in this Warning should be considered in order to perform a complete search.*

- C F03D 3/0463      • • • • {with augmenting action, i.e. the shield means intercepting an area greater than the effective rotor area}

**WARNING**

*Group F03D 3/0463 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*

*All groups listed in this Warning should be considered in order to perform a complete search.*

- C F03D 3/0472
- • • {orientable with respect to the rotor}
- WARNING**  
*Group F03D 3/0472 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- C F03D 3/0481
- • • {and only with concentrating action, i.e. only increasing the airflow speed into the rotor ([F03D 3/049](#) takes precedence)}
- WARNING**  
*Group F03D 3/0481 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- C F03D 3/049
- • • {with augmenting action, i.e. the shield means intercepting an area greater than the effective rotor area}
- WARNING**  
*Group F03D 3/049 is impacted by reclassification into groups F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45 and F03D 9/46.*  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- C F03D 9/00
- Adaptations of wind motors for special use; Combinations of wind motors with apparatus driven thereby (~~aspects predominantly concerning driven apparatus~~); Wind motors specially adapted for installation in particular locations (hybrid wind-photovoltaic energy systems for the generation of electric power H02S 10/12)**
- WARNING**  
*Group F03D 9/00 is impacted by reclassification into groups F03D 9/18, F03D 9/19, F03D 9/20, F03D 9/22, F03D 9/25, F03D 9/28, F03D 9/30, F03D 9/32, F03D 9/34, F03D 9/35, F03D 9/37, F03D 9/39, F03D 9/41, F03D 9/43, F03D 9/45, F03D 9/46, F03D 9/48 and H02S 10/12.*  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- C F03D 9/001
- {the apparatus being a pump or compressor; Producing under- or overpressure (~~F03D 9/028~~[F03D 9/17](#) takes precedence)}
- WARNING**  
*Group F03D 9/001 is impacted by reclassification into group H02S 10/12.*  
*Groups F03D 9/001 and H02S 10/12 should be considered in order to perform a complete search.*
- C F03D 9/002
- {the apparatus being an electrical generator (~~F03D 9/021~~[F03D 9/11](#) takes precedence; details of electrical generators specifically adapted to wind turbines [H02K 7/183](#))}
- WARNING**  
*Group F03D 9/002 is impacted by reclassification into group H02S 10/12.*  
*Groups F03D 9/002 and H02S 10/12 should be considered in order to perform a complete search.*

- C F03D 9/003
- {connected to an electrical general supply grid; Arrangements therefor}
- WARNING**  
*Group F03D 9/003 is impacted by reclassification into group H02S 10/12. Groups F03D 9/003 and H02S 10/12 should be considered in order to perform a complete search.*
- C F03D 9/005
- • {the wind motor being part of a wind farm}
- WARNING**  
*Group F03D 9/005 is impacted by reclassification into group H02S 10/12. Groups F03D 9/005 and H02S 10/12 should be considered in order to perform a complete search.*
- C F03D 9/006
- {Adaptations for producing heat, e.g. in heat pump systems}
- WARNING**  
*Group F03D 9/006 is impacted by reclassification into group H02S 10/12. Groups F03D 9/006 and H02S 10/12 should be considered in order to perform a complete search.*
- C F03D 9/007
- {the wind motor being combined with means for converting solar radiation into useful energy}
- WARNING**  
*Group F03D 9/007 is impacted by reclassification into group H02S 10/12. Groups F03D 9/007 and H02S 10/12 should be considered in order to perform a complete search..*
- C F03D 9/008
- {the wind motor being combined with water energy converters, e.g. a water turbine}
- WARNING**  
*Group F03D 9/008 is impacted by reclassification into group H02S 10/12. Groups F03D 9/008 and H02S 10/12 should be considered in order to perform a complete search.*
- D F03D 9/02
- the apparatus storing energy
- D F03D 9/021
- • {in an electrical accumulator}
- D F03D 9/023
- • {storing gravitational potential energy}
- D F03D 9/025
- • • {using a liquid, e.g. water}
- D F03D 9/026
- • • {using weights}
- D F03D 9/028
- • {in a pressurised fluid accumulator}
- Q F03D 9/10
- Combinations of wind motors with apparatus storing energy
- WARNING**  
*Group F03D 9/10 is impacted by reclassification into groups F03D 9/11, F03D 9/12, F03D 9/13, F03D 9/14, F03D 9/16, F03D 9/17, F03D 9/18, F03D 9/19 and H02S 10/12. All groups listed in this Warning should be considered in order to perform a complete search.*
- Q F03D 9/11
- • storing electrical energy
- WARNING**  
*Group F03D 9/11 is impacted by reclassification into group H02S 10/12. Groups F03D 9/11 and H02S 10/12 should be considered in order to perform a complete search.*

- N F03D 9/12
- • storing kinetic energy, e.g. using flywheels
- WARNING  
Group [F03D 9/12](#) is incomplete pending reclassification of documents from group [F03D 9/10](#).  
Groups [F03D 9/10](#) and [F03D 9/12](#) should be considered in order to perform a complete search.
- Q F03D 9/13
- • storing gravitational potential energy
- WARNING  
Group [F03D 9/13](#) is impacted by reclassification into group [H02S 10/12](#).  
Groups [F03D 9/13](#) and [H02S 10/12](#) should be considered in order to perform a complete search.
- Q F03D 9/14
- • • using liquids
- WARNING  
Group [F03D 9/14](#) is impacted by reclassification into group [H02S 10/12](#).  
Groups [F03D 9/14](#) and [H02S 10/12](#) should be considered in order to perform a complete search.
- Q F03D 9/16
- • • using weights
- WARNING  
Group [F03D 9/16](#) is impacted by reclassification into group [H02S 10/12](#).  
Groups [F03D 9/16](#) and [H02S 10/12](#) should be considered in order to perform a complete search.
- Q F03D 9/17
- • storing energy in pressurised fluids
- WARNING  
Group [F03D 9/17](#) is impacted by reclassification into group [H02S 10/12](#).  
Groups [F03D 9/17](#) and [H02S 10/12](#) should be considered in order to perform a complete search.
- N F03D 9/18
- • storing heat
- WARNING  
Group [F03D 9/18](#) is incomplete pending reclassification of documents from group [F03D 9/00](#) and [F03D 9/10](#).  
Groups [F03D 9/00](#), [F03D 9/10](#) and [F03D 9/18](#) should be considered in order to perform a complete search.
- N F03D 9/19
- • storing chemical energy, e.g. using electrolysis
- WARNING  
Group [F03D 9/19](#) is incomplete pending reclassification of documents from group [F03D 9/00](#) and [F03D 9/10](#).  
Groups [F03D 9/00](#), [F03D 9/10](#) and [F03D 9/19](#) should be considered in order to perform a complete search.
- N F03D 9/20
- Wind motors characterised by the driven apparatus ([F03D 9/10](#) takes precedence)
- WARNING  
Group [F03D 9/20](#) is incomplete pending reclassification of documents from group [F03D 9/00](#).  
Groups [F03D 9/00](#) and [F03D 9/20](#) should be considered in order to perform a complete search.

- N F03D 9/22
- • the apparatus producing heat
- WARNING  
Group [F03D 9/22](#) is incomplete pending reclassification of documents from group [F03D 9/00](#).  
Groups [F03D 9/00](#) and [F03D 9/22](#) should be considered in order to perform a complete search.
- N F03D 9/25
- • the apparatus being an electrical generator ([F03D 9/22](#) takes precedence)
- WARNING  
Group [F03D 9/25](#) is incomplete pending reclassification of documents from group [F03D 9/00](#).  
Groups [F03D 9/00](#) and [F03D 9/25](#) should be considered in order to perform a complete search.
- N F03D 9/28
- • the apparatus being a pump or a compressor
- WARNING  
Group [F03D 9/28](#) is incomplete pending reclassification of documents from group [F03D 9/00](#).  
Groups [F03D 9/00](#) and [F03D 9/28](#) should be considered in order to perform a complete search.
- N F03D 9/30
- Wind motors specially adapted for installation in particular locations (means for mounting or supporting wind motors [F03D 13/20](#))
- WARNING  
Group [F03D 9/30](#) is incomplete pending reclassification of documents from group [F03D 9/00](#).  
Groups [F03D 9/00](#) and [F03D 9/30](#) should be considered in order to perform a complete search.
- N F03D 9/32
- • on moving objects, e.g. vehicles
- WARNING  
Group [F03D 9/32](#) is incomplete pending reclassification of documents from group [B60K 16/00](#) and [F03D 9/00](#).  
Groups [B60K 16/00](#), [F03D 9/00](#) and [F03D 9/32](#) should be considered in order to perform a complete search.
- N F03D 9/34
- • on stationary objects or on stationary man-made structures
- WARNING  
Group [F03D 9/34](#) is incomplete pending reclassification of documents from group [F03D 1/02](#), [F03D 1/025](#), [F03D 1/04](#), [F03D 3/02](#), [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#), [F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#) and [F03D 9/00](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 9/35
- • • within towers, e.g. using chimney effects
- WARNING  
Group [F03D 9/35](#) is incomplete pending reclassification of documents from group [F03D 1/02](#), [F03D 1/025](#), [F03D 1/04](#), [F03D 3/02](#), [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#), [F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#) and [F03D 9/00](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

- N F03D 9/37 . . . . with means for enhancing the air flow within the tower, e.g. by heating
- WARNING  
Group [F03D 9/37](#) is incomplete pending reclassification of documents from group [F03D 1/02](#), [F03D 1/025](#), [F03D 1/04](#), [F03D 3/02](#), [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#), [F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#) and [F03D 9/00](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 9/39 . . . . . by circulation or vortex formation
- WARNING  
Group [F03D 9/39](#) is incomplete pending reclassification of documents from group [F03D 1/02](#), [F03D 1/025](#), [F03D 1/04](#), [F03D 3/02](#), [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#), [F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#) and [F03D 9/00](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 9/41 . . . . . by using the wind outside the tower, e.g. using ejectors
- WARNING  
Group [F03D 9/41](#) is incomplete pending reclassification of documents from group [F03D 1/02](#), [F03D 1/025](#), [F03D 1/04](#), [F03D 3/02](#), [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#), [F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#) and [F03D 9/00](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 9/43 . . . . using infrastructure primarily used for other purposes, e.g. masts for overhead railway power lines
- WARNING  
Group [F03D 9/43](#) is incomplete pending reclassification of documents from group [F03D 1/02](#), [F03D 1/025](#), [F03D 1/04](#), [F03D 3/02](#), [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#), [F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#) and [F03D 9/00](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 9/45 . . . . . Building formations
- WARNING  
Group [F03D 9/45](#) is incomplete pending reclassification of documents from group [F03D 1/02](#), [F03D 1/025](#), [F03D 1/04](#), [F03D 3/02](#), [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#), [F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#) and [F03D 9/00](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 9/46 . . . . . Tunnels or streets
- WARNING  
Group [F03D 9/46](#) is incomplete pending reclassification of documents from group [F03D 1/02](#), [F03D 1/025](#), [F03D 1/04](#), [F03D 3/02](#), [F03D 3/04](#), [F03D 3/0409](#), [F03D 3/0418](#), [F03D 3/0427](#), [F03D 3/0436](#), [F03D 3/0445](#),

[F03D 3/0454](#), [F03D 3/0463](#), [F03D 3/0472](#), [F03D 3/0481](#), [F03D 3/049](#) and [F03D 9/00](#).

All groups listed in this Warning should be considered in order to perform a complete search.

N F03D 9/48

- using landscape topography, e.g. valleys

WARNING

Group [F03D 9/48](#) is incomplete pending reclassification of documents from group [F03D 9/00](#).

Groups [F03D 9/00](#) and [F03D 9/48](#) should be considered in order to perform a complete search.

D F03D 11/00

**Details, component parts, or accessories not provided for in, or of interest apart from, the preceding groups**

D F03D 11/0008

- {Bearing or lubricating arrangements (lubricating of machines in general F01M; bearings per se F16C)}

D F03D 11/0016

- {Cleaning}

D F03D 11/0025

- {Ice detection; Deicing means}

D F03D 11/0033

- {Lightning protection}

D F03D 11/0041

- {Warning systems for air traffic}

D F03D 11/005

- {Arrangement of components within nacelle or tower}

D F03D 11/0058

- • {of electrical components}

D F03D 11/0066

- • • {Cabling}

D F03D 11/0075

- • {of mechanical components}

D F03D 11/0083

- {Measures to avoid shadow flicker on surroundings}

D F03D 11/0091

- {Monitoring; Diagnostics; Testing; Equipments therefor}

D F03D 11/02

- Transmission of power, e.g. using hollow exhausting blades {(gearing per se F16H)}

D F03D 11/022

- • {Using hollow exhausting blades}

D F03D 11/024

- • {Transmission in alternative movement}

D F03D 11/026

- • • {Changing or adjusting stroke}

D F03D 11/028

- • {without gearing, i.e. gearless drive}

D F03D 11/04

- Mounting structures

D F03D 11/045

- • {Foundations specifically suited for wind motors}

N F03D 13/00

**Assembly, mounting or commissioning of wind motors; Arrangements specially adapted for transporting wind motor components**

WARNING

Group [F03D 13/00](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).

Groups [F03D 80/00](#) and [F03D 13/00](#) should be considered in order to perform a complete search.

N F03D 13/10

- Assembly of wind motors; Arrangements for erecting wind motors

WARNING

Group [F03D 13/10](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).

Groups [F03D 80/00](#) and [F03D 13/10](#) should be considered in order to perform a complete search.

- Q F03D 13/20
- Arrangements for mounting or supporting wind motors; Masts or towers for wind motors
- WARNING  
Group [F03D 13/20](#) is impacted by reclassification into groups [F03D 13/22](#) and [F03D 13/25](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 13/22
- {Foundations specially adapted for wind motors}
- WARNING  
Group [F03D 13/22](#) is incomplete pending reclassification of documents from group [F03D 13/20](#).  
Groups [F03D 13/20](#) and [F03D 13/22](#) should be considered in order to perform a complete search.
- N F03D 13/25
- specially adapted for offshore installation
- WARNING  
Group [F03D 13/25](#) is incomplete pending reclassification of documents from group [F03D 13/20](#).  
Groups [F03D 13/20](#) and [F03D 13/25](#) should be considered in order to perform a complete search.
- N F03D 13/30
- Commissioning, e.g. inspection, testing or final adjustment before releasing for production
- WARNING  
Group [F03D 13/30](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 13/30](#) should be considered in order to perform a complete search.
- N F03D 13/35
- Balancing static or dynamic imbalances
- WARNING  
Group [F03D 13/35](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 13/35](#) should be considered in order to perform a complete search.
- N F03D 13/40
- Arrangements or methods specially adapted for transporting wind motor components
- WARNING  
Group [F03D 13/40](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 13/40](#) should be considered in order to perform a complete search.
- Q F03D 15/00
- Transmission of mechanical power**
- WARNING  
Group [F03D 15/00](#) is impacted by reclassification into groups [F03D 15/10](#), [F03D 15/15](#) and [F03D 15/20](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 15/05
- {using hollow exhausting blades}

- N F03D 15/10
- using gearing not limited to rotary motion, e.g. with oscillating or reciprocating members
- WARNING**  
Group [F03D 15/10](#) is incomplete pending reclassification of documents from group [F03D 15/00](#).  
Groups [F03D 15/00](#) and [F03D 15/10](#) should be considered in order to perform a complete search.
- N F03D 15/15
- • {Changing or adjusting stroke}
- WARNING**  
Group [F03D 15/15](#) is incomplete pending reclassification of documents from group [F03D 15/00](#).  
Groups [F03D 15/00](#) and [F03D 15/15](#) should be considered in order to perform a complete search.
- N F03D 15/20
- Gearless transmission, i.e. direct-drive
- WARNING**  
Group [F03D 15/20](#) is incomplete pending reclassification of documents from group [F03D 15/00](#).  
Groups [F03D 15/00](#) and [F03D 15/20](#) should be considered in order to perform a complete search.
- N F03D 17/00
- Monitoring or testing of wind motors, e.g. diagnostics (testing during commissioning of wind motors [F03D 13/30](#))**
- WARNING**  
Group [F03D 17/00](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 17/00](#) should be considered in order to perform a complete search.
- Q F03D 80/00
- Details, components or accessories not provided for in groups [F03D 1/00](#) - [F03D 17/00](#)**
- WARNING**  
Group [F03D 80/00](#) is impacted by reclassification into groups [F03D 13/00](#), [F03D 13/10](#), [F03D 13/30](#), [F03D 13/35](#), [F03D 13/40](#), [F03D 17/00](#), [F03D 80/10](#), [F03D 80/20](#), [F03D 80/30](#), [F03D 80/40](#), [F03D 80/50](#), [F03D 80/55](#), [F03D 80/60](#), [F03D 80/70](#), [F03D 80/80](#), [F03D 80/82](#), [F03D 80/85](#) and [F03D 80/88](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F03D 80/10
- Arrangements for warning air traffic
- WARNING**  
Group [F03D 80/10](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/10](#) should be considered in order to perform a complete search.
- N F03D 80/20
- Arrangements for avoiding shadow flicker
- WARNING**  
Group [F03D 80/20](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/20](#) should be considered in order to perform a complete search.

- N F03D 80/30
- Lightning protection
- WARNING  
Group [F03D 80/30](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/30](#) should be considered in order to perform a complete search.
- N F03D 80/40
- Ice detection; De-icing means
- WARNING  
Group [F03D 80/40](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/40](#) should be considered in order to perform a complete search.
- N F03D 80/50
- Maintenance or repair
- WARNING  
Group [F03D 80/50](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/50](#) should be considered in order to perform a complete search.
- N F03D 80/55
- • Cleaning ([F03D 80/40](#) takes precedence)
- WARNING  
Group [F03D 80/55](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/55](#) should be considered in order to perform a complete search.
- N F03D 80/60
- Cooling or heating of wind motors
- WARNING  
Group [F03D 80/60](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/60](#) should be considered in order to perform a complete search.
- N F03D 80/70
- Bearing or lubricating arrangements
- WARNING  
Group [F03D 80/70](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/70](#) should be considered in order to perform a complete search.
- N F03D 80/80
- Arrangement of components within nacelles or towers
- WARNING  
Group [F03D 80/80](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).  
Groups [F03D 80/00](#) and [F03D 80/80](#) should be considered in order to perform a complete search.
- N F03D 80/82
- • {of electrical components}
- WARNING  
Group [F03D 80/82](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).

Groups [F03D 80/00](#) and [F03D 80/82](#) should be considered in order to perform a complete search.

N F03D 80/85

· · · {Cabling}

WARNING

Group [F03D 80/85](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).

Groups [F03D 80/00](#) and [F03D 80/85](#) should be considered in order to perform a complete search.

N F03D 80/88

· · {of mechanical components}

WARNING

Group [F03D 80/88](#) is incomplete pending reclassification of documents from group [F03D 80/00](#).

Groups [F03D 80/00](#) and [F03D 80/88](#) should be considered in order to perform a complete search.

**Project: N/A (F04B)**

U F04B 1/00

**Multi-cylinder machines or pumps characterised by number or arrangements of cylinders ([F04B 3/00](#) takes precedence; fluid-driven pumps [F04B 9/08](#); control of reciprocating machines or pumps in general [F04B 49/00](#))**

F04B 1/34

· Control not provided for in a single group of groups [F04B 1/02](#) ~~to~~ [F04B 1/32](#)

**Project: MP0144 (F04B)**

U F04B 7/00

**Piston machines or pumps characterised by having positively-driven valving (with cylinders in star- or fan-arrangement [F04B 1/04](#); with cylinder axes coaxial with, or parallel or inclined to, main shaft axis [F04B 1/12](#))**

U F04B 7/0042

· {with specific kinematics of the distribution member ([F04B 7/0003](#), [F04B 7/0019](#) take precedence)}

M F04B 7/0053

· · {for reciprocating distribution members}

WARNING

Groups [F04B 7/0057](#) to [F04B 7/0069](#) are not used for classification. The documents are in the process of being reclassified to subclass F01L

**Project: N/A (F04B)**

F04B 19/00

**Machines or pumps having pertinent characteristics not provided for in, or of interest apart from, groups [F04B 1/00](#) ~~to~~ [F04B 17/00](#)**

U F04B 27/00

**Multi-cylinder pumps characterised by number or arrangement of cylinders ([F04B 25/00](#) takes precedence; control of reciprocating machines or pumps in general [F04B 49/00](#))**

F04B 27/24

· Control not provided for in a single group of groups [F04B 27/02](#) ~~to~~ [F04B 27/22](#)

F04B 37/00

**Pumps having pertinent characteristics not provided for in, or of interest apart from, groups [F04B 25/00](#) ~~to~~ [F04B 35/00](#)**

F04B 39/00

**Component parts, details, or accessories, of pumps or pumping systems, not otherwise provided for in, or of interest apart from, groups [F04B 25/00](#) ~~to~~ [F04B 37/00](#) (for controlling [F04B 49/00](#))**

**F04B 49/00** Control {e.g. of pump delivery, or pump pressure} of, or safety measures for, machines, pumps, or pumping installations, not otherwise provided for, or of interest apart from, groups [F04B 1/00](#) ~~to~~ [F04B 47/00](#)

NOTE

The classification symbols in group [F04B 49/00](#) and subgroups can be followed by additional symbols preceded by the sign "+". The symbols are applied in subgroups [F04B 49/06](#), [F04B 49/08](#), [F04B 49/16](#) and [F04B 49/225](#). The symbols have the meanings as listed below:

+**C** specially adapted for pumps for elastic fluids, e.g. compressors

+**P** specially adapted for pumps for liquids

**F04B 53/00** Component parts, details or accessories not provided for in, or of interest apart from, groups [F04B 1/00](#) ~~to~~ [F04B 23/00](#) or [F04B 39/00](#) ~~to~~ [F04B 47/00](#)

**Project: MP0144 (F04B)**

M F04B 53/001 · {Noise damping}

WARNING

Group [F04B 53/001](#) and subgroups are not complete, see [F04B 11/00](#), [F04B 53/16](#)

**Project: N/A (F04C)**

**F04C 2/00** Rotary-piston machines or pumps (with non-parallel axes of co-operating members [F04C 3/00](#); with the working-chamber walls at least partly resiliently deformable [F04C 5/00](#); with fluid ring or the like [F04C 7/00](#); rotary-piston pumps specially adapted for elastic fluids [F04C 18/00](#); rotary-piston machines or pumps in which the working-fluid is exclusively displaced by, or exclusively displaces, one or more reciprocating pistons [F04B](#))

NOTE

Group [F04C 2/30](#) takes precedence over groups [F04C 2/02](#) ~~to~~ [F04C 2/28](#)

**F04C 15/00** Component parts, details or accessories of machines, pumps or pumping installations, not provided for in groups [F04C 2/00](#) ~~to~~ [F04C 14/00](#) (of pumps specially adapted for elastic fluids [F04C 18/00](#) ~~to~~ [F04C 29/00](#))

**F04C 18/00** Rotary-piston pumps specially adapted for elastic fluids (with fluid ring or the like [F04C 19/00](#); rotary-piston pumps in which the working-fluid is exclusively displaced by one or more reciprocating pistons [F04B](#))

NOTE

Group [F04C 18/30](#) takes precedence over groups [F04C 18/02](#) ~~to~~ [F04C 18/28](#) and [F04C 18/48](#) ~~to~~ [F04C 18/56](#).

**F04C 29/00** Component parts, details or accessories of pumps or pumping installations, not provided for in groups [F04C 18/00](#) ~~to~~ [F04C 28/00](#)

**Project: MP0144 (F04C)**

U F04C 29/04 · Heating; Cooling (of machines or engines in general [F01P](#)); Heat insulation (heat insulation in general [F16L 59/00](#))

- M F04C 29/047
- {Cooling of electronic devices installed inside the pump housing, e.g. inverters}
- WARNING  
~~WARNING this group is pending a reorganisation, see also F04C 29/04~~
- M F04C 29/06
- Silencing (gas-flow silencers or exhaust apparatus for machines or engines in general [F01N](#))
- WARNING  
~~Subgroups F04C 29/061 to F04C 29/068 pending a reorganisation, see also F04C 29/06~~

**Project: MP0144 (F04D)**

- M F04D 27/00
- Control, e.g. regulation, of pumps, pumping installations or systems**
- WARNING  
~~This group is not complete pending a reorganisation. See also group F04D 27/02 which covers also control in general not focussing on surge control~~
- M F04D 27/002
- {by varying geometry within the pumps, e.g. by adjusting vanes}
- WARNING  
~~This group is not complete pending a reorganisation. See also group F04D 27/0246~~
- M F04D 27/003
- {by throttling ([F04D 27/002](#) takes precedence)}
- WARNING  
~~This group is not complete pending a reorganisation. See also group F04D 27/0253-}~~
- M F04D 27/004
- {by varying driving speed}
- WARNING  
~~This group is not complete pending a reorganisation. See also group F04D 27/0261~~
- M F04D 27/005
- {by changing flow path between different stages or between a plurality of compressors; Load distribution between compressors}
- WARNING  
~~This group is not complete pending a reorganisation. See also group F04D 27/0269-}~~
- M F04D 27/006
- {by influencing fluid temperatures}
- WARNING  
~~This group is not complete pending a reorganisation. See also group F04D 27/0276~~
- M F04D 27/007
- {Conjoint control of two or more different functions}
- WARNING  
~~This group is not complete pending a reorganisation. See also group F04D 27/0284~~

- M F04D 27/008 · {Stop safety or alarm devices, e.g. stop-and-go control; Disposition of check-valves}

**WARNING**

~~This group is not complete pending a reorganisation. See also group F04D 27/0292~~

- M F04D 27/009 · {by bleeding, by passing or recycling fluid}

**WARNING**

~~This group is not complete pending a reorganisation. See also group F04D 27/0207~~

**Project: N/A (F04F)**

- U F04F 5/00 Jet pumps, i.e. devices in which flow is induced by pressure drop caused by velocity of another fluid flow (diffusion pumps [F04F 9/00](#); combination of jet pumps with pumps of other than jet type [F04B](#); use of jet pumps for priming or boosting non-positive-displacement pumps [F04D](#))

- F04F 5/44 · Component parts, details, or accessories not provided for in, or of interest apart from, groups [F04F 5/02](#) ~~to~~ [F04F 5/42](#)

**Project: N/A (F05D)**

- U F05D 2300/00 **Materials; Properties thereof**

- U F05D 2300/10 · Metals, alloys or intermetallic compounds
- F05D 2300/16 · · Other metals not provided for in groups [F05D 2300/11](#) ~~to~~ [F05D 2300/15](#)
- F05D 2300/30 · Inorganic materials other than provided for in groups [F05D 2300/10](#) ~~to~~ [F05D 2300/2291](#)

**Project: N/A (F15B)**

F15B

**SYSTEMS ACTING BY MEANS OF FLUIDS IN GENERAL; FLUID-PRESSURE ACTUATORS, e.g. SERVO-MOTORS; DETAILS OF FLUID-PRESSURE SYSTEMS, NOT OTHERWISE PROVIDED FOR** ({hydraulically or pneumatically operated lifting devices for soil-working machines [A01B 63/10](#); hydraulic drawing presses [B21D](#); hydraulic or pneumatic manipulators [B25J](#); hydraulic or pneumatic tipping devices for vehicles [B60P 1/00](#); hydraulic or pneumatic remote control for railway signals [B61L 7/04](#); hydraulic or pneumatic mine supports [E21D 15/44](#)); motors, turbines, compressors, blowers, pumps [F01](#) ~~to~~ [F04](#); {fluid signal amplifiers, relays [F15C](#)}; fluid dynamics [F15D](#); fluid clutches or brakes [F16D](#); fluid springs [F16E](#); fluid gearing [F16H](#); pistons, cylinders packing [F16J](#); valves, taps, cocks, actuating-floats [F16K](#); safety valves with auxiliary fluid operation of the main valve [F16K 17/10](#); fluid-operating means for valves [F16K 31/12](#); pipes, pipe joints [F16L](#); lubricating [F16N](#))

**NOTE**

In this subclass, the following terms are used with the meaning stated:

- "Telemotor" means a system or device in which a substantially constant amount of fluid is trapped between an input member and an output member to act as a fluid link;
- "Servomotor" means a fluid-pressure actuator, e.g. a piston and cylinder, directly controlled by a valve or other device which is responsive to operation of an initial controlling member; "Servomotor" does not cover a telemotor. The initial controlling member may be adjacent to the servomotor or at a distance, and may be, for example a hand lever.

**F15B 9/00** Servomotors with follow-up action, **{e.g. obtained by feed-back control}**, i.e. in which the position of the actuated member conforms with that of the controlling member **{(F15B 11/10 takes precedence)}**

**Project: MP0144 (F15B)**

**U F15B 13/00** Details of servomotor systems **{(F15B 1/04, F15B 1/26, F15B 3/00, F15B 7/08, F15B 11/02, F15B 11/10,) F15B 15/00 take precedence}**; Valves for servomotor systems}

**M F15B 13/02** • Fluid distribution or supply devices characterised by their adaptation to the control of servomotors **{(F15B 11/15 takes precedence ) ; multiple-way valves F16K 11/00}**

**WARNING**

**Subgroups F15B-13/023 to F15B-13/029 are not complete, see F15B-13/02**

**Project: N/A (F15B)**

**F15B 15/00** Fluid-actuated devices for displacing a member from one position to another (motors for continuous movement **F01 to- F03**); Gearing associated therewith

**Project: MP0144 (F15B)**

**U F15B 15/08** • characterised by the construction of the motor unit (pistons, cylinders, packing **F16J**)

**U F15B 15/14** • • of the straight-cylinder type

**U F15B 15/1423** • • • {Component parts; Constructional details}

**U F15B 15/1438** • • • • {Cylinder to end cap assemblies}

**M F15B 15/1442** • • • • • {End cap sealings}

**WARNING**

**Not complete, see also F15B-15/1438**

**U F15B 15/1447** • • • • {Pistons; Piston to piston rod assemblies}

**M F15B 15/1452** • • • • • {Piston sealings}

**WARNING**

**Not complete, see also F15B-15/1447**

**U F15B 15/1457** • • • • • {Piston rods (**F15B 15/1447** takes precedence)}

**M F15B 15/1461** • • • • • • {Piston rod sealings}

**WARNING**

**Not complete, see also F15B-15/1457**

**U F15B 15/20** • Other details {e.g. assembly with regulating devices}

**U F15B 15/28** • • Means for indicating the position, e.g. end of stroke

**M F15B 15/2815** • • • {Position sensing, i.e. means for continuous measurement of position, e.g. LVDT}

**WARNING**

**Subgroups F15B-15/2846 to F15B-15/2884 are not complete, see F15B-15/2815**

**Project: N/A (F15C)**

**U F15C 1/00** Circuit elements having no moving parts

- U F15C 1/02
- Details, {e.g. special constructional devices for circuits with fluid elements, such as resistances, capacitive circuit elements; devices preventing reaction coupling in composite elements (servomotor systems adapted for maintaining constant speed [F15B 11/05](#)); Switch boards; Programme devices (hydraulic programme control [F15B 21/02](#))}
- F15C 1/06
- • Constructional details; Selection of specified materials {Constructional realisation of one single element; Canal shapes; Jet nozzles; Assembling an element with other devices, only if the element forms the main part ([F15C 5/00](#) takes precedence)}
- NOTE
- Group [F15C 1/22](#) takes precedence over groups [F15C 1/08](#) ~~to~~ [F15C 1/20](#).

**F15C 3/00****Circuit elements having moving parts (valves, construction of valves [F16K](#))**NOTE

Group [F15C 3/16](#) takes precedence over groups [F15C 3/02](#) ~~to~~ [F15C 3/14](#).

**Project: N/A (F16B)****F16B****DEVICES FOR FASTENING OR SECURING CONSTRUCTIONAL ELEMENTS OR MACHINE PARTS TOGETHER, e.g. NAILS, BOLTS, CIRCLIPS, CLAMPS, CLIPS, WEDGES, JOINTS OR JOINTING**NOTES

1. Attention is drawn to:

- a. the Note following group [E04B 1/38](#);
- b. the following places:

<a href="#">A44B</a>	Buckles, slide fasteners
<a href="#">A47G 3/00</a>	Ornamental heads for nails, screws, or the like
<a href="#">B42F 3/00</a>	Means, not using staples, for attaching sheets temporarily together
<a href="#">C14B 17/08</a>	Fastening devices, e.g. clips for leather-stretching used in apparatus or machines for manufacturing or treating skins, hides, leathers or furs}
<a href="#">E01B 9/10</a>	Screws or bolts for railway sleepers
<a href="#">E01B 11/00</a>	Rail joints
<a href="#">E04</a>	Connections for building
<a href="#">E04D 13/08</a>	Clamping means for down pipes for roof drainage
<a href="#">E04G 5/04</a>	Fastening scaffolds against buildings
<a href="#">E04G 7/00</a>	Scaffolding couplings
<a href="#">E05C</a>	Bolts for fasteners for wings, specially for doors or windows
<a href="#">F16C 29/10</a>	Locking bearings for parts moving only linearly
<a href="#">F16G 17/00</a>	Hooks as integral parts of chains
<a href="#">F16L</a>	Pipe joints
<a href="#">F16L 3/00</a>	Supports for pipes, cables or protective tubing, e.g. hangers, holders, clamps, cleats, clips, brackets
<a href="#">F16L 33/02</a>	Clips for connecting hoses to rigid members
<a href="#">H01F 7/00</a>	Magnetic holding devices

[H02N 13/00](#) Electrostatic holding devices.

2. Groups [F16B 2/00](#) ~~to~~ [F16B 47/00](#) take precedence over group [F16B 1/00](#).

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[F16B 7/08](#) covered by [F16B 5/12](#), [F16B 7/04](#), [F16L 3/00](#)  
[F16B 7/12](#) " " [F16B 7/105](#)  
[F16B 7/16](#) " " [F16B 7/14](#)  
[F16B 13/10](#) " " [F16B 13/08](#)  
[F16B 13/13](#) " " [F16B 13/002](#), [F16B 13/12](#)  
[F16B 21/14](#) " " [F16B 21/12](#), [F16B 21/125](#)  
[F16B 25/02](#) " " [F16B 25/00](#)  
[F16B 25/04](#) " " [F16B 25/00](#)  
[F16B 25/06](#) " " [F16B 25/00](#)  
[F16B 25/08](#) " " [F16B 25/00](#)  
[F16B 33/04](#) " " [F16B 33/02](#)  
[F16B 37/10](#) " " [F16B 37/0842](#), [F16B 37/0871](#)

- U F16B 2/00** **Friction-grip releasable fastenings (for cables or ropes, e.g. cleats [F16G 11/00](#) )**{connections of rods or tubes, e.g. of non-circular section, mutually, including resilient connections [F16B 7/00](#)}
- U F16B 2/02
- F16B 2/04
- F16B 2/06
- F16B 2/065
- U F16B 5/00** **Joining sheets or plates, {e.g. panels}, to one another or to strips or bars parallel to them ({[F16B 17/002](#) takes precedence}; by sticking together [F16B 11/00](#); dowel connections [F16B 13/00](#); pins, including deformable elements [F16B 19/00](#); covering of walls [E04F 13/00](#); fastening signs, plates, panels or boards to a supporting structure, fastening readily-detachable elements, e.g. letters to signs, plates, panels, or boards, [G09F 7/00](#))**
- F16B 5/02
- U F16B 7/00** **Connections of rods or tubes, e.g. of non-circular section, mutually, including resilient connections ({[F16B 11/008](#), [F16B 17/002](#) take precedence}); umbrella frames [A45B 25/02](#); welding or soldering of connections [B23K](#); vehicle connections in general [B60D](#); railway couplings [B61G](#); bicycle frames [B62K](#); couplings for transmitting rotation [F16D](#); couplings for tubes conveying fluids [F16L](#))**
- F16B 7/10
- F16B 12/00
- Jointing of furniture or the like, e.g. hidden from exterior ([F16B 2/00](#) ~~to~~ [F16B 11/00](#) take precedence; fastening means per se [F16B 13/00](#) ~~to~~ [F16B 47/00](#); wood-working [B27](#))**
- Clamps, i.e. with gripping action effected by positive means other than the inherent resistance to deformation of the material of the fastening
  - • internal, i.e. with spreading action ([F16B 2/14](#) ~~to~~ [F16B 2/18](#) take precedence)
  - • external, i.e. with contracting action ([F16B 2/14](#) ~~to~~ [F16B 2/18](#) take precedence)
  - • • {using screw-thread elements ([F16B 2/08](#) ~~to~~ [F16B 2/12](#) take precedence)}

- F16B 12/10
- using pegs, bolts, tenons, clamps, clips, or the like (glued [F16B 12/04](#); fastening means per se [F16B 15/00](#) ~~to~~ [F16B 47/00](#))

**Project: N/A (F16C)**

- U F16C 33/00** **Parts of bearings; Special methods for making bearings or parts thereof (metal-working or like operations, see the relevant classes)**
- U F16C 33/02
- Parts of sliding-contact bearings
- U F16C 33/04
- · Brasses; Bushes; linings
- F16C 33/06
- · · Sliding surface mainly made of metal ([F16C 33/24](#) ~~to~~ [F16C 33/28](#) take precedence; {casting metal bearing surfaces [B22D 15/02](#), [B22D 19/08](#)})
- F16C 33/20
- · · Sliding surface consisting mainly of plastics ([F16C 33/22](#) ~~to~~ [F16C 33/28](#) take precedence)
- F16C 33/22
- · · Sliding surface consisting mainly of rubber or synthetic rubber ([F16C 33/24](#) ~~to~~ [F16C 33/28](#) take precedence)
- U F16C 2208/00** **Plastics; Synthetic resins, e.g. rubbers**
- U F16C 2208/20
- Thermoplastic resins
- F16C 2208/58
- · Several materials as provided for in [F16C 2208/30](#) ~~to~~ [F16C 2208/54](#) mentioned as option
- U F16C 2226/00** **Joining parts; Fastening; Assembling or mounting parts (fasteners, securing, joints in general [F16B](#))**
- U F16C 2226/50
- Positive connections
- F16C 2226/60
- · with threaded parts, e.g. bolt and nut connections (in general [F16B 23/00](#) ~~to~~ [F16B 43/00](#))
- F16C 2314/00** **Personal or domestic articles, e.g. household appliances such as washing machines, dryers (in general [A41](#) ~~to~~ [A47](#))**
- F16C 2316/00** **Apparatus in health or amusement (in general [A61](#) ~~to~~ [A63](#))**
- F16C 2320/00** **Apparatus used in separating or mixing (in general [B01](#) ~~to~~ [B09](#))**
- F16C 2322/00** **Apparatus used in shaping articles (in general [B21](#) ~~to~~ [B32](#))**
- F16C 2324/00** **Apparatus used in printing (in general [B41](#) ~~to~~ [B44](#))**
- F16C 2326/00** **Articles relating to transporting (in general [B60](#) ~~to~~ [B68](#))**
- F16C 2326/58
- ~~Conveyer~~ *Conveyor* systems, e.g. rollers or bearings therefor (in general [B65G](#))
- F16C 2340/00** **Apparatus for treating textiles (in general [D01](#) ~~to~~ [D07](#))**
- F16C 2350/00** **Machines or articles related to building (in general [E01](#) ~~to~~ [E06](#))**
- F16C 2360/00** **Engines or pumps (in general [F01](#) ~~to~~ [F04](#))**
- F16C 2361/00** **Apparatus or articles in engineering in general ([F15](#) ~~to~~ [F17](#))**
- F16C 2361/43
- Clutches, e.g. disengaging bearing (in general [F16D 11/00](#) ~~to~~ [F16D 47/00](#))
- F16C 2361/45
- Brakes (in general [B60T](#), [F16D 49/00](#) ~~to~~ [F16D 65/00](#))
- F16C 2362/00** **Apparatus for lighting or heating (in general [F21](#) ~~to~~ [F28](#))**
- F16C 2370/00** **Apparatus relating to physics, e.g. instruments (in general [G01](#) ~~to~~ [G12](#))**
- F16C 2380/00** **Electrical apparatus (in general [H01](#) ~~to~~ [H05](#))**

**Project: N/A (F16D)**

- F16D 1/00 - F16D 9/00**      **Couplings {for transmitting mechanical rotation} (fluid couplings F16D 31/00 to- F16D 39/00; couplings or joints specially adapted for deep-drilling rods or sucker rods E21B; for transmitting motion through a wall without relatively-moving surfaces F16J 15/50)**
- U F16D 1/06      · for attachment of a member on a shaft or on a shaft-end (attachment of marine propellers on shafts [B63H 23/34](#))
- U F16D 1/08      · · with clamping hub; with hub and longitudinal key
- F16D 1/0852      · · · {with radial clamping between the mating surfaces of the hub and shaft ([F16D 1/0805 to- F16D 1/0817](#), [F16D 1/09](#) take precedence)}
- U **F16D 3/00**      **Yielding couplings, i.e. with means permitting movement between the connected parts during the drive (couplings disconnectable simply by axial movement F16D 1/10; slip couplings F16D 7/00)**
- F16D 3/80      · in which a fluid is used (fluid couplings allowing continuous slip [F16D 31/00 to- F16D 35/00](#))
- F16D 7/00**      **Slip couplings, e.g. slipping on overload, for absorbing shock (combined with yielding shaft couplings F16D 3/14; fluid slip couplings F16D 31/00 to- F16D 35/00)**
- F16D 11/00 - F16D 23/00**      **Clutches with mechanically-actuated clutching members (automatic clutches F16D 41/00 to- F16D 45/00)**
- F16D 2011/004      · {using an internal or intermediate axially slidable sleeve, coupling both components together, whereby the intermediate sleeve is arranged internally at least with respect to one of the components:}
- U **F16D 13/00**      **Friction clutches (arrangements for synchronisation F16D 23/02)**
- F16D 13/10      · with clutching members co-operating with the periphery of a drum, a wheel-rim, or the like ([F16D 13/02 to- F16D 13/08](#) take precedence; similar brakes [F16D 49/00](#))
- U F16D 13/58      · Details {(tools for assembling or disassembling clutches [B25B 27/0064](#))}
- F16D 2013/581      · · {Securing means for transportation or shipping:}
- F16D 25/00 - F16D 29/00**      **Clutches actuated non-mechanically (arrangements for synchronisation F16D 23/02; fluid clutches F16D 31/00 to- F16D 39/00; automatic clutches F16D 41/00 to- F16D 45/00; dynamo-electric clutches H02K 49/00; clutches using electrostatic attraction H02N 13/00)**
- U F16D 25/08      · with fluid-actuated member not rotating with a clutching member ([F16D 25/02](#) takes precedence {[F16D 25/048](#) takes precedence})
- U F16D 25/082      · · {the line of action of the fluid-actuated members co-inciding with the axis of rotation}
- F16D 25/083      · · · {Actuators therefor ([F16D 25/085 to- F16D 25/087](#) take precedence)}
- U **F16D 27/00**      **Magnetically- {or electrically-} actuated clutches; Control or electric circuits therefor (clutches with magnetisable particles F16D 37/02; {with electro-rheological fluids F16D 37/008})**
- F16D 2027/002      · {Electric or electronic circuits relating to actuation of electromagnetic clutches:}
- F16D 28/00**      **Electrically-actuated clutches (arrangements for synchronisation F16D 23/02; clutches actuated directly by means of an electromagnet F16D 27/00; automatic clutches F16D 43/00 to- F16D 45/00; external control F16D 48/00)**

	<b>F16D 31/00 - F16D 39/00</b>	<b><u>Couplings or clutches with a fluid or a semi-fluid as a power-transmitting means (fluid gearing <a href="#">F16H 39/00</a> to- <a href="#">F16H 49/00</a>)</u></b>
<b>U</b>	<b>F16D 35/00</b>	<b>Fluid clutches in which the clutching is predominantly obtained by fluid adhesion (<a href="#">F16D 37/00</a> takes precedence {;arrangements of viscous clutches in four-wheel drives - <a href="#">B60K 17/3465</a> and <a href="#">B60K 17/351</a>})</b>
U	F16D 35/02	· with rotary working chambers and rotary reservoirs, e.g. in one coupling part
U	F16D 35/021	· · {actuated by valves}
	F16D 35/026	· · · {actuated by a plurality of valves; the valves being actuated by a combination of mechanisms covered by more than one of groups <a href="#">F16D 35/022</a> to- <a href="#">F16D 35/025</a> }
	<b>F16D 39/00</b>	<b><u>Combinations of couplings according to two or more of the groups <a href="#">F16D 31/00</a> to- <a href="#">F16D 37/00</a></u></b>
	<b>F16D 41/00 - F16D 48/00</b>	<b><u>Freewheels or freewheel clutches; Automatic clutches (<a href="#">F16D 31/00</a> to- <a href="#">F16D 39/00</a> take precedence)</u></b>
<b>U</b>	<b>F16D 43/00</b>	<b>Automatic clutches (varying the relationship between two coaxial shafts <a href="#">F16D 3/10</a>; freewheels, freewheel clutches <a href="#">F16D 41/00</a>)</b>
U	F16D 43/02	· actuated entirely mechanically
	F16D 43/26	· · acting at definite angular position or disengaging after {consecutive} definite number of rotations (actuating by means of stationary abutment <a href="#">F16D 11/02</a> , <a href="#">F16D 13/02</a> , <a href="#">F16D 15/00</a> ; control of change-speed or reversing-gearings conveying rotary motion <a href="#">F16H 59/00</a> to- <a href="#">F16H 63/00</a> )
	<b>F16D 48/00</b>	<b><u>External control of clutches</u></b>
		<b><u>WARNING</u></b>
		Groups <a href="#">F16D 48/00</a> , <a href="#">F16D 48/06</a> , <a href="#">F16D 48/08</a> , <a href="#">F16D 48/10</a> , introduced in September 1998, are not complete. Documents from the groups <a href="#">F16D 48/062</a> to- <a href="#">F16D 48/066</a> are in the process of being reorganised to <a href="#">F16D 48/00</a> , <a href="#">F16D 48/08</a> , <a href="#">F16D 48/10</a>
U	F16D 48/02	· Control by fluid pressure
U	F16D 2048/0227	· · {Source of pressure producing the clutch engagement or disengagement action within a circuit; Means for initiating command action in power assisted devices (for details of the source or means per se <a href="#">F16D 25/088</a> , <a href="#">F16D 29/005</a> )}
U	F16D 2048/0233	· · · {by rotary pump actuation}
U	F16D 2048/0245	· · · · {Electrically driven rotary pumps}
	F16D 2048/0248	· · · · · {Reversible rotary pumps, i.e. pumps that can be rotated in the two directions-}
<b>U</b>	<b>F16D 69/00</b>	<b><u>Friction linings; Attachment thereof; Selection of coating friction substances or surfaces (clutching elements <a href="#">F16D 13/60</a>; braking members <a href="#">F16D 65/02</a>)</u></b>
	F16D 69/02	· Compositions of linings; {Methods of manufacturing}
		<b><u>NOTE</u></b>
		Indexing codes <a href="#">F16D 69/021</a> to- <a href="#">F16D 2250/0053</a> are used for indexing aspects relating to compositions or manufacturing of friction linings
<b>U</b>	<b>F16D 2121/00</b>	<b><u>Type of actuator operation force</u></b>
U	F16D 2121/18	· Electric or magnetic
	F16D 2121/32	· · using shape memory <a href="#">[</a> {or other thermo-mechanical}] <a href="#">]</a> elements

U F16D 2129/00  
F16D 2129/14

### Type of operation source for auxiliary mechanisms

- Shape memory  $\{$ or other thermo-mechanical $\}$  elements

Project: N/A (F16F)

F16F

### SPRINGS; SHOCK-ABSORBERS; MEANS FOR DAMPING VIBRATION

#### NOTES

1. This subclass covers:

- springs, shock-absorbers or vibration-dampers;
- their arrangement in, or adaptation for, particular apparatus if not provided for in the subclasses covering said apparatus.

2. This subclass does not cover inventions concerning the arrangement or adaptation of springs, shock-absorbers or vibration-dampers in, or for, particular apparatus, if provided for in the subclasses concerning the said apparatus, e.g.

[A47C 23/00](#)

to	<a href="#">A47C 27/00</a>	Spring mattresses
{	<a href="#">A61F 2/00</a>	Protheses
	<a href="#">A63C 5/075</a>	Vibration dampers in skis
	<a href="#">B60G</a>	Vehicle suspensions
	<a href="#">B60R 19/24</a>	Mounting of bumpers on vehicles
	<a href="#">B61F</a>	Rail vehicle suspensions
	<a href="#">B61G 11/00</a>	Buffers for railway or tramway vehicles
	<a href="#">B62D 21/15</a>	Vehicle chassis frames having impact absorbing means
	<a href="#">B62J 1/02</a>	Resiliently mounted saddles on cycles
	<a href="#">B62K 21/08</a>	Steering dampers
	<a href="#">B63H 21/30</a>	Anti-vibration mounting of marine propulsion plant in ships
	<a href="#">B64C 25/58</a>	Arrangement of shock-absorbers or springs in aeroplane alighting gear
	<a href="#">B65D 81/02</a>	Containers, packing elements or packages with shock-absorbing means
	<a href="#">D06F 37/20</a>	Resilient mountings in washing machines
	<a href="#">D06F 49/06</a>	Resilient mountings in domestic spin-dryers
	{	<a href="#">E04B 1/98</a>
	or shocks	}
	<a href="#">E05D 7/086</a>	Braking devices structurally combined with hinges
	<a href="#">F03G 1/00</a>	Spring motors
	{	<a href="#">F16L 3/20</a>
		Pipe or cable supports
	<a href="#">F21V 15/04</a>	Resilient mounting of lighting devices
	<a href="#">F41A 25/00</a>	Gun cradles to permit recoil
	<a href="#">F41B 5/1426</a>	Vibration dampers for archery bows
	<a href="#">G01D 11/00</a>	Indicating or recording in connection with measuring
	<a href="#">G01G 21/10</a>	Weighing apparatus, e.g. arrangement of shock-absorbers in weighing apparatus
	<a href="#">G04B</a>	Clocks, watches
	<a href="#">G12B 3/08</a>	Damping of movements in instruments
	<a href="#">G21C 7/20</a>	Disposition of shock-absorbing devices for displaceable control elements in nuclear reactors.

{[H02G 7/14](#) Arrangements or devices for damping mechanical oscillations of power lines }

3. Mention of "steel" or "metal" in groups [F16F](#), unless specific mention is made otherwise, should be seen in the light of the title of group [F16F 1/00](#), i.e. material having low internal friction. This normally includes composite materials such as fibre-reinforced plastics.

4. Mention of "rubber" or "plastics" in group [F16F](#), unless specific mention is made otherwise, should be seen in the light of the title of group [F16F 1/36](#), i.e. material having high internal friction. This normally does NOT include composite materials such as fibre-reinforced plastics except in the case of groups [F16F 1/366](#) ~~to~~ [F16F 1/3686](#) and [F16F 15/305](#).

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">F16F 3/07</a>	covered by	<a href="#">F16F 13/00</a>	
<a href="#">F16F 9/24</a>	covered by	<a href="#">F16F 9/22</a>	
<a href="#">F16F 9/40</a>	covered by	<a href="#">F16F 9/00</a>	<del>to</del>
<a href="#">F16F 9/50</a>			
<a href="#">F16F 9/508</a>	covered by	<a href="#">F16F 9/512</a>	
<a href="#">F16F 11/00</a>	covered by	<a href="#">F16F 7/00</a> ,	<a href="#">F16F 9/00</a> ,
<a href="#">F16F 15/00</a>			
<a href="#">F16F 13/12</a>	covered by	<a href="#">F16F 13/08</a>	

**U F16F 1/00**

**Springs (working with fluid [F16F 5/00](#), [F16F 9/00](#))**

U F16F 1/36

- made of rubber or other material having high internal friction, {e.g. thermoplastic elastomers (spring units consisting of several springs [F16F 3/08](#))}

F16F 1/366

- made of fibre-reinforced plastics, {i.e. characterised by their special construction from such materials}

**NOTE**

Attention is drawn to notes following the subclass title regarding interpretation of the term "plastics" in groups [F16F](#), in particular as regards the subject matter of groups [F16F 1/366](#) ~~to~~ [F16F 1/3686](#).

F16F 1/42

- characterised by the mode of stressing

**NOTE**

Classification of documents in groups [F16F 1/42](#) ~~to~~ [F16F 1/54](#), concerning the mode of stressing of elastomeric springs, is to be considered only when classification in other subgroups of [F16F 1/36](#) would be unsuitable. Attention is drawn to the parallel scheme of indexing codes under [F16F 2236/00](#).

**U F16F 9/00**

**Springs, vibration-dampers, shock-absorbers, or similarly-constructed movement-dampers using a fluid or the equivalent as damping medium ([F16F 5/00](#) takes precedence; connection of valves to inflatable elastic bodies [B60C 29/00](#); {braking devices, stops or buffers for wing-operating appliances [E05F 3/00](#), [E05F 5/00](#)})**

U F16F 9/32

- Details

F16F 9/3207

- {Constructional features ([F16F 9/34](#) ~~to~~ [F16F 9/50](#) take precedence; assembly or repair [F16F 9/3271](#))}

F16F 9/36

- Special sealings, including sealings or guides for piston-rods ({[F16F 9/325](#), [F16F 9/3485](#) take precedence; arrangements for filling via piston rod sealing or guiding means [F16F 9/432](#)}; sealing of moving parts in general [F16J 15/16](#) ~~to~~ [F16J 15/56](#))

- U F16F 13/00** Units comprising springs of the non-fluid type as well as vibration-dampers, shock-absorbers, or fluid springs ([F16F 5/00](#), {[F16F 6/00](#), [F16F 9/003](#)} take precedence)
- U F16F 13/04 · comprising both a plastics spring and a damper, e.g. a friction damper
- U F16F 13/06 · · the damper being a fluid damper, e.g. the plastics spring not forming a part of the wall of the fluid chamber of the damper ([F16F 13/26](#) takes precedence)
- F16F 13/08 · · · the plastics spring forming at least a part of the wall of the fluid chamber of the damper ([F16F 13/20](#) ~~to~~ [F16F 13/24](#) take precedence)
- F16F 13/10 · · · · the wall being at least in part formed by a flexible membrane or the like ([F16F 13/14](#) ~~to~~ [F16F 13/18](#) take precedence)
- U F16F 15/00** Suppression of vibrations in systems ({damping of non-rotary systems using inertia effect [F16F 7/10](#); prevention or isolation of vibrations in machine tools [B23Q 11/0032](#); suppression of driveline vibrations in hybrid vehicle transmissions [B60W 30/20](#)}; vehicle seat suspension devices [B60N 2/50](#); {methods or devices for protecting against, or damping of, acoustic waves, e.g. sound [G10K 11/16](#)}); Means or arrangements for avoiding or reducing out-of-balance forces, e.g. due to motion ({vibration absorbing or balancing means for aircraft propellers [B64C 11/008](#), for rotorcraft rotors [B64C 27/001](#)}; testing static and dynamic balance of machines or structures [G01M 1/00](#))
- U F16F 15/02 · Suppression of vibrations of non-rotating, e.g. reciprocating systems; Suppression of vibrations of rotating systems by use of members not moving with the rotating systems ({[F16F 15/005](#) takes precedence } ; layered products [B32B](#); suppression of vibration in ships [B63](#); {relieving load on bearings, using magnetic means [F16C 39/06](#)})
- F16F 15/04 · · using elastic means (single elements or their attachment [F16F 1/00](#) ~~to~~ [F16F 13/00](#)); ({[F16F 15/023](#), [F16F 15/03](#) take precedence})

**Project: N/A (F16G)**

F16G

**BELTS, CABLES, OR ROPES, PREDOMINANTLY USED FOR DRIVING PURPOSES; CHAINS; FITTINGS PREDOMINANTLY USED THEREFOR**NOTE

Attention is drawn to the following places:

- [B63B 21/04](#) Fastening equipment for chains, ropes or the like for ships
- [B63B 21/20](#) Adaptations of chains, ropes or the like for ships
- [B65G 15/30](#) Endless ~~conveyer~~[conveyor](#) belts
- [B65G 17/38](#),
- [B65G 19/20](#) Traction chains for ~~conveyers~~[conveyors](#)
- [F16H](#) Gearings using flexible members
- [F16H 9/24](#) Chains specially adapted for gearings with variable ratio
- [H05F](#) Preventing or carrying-off electrostatic charges.

F16G 1/00 **Driving-belts (V-belts [F16G 5/00](#); ~~conveyer belt~~ [B65G](#); [conveyor belt](#) [B65G](#))**F16G 3/00 **Belt fastenings, e.g. for ~~conveyer~~[conveyor](#) belts (for V-belts [F16G 7/00](#))****Project: MP0144 (F16G)**

- U F16G 13/00** **Chains (making thereof [B21L](#))**
- U F16G 13/18 · Chains having special overall characteristics

M F16G 13/20

- stiff; Push-pull chains

**WARNING**

This group is not complete pending a reorganisation, see also F16G 13/18

Project: N/A (F16H)

F16H

**GEARING** {(steering of motor vehicles by differentially driving ground-engaging elements on opposite vehicle sides [B62D 11/02](#))}

NOTES

1. Combinations including mechanical gearings are classified in groups [F16H 37/00](#) or [F16H 47/00](#), unless they are provided for in groups [F16H 1/00](#) to [F16H 35/00](#).
2. In this subclass, sets of rigidly-connected members are regarded as single members.
3. In this subclass, the following terms or expressions are used with the meanings indicated:
  - "toothed gearing" includes worm gearing and other gearing involving at least one wheel or sector provided with teeth or the equivalent, EXCEPT gearing with chains or toothed belts, which is treated as friction gearing;
  - "conveying motion" includes transmitting energy, and means that the applied and resultant motions are of the same kind, though they may differ in, e.g. speed, direction extent;
  - "rotary" implies that the motion may continue indefinitely;
  - "oscillating" means moving about an axis to an extent which is limited by the construction of the gearing, and which may exceed one revolution, the movement being alternately forwards and backwards during continued operation of the gearing;
  - "reciprocating" means moving substantially in a straight line, the movement being alternately forwards and backwards during continued operation of the gearing;
  - "reversing" or "reversal" means that an applied movement in one direction may produce a resultant movement in either of two opposed directions at will;
  - "central gears" includes any gears whose axis is the main axis of the gearing.
4. Attention is drawn to the following places:

<a href="#">A01D 69/06</a>	Gearings in harvesting machines
<a href="#">A63H 31/00</a>	Gearing for toys
<a href="#">B21B 35/12</a>	Toothed-wheel gearing for metal-rolling mills
<a href="#">B60K</a>	Arrangement of transmissions in vehicles
<a href="#">B61C 9/00</a>	Transmissions for railway locomotives
<a href="#">B62D 3/00</a>	Vehicle steering gears
<a href="#">B62M</a>	Transmissions for cycles
<a href="#">B63H 23/00</a>	Transmissions for marine propulsions
<a href="#">B63H 25/00</a>	Marine steering gears
{ <a href="#">B64C 27/12</a> , <a href="#">B64C 27/58</a>	Transmissions for helicopters
<a href="#">B64D 35/00</a>	Transmissions for aircraft }
<a href="#">F01</a> to <a href="#">F04</a>	Machines, engines, pumps
<a href="#">F15B 15/00</a>	Gearings associated with fluid-actuated devices
<a href="#">G01D 5/04</a>	Gearing used in indicating or recording apparatus in connection with measuring devices

[H03J 1/00](#) Driving arrangements for tuning resonant circuits

[H04L 13/04](#) Driving mechanisms for apparatus for transmission of coded digital information.

**F16H 3/00** **Toothed gearings for conveying rotary motion with variable gear ratio or for reversing rotary motion (speed-changing or reversing mechanisms [F16H 59/00](#) ~~to~~ [F16H 63/00](#))**

- U F16H 3/44
  - using gears having orbital motion {(the gear-ratio being changed by inversion of torque direction [F16H 3/005](#))}
- F16H 3/46
  - • Gearings having only two central gears, connected by orbital gears ([F16H 3/68](#) ~~to~~ [F16H 3/78](#) take precedence)
- F16H 3/62
  - • Gearings having three or more central gears ([F16H 3/68](#) ~~to~~ [F16H 3/78](#) take precedence)

**U F16H 7/00** **Gearings for conveying rotary motion by endless flexible members (specific for conveying rotary motion with variable gear ratio or for reversing rotary motion [F16H 9/00](#); {Belts, V-belts, ropes, cables, and chains [F16G](#), chain-wheels [F16H 55/30](#); pulleys [F16H 55/36](#))**

- F16H 7/08
  - Means for varying tension of belts, ropes, or chains (pulleys of adjustable construction [F16H 55/52](#); {gearings with endless belts [F16H 7/02](#); tensioning for chains or belts specially adapted for cycles [B62M 9/16](#); belt or chain tensioning arrangements for endless ~~conveyers~~ ~~conveyors~~ [B65G 23/44](#))}

**F16H 9/00** **Gearings for conveying rotary motion with variable gear ratio, or for reversing rotary motion, by endless flexible members (control of change-speed or reversing-gearings conveying rotary motion [F16H 59/00](#) ~~to~~ [F16H 63/00](#))**

**F16H 15/00** **Gearings for conveying rotary motion with variable gear ratio, or for reversing rotary motion, by friction between rotary members ({gearings for reversal only [F16H 3/14](#), [F16H 3/60](#)}; control of change-speed or reversing-gearings conveying rotary motion [F16H 59/00](#) ~~to~~ [F16H 63/00](#))**

**Project: MP0144 (F16H)**

**U F16H 25/00** **Gearings comprising primarily only cams, cam-followers and screw-and-nut mechanisms**

- U F16H 25/18
  - for conveying or interconverting oscillating or reciprocating motions
- U F16H 25/20
  - • Screw mechanisms (with automatic reversal [F16H 25/12](#))
- M F16H 25/205
  - • • {comprising alternate power paths, e.g. for fail safe back-up}

**WARNING**

This group is not complete pending reclassification; see also [F16H 25/20](#) and subgroups

- M F16H 25/2056
  - • • {Telescopic screws with at least three screw members in coaxial arrangement}

**WARNING**

This group is not complete pending reclassification, see also [F16H 25/20](#) and subgroups

**Project: N/A (F16H)**

F16H 39/00 - Fluid gearing (fluid actuators [F15B](#); couplings or clutches with a fluid or semi-fluid as power-transmitting means [F16D 31/00](#) to- [F16D 39/00](#); fluid-resistance brakes [F16D 57/00](#))

F16H 51/00 - Details of gearing or mechanisms (of screw-and-nut gearing [F16H 25/00](#); of fluid gearing [F16H 39/00](#) to- [F16H 43/00](#); shafts, Bowden mechanisms, cranks, eccentrics, bearings, pivotal, pivotal connections, crossheads, connecting-rods [F16C](#); chains, belts [F16G](#); piston-rods [F16J 7/00](#))

**Project: MP0144 (F16H)**

- U F16H 57/00 **General details of gearing (of screw-and-nut gearing [F16H 25/00](#); of fluid gearing [F16H 39/00](#) - [F16H 43/00](#))**
- M F16H 57/0018 • {Shaft assemblies for gearings (camshafts with single track cams [F16H 53/02](#))}
- WARNING**  
Groups [F16H 57/0018](#) and subgroups are not complete pending a reorganisation; see also [F16H 57/021](#), [F16H 57/022](#)
- M F16H 57/02 • Gearboxes; Mounting gearing therein
- NOTE**  
When classifying in this group, in the absence of an indication to the contrary, classification is made in all appropriate subgroups.
- WARNING**  
Subgroups of [F16H 57/02](#) are not complete pending reclassification; see provisionally also respective higher groups
- M F16H 57/04 • Features relating to lubrication or cooling {or heating} ({in hydrokinetic gearing [F16H 41/30](#); } control of lubrication or cooling in hydrostatic gearing [F16H 61/4165](#))
- WARNING**  
Subgroups of [F16H 57/04](#) are not complete pending reclassification; see provisionally also respective higher groups

**Project: N/A (F16H)**

F16H 57/05 • • of chains (~~for conveyers [B65G 45/02](#)~~for conveyors [B65G 45/02](#))

**F16H 59/00 - Control of gearings conveying rotary motion**

**F16H 63/00**

**NOTES**

1. Attention is drawn to the Notes after the title of subclass [B60W](#).
2. In groups [F16H 59/00](#) to- [F16H 63/00](#), clutches positioned within a gearbox are considered as comprising part of the gearings.
3. In groups [F16H 59/00](#) to- [F16H 63/00](#), the following terms or expressions are used with the meaning indicated:
  - "final output element" means the final element which is moved to establish a gear ratio, i.e. which achieves the linking between two power transmission means, e.g. reverse idler gear, gear cluster, coupling sleeve, apply piston of a hydraulic clutch;
  - "mechanism" means a kinematic chain consisting either of a single element or alternatively of a series of elements, the position of each point on the kinematic chain being derivable from the position of any other point on the chain, and therefore, for a given position of a point on one of the elements forming the kinematic chain there is only one position for each of the other points on the elements forming the kinematic chain;

- "final output mechanism" means the mechanism which includes the final output element;
  - "actuating mechanism" means the mechanism, the movement of which causes the movement of another mechanism by being in mutual contact;
  - "final actuating mechanism" means the mechanism actuating the final output mechanism.
  - {"mechanical force" means the force transmitted by an actuating mechanism or the human body}
4. Combinations of features individually covered by group [F16H 61/00](#) and one or both of groups [F16H 59/00](#) and [F16H 63/00](#) are classified in group [F16H 61/00](#).
5. Combinations of features individually covered by groups [F16H 59/00](#) and [F16H 63/00](#) are classified in group [F16H 63/00](#).
6. When classifying in groups [F16H 59/00](#) to [F16H 63/00](#), control inputs or types of gearing, which are not identified by the preceding notes concerning combinations, and which are considered to represent information of interest for search, may also be classified. Such non-obligatory classification should be given as "additional information", e.g. selected from subgroup [F16H 61/66](#) relating to the type of gearing controlled or from group [F16H 59/00](#) relating to control inputs

**Project: MP0144 (F16H)**

- U F16H 61/00 Control functions within {control units of} change-speed- or reversing-gearings for conveying rotary motion; {Control of exclusively fluid gearing, friction gearing, gearings with endless flexible members or other particular types of gearing}**
- U F16H 61/0003 • {Arrangement or mounting of elements of the control apparatus, e.g. valve assemblies or snapfittings of valves; Arrangements of the control unit on or in the transmission gearbox}
- M F16H 61/0006 • • {Special features of electronic control units}
- WARNING**  
This group is not complete pending reclassification; see also F16H 61/0003
- U F16H 61/02 • characterised by the signals used {(for shift actuators [F16H 61/28](#), for continuously variable gearings [F16H 61/66](#))}
- NOTES**
1. Control units where gearshift is controlled by an electric circuit, are classified in [F16H 61/0202](#)
2. Control units where gearshift is controlled by hydraulic signals and a subfunction, e.g. kickdown, is controlled by an electric circuit, are classified in [F16H 61/0262](#) with indexing of the electric features
- U F16H 61/0202 • • {the signals being electric ([F16H 61/04](#) takes precedence)}
- M F16H 61/0248 • • • {Control units where shifting is directly initiated by the driver, e.g. semi-automatic transmissions (generation of movements for final actuating mechanisms [F16H 61/28](#))}
- WARNING**  
This group is not complete pending reclassification; see also groups [F16H 61/0204](#), [F16H 61/0206](#)
- U F16H 61/0262 • • {the signals being hydraulic ([F16H 61/04](#) takes precedence)}

- M F16H 61/0274
- • {Control units where shifting is directly initiated by the driver, e.g. semi-automatic transmissions (generation of movements for final actuating mechanisms [F16H 61/28](#))}
- WARNING**  
This group is not complete pending reclassification; see also groups [F16H 61/0265](#), [F16H 61/0267](#)
- U F16H 61/70
- specially adapted for change-speed gearing in group arrangement, i.e. with separate change-speed gear trains arranged in series, e.g. range or overdrive-type gearing arrangements
- M F16H 61/707
- {using only mechanical control means}
- WARNING**  
This group is not complete pending reclassification; see also group [F16H 63/44](#)
- U F16H 63/00**
- Control outputs {from the control unit} to change-speed- or reversing-gearings for conveying rotary motion {or to other devices than the final output mechanism}**
- U F16H 63/40
- comprising signals other than signals for actuating the final output mechanisms
- M F16H 63/42
- • Ratio indicator devices
- WARNING**  
This group is not complete pending reclassification; see also codes [B60K 2741/22](#), [B60K 2741/225](#)

**Project: N/A (F16K)**

F16K 1/00 -  
F16K 13/00

**Constructional types (check valves [F16K 15/00](#))****NOTE**

In groups [F16K 1/00](#) to [F16K 13/00](#), an initial seal breaking or final sealing movement which is different from the opening or closing movement of the valve is not considered in determining the movement to be classified.

- F16K 1/02
- with screw-spindle ([F16K 1/12](#) to [F16K 1/28](#) take precedence; actuating mechanisms with screw-spindles [F16K 31/50](#))

**Project: MP0144 (F16K)**

- U F16K 1/16
- with pivoted closure-members
- U F16K 1/18
- • with pivoted discs or flaps
- M F16K 1/20
- • • with axis of rotation arranged externally of valve member

**WARNING**

Subgroups of [F16K 1/20](#) are not complete pending a reorganisation, see also [F16K 1/20](#)

**Project: N/A (F16K)**

- F16K 1/32
- Details (details of more general applicability [F16K 25/00](#) to [F16K 51/00](#))

**Project: MP0144 (F16K)**

- U F16K 1/34
- • Cutting-off parts, e.g. valve members, seats ([F16K 1/06](#), [F16K 1/12](#), [F16K 1/14](#), [F16K 1/26](#) take precedence)

- M F16K 1/42
- • • Valve seats (for double-seat valves [F16K 1/44](#))
- WARNING**  
Subgroups of F16K 1/42 are not complete pending a reorganisation, see also F16K 1/42 }
- U F16K 1/46
- • • Attachment of sealing rings
- M F16K 1/465
- • • • {to the valve seats}
- WARNING**  
Not yet complete, see also F16K 1/46
- U F16K 5/00**
- {Plug valves;} Taps or cocks comprising only cut-off apparatus having at least one of the sealing faces shaped as a more or less complete surface of a solid of revolution, the opening and closing movement being predominantly rotary (taps of the lift-valve type [F16K 1/00](#))**
- U F16K 5/06
- with plugs having spherical surfaces; Packings therefor
- U F16K 5/0663
- • {Packings}
- U F16K 5/0673
- • • {Composite packings}
- M F16K 5/0678
- • • • {in which only one of the components of the composite packing is contacting the plug}
- WARNING**  
not yet complete, see also F16K 5/0673
- U F16K 15/00**
- Check valves (valves specially adapted for inflatable balls [A63B 41/00](#))**
- U F16K 15/02
- with guided rigid valve members
- M F16K 15/021
- • {the valve member being a movable body around which the medium flows when the valve is open ([F16K 15/025](#) to [F16K 15/12](#) take precedence)}
- WARNING**  
not yet complete
- M F16K 15/023
- • • {the valve member consisting only of a predominantly disc-shaped flat element}
- WARNING**  
not yet complete

**Project: N/A (F16K)**

- F16K 15/025
- • {the valve being loaded by a helicoidal spring ([F16K 15/03](#) to [F16K 15/12](#) take precedence)}

**Project: MP0144 (F16K)**

- U F16K 15/04
- • shaped as balls
- M F16K 15/048
- • • {Ball features}
- WARNING**  
not yet complete, see also F16K 15/04
- U F16K 15/06
- • with guided stems
- M F16K 15/063
- • • {the valve being loaded by a helicoidal spring}
- WARNING**  
not yet complete, see also F16K 15/06

- U F16K 17/00 Safety valves; Equalising valves, {e.g. pressure relief valves}**
- U F16K 17/02 · opening on surplus pressure on one side; closing on insufficient pressure on one side (check valves [F16K 15/00](#))
- U F16K 17/04 · · spring-loaded
- U F16K 17/0446 · · · {with an obturating member having at least a component of their opening and closing motion not perpendicular to the closing faces}
- M F16K 17/046 · · · · {the valve being of the gate valve type or the sliding valve type}
- WARNING**  
not yet complete, see also [F16K 17/0446](#)
- U F16K 17/36 · actuated in consequence of extraneous circumstances, e.g. shock, change of position
- M F16K 17/366 · · {the closure member being a movable ball ([F16K 17/38](#) takes precedence)}
- WARNING**  
not yet complete, see also [F16K 17/36](#)
- U F16K 21/00 Fluid-delivery valves, {e.g. self-closing valves}{for liquid handling [B67D](#); for flushing devices for water-closets or the like [E03D](#)}**
- U F16K 21/04 · Self-closing valves, i.e. closing automatically after operation {(pneumatic tools [B25B 9/00](#))}
- U F16K 21/16 · · closing after a predetermined quantity of fluid has been delivered ([F16K 21/10](#) takes precedence)
- M F16K 21/165 · · · {with means sensing the weight of said fluid quantity}
- WARNING**  
not yet complete, see also [F16K 21/16](#)
- U F16K 21/18 · · closed when a rising liquid reaches a predetermined level (float-actuated valves [F16K 31/18](#))
- M F16K 21/185 · · · {with electrical or magnetical means, e.g. with magnetic floats, for sensing the liquid level}
- WARNING**  
not yet complete, see also [F16K 21/18](#)
- U F16K 24/00 Devices, e.g. valves, for venting or aerating enclosures (equalising valves [F16K 17/00](#); arrangement or mounting in pipes or pipe systems [F16L 55/07](#); venting or aerating as an additional function of steam traps or like apparatus [F16T](#); ventilation of rooms, vehicles, see the appropriate subclass, e.g. [F24F](#))**
- U F16K 24/04 · for venting only ([F16K 24/02](#) takes precedence)
- U F16K 24/042 · · {actuated by a float}
- M F16K 24/044 · · · {the float being rigidly connected to the valve element, the assembly of float and valve element following a substantially translational movement when actuated, e.g. also for actuating a pilot valve}
- WARNING**  
not yet complete, see also [F16K 24/042](#)
- U F16K 27/00 Construction of housing (methods for welding housings [B23K](#)); Use of materials therefor**
- U F16K 27/02 · of lift valves (for reducing the flow resistance of screw-spindle lift-valves [F16K 1/06](#))

M	F16K 27/029	<ul style="list-style-type: none"> <li>• • {Electromagnetically actuated valves}</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> This group is not complete pending a reorganisation, see also F16K 27/02</p>
U	F16K 27/04	<ul style="list-style-type: none"> <li>• of sliding valves</li> </ul>
M	F16K 27/048	<ul style="list-style-type: none"> <li>• • {Electromagnetically actuated valves}</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> This group is not complete pending a reorganisation, see also F16K 27/04</p>
M	F16K 27/07	<ul style="list-style-type: none"> <li>• of cutting-off parts of tanks, e.g. tank-ears</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> This group is not complete pending a reorganisation, see also F16K 51/00</p>
<b>U</b>	<b>F16K 31/00</b>	<b>{Actuating devices;} Operating means; Releasing devices {(regulating means <a href="#">G05D</a>)}</b>
U	F16K 31/004	<ul style="list-style-type: none"> <li>• {actuated by piezo-electric means}</li> </ul>
U	F16K 31/007	<ul style="list-style-type: none"> <li>• • {Piezo-electric stacks}</li> </ul>
M	F16K 31/008	<ul style="list-style-type: none"> <li>• • • {for sliding valves}</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> This group is not complete pending a reorganisation, see also F16K 31/007</p>
U	F16K 31/02	<ul style="list-style-type: none"> <li>• electric {(<a href="#">F16K 31/004</a> takes precedence)}; magnetic</li> </ul>
U	F16K 31/04	<ul style="list-style-type: none"> <li>• • using a motor</li> </ul>
M	F16K 31/041	<ul style="list-style-type: none"> <li>• • • {for rotating valves (<a href="#">F16K 31/055</a> takes precedence)}</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> Subgroups F16K 31/042 to F16K 31/045 are not complete pending a reorganisation, see also F16K 31/041</p>
U	F16K 31/44	<ul style="list-style-type: none"> <li>• Mechanical actuating means</li> </ul>
U	F16K 31/46	<ul style="list-style-type: none"> <li>• • for remote operation</li> </ul>
M	F16K 31/465	<ul style="list-style-type: none"> <li>• • • {by flexible transmission means, e.g. cable, chain, bowden wire}</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> not complete, see also F16K 31/46</p>
U	F16K 31/50	<ul style="list-style-type: none"> <li>• • with screw-spindle {or internally threaded actuating means}</li> </ul>
M	F16K 31/506	<ul style="list-style-type: none"> <li>• • • {with plural sets of thread, e.g. with different pitch}</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> not yet complete, see also F16K 31/50</p>
M	F16K 31/508	<ul style="list-style-type: none"> <li>• • • {the actuating element being rotatable, non-rising, and driving a non-rotatable axially-sliding element}</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> not yet complete, see also F16K 31/50</p>
U	F16K 31/60	<ul style="list-style-type: none"> <li>• • Handles {(form, features or function of taps or faucet handles for domestic plumbing installations <a href="#">E03C 1/04</a>)}</li> </ul>
M	F16K 31/607	<ul style="list-style-type: none"> <li>• • • {characterised by particular material, by special measures to obtain aesthetical effects, or by auxiliary functions, e.g. storage}</li> </ul> <p style="margin-left: 20px;"><u>WARNING</u> not complete, see also F16K 31/60</p>

- U F16K 39/00** **Devices for relieving the pressure on the sealing faces**
- U F16K 39/04 · for sliding valves
- M F16K 39/045 · · {of rotating or pivoting type}
- WARNING**  
**Not yet complete, see F16K 39/04 }**
- U F16K 41/00** **Spindle sealings**
- U F16K 41/02 · with stuffing-box; {Sealing rings}
- U F16K 41/06 · · with at least one ring attached to both spindle and housing
- M F16K 41/063 · · · {for spindles which only rotate, i.e. non-rising spindles}
- WARNING**  
**Not yet complete, see also F16K 41/06 }**
- M F16K 41/066 · · · · {for rotating valves}
- WARNING**  
**Not yet complete, see also F16K 41/06 }**
- U F16K 41/08 · · with at least one ring provided with axially-protruding peripheral closing-lip
- M F16K 41/083 · · · {for spindles which only rotate, i.e. non-rising spindles}
- WARNING**  
**Not yet complete, see also F16K 41/08 }**
- M F16K 41/086 · · · · {for rotating valves}
- WARNING**  
**Not yet complete, see also F16K 41/08 }**

**Project: N/A (F16L)**

- U F16L 1/00** **Laying or reclaiming pipes; Repairing or joining pipes on or under water (soldering or welding [B23K](#); lifting-gear and load-engaging elements [B66](#); hydraulic installations, soil drainage [E02B](#); excavations or underwater constructions [E02D](#); {conduits made of concrete in situ [E02D 29/10](#)}; machines for digging trenches in combination with pipe-assembly [E02F](#); laying sewer pipes [E03F 3/06](#); in earth boreholes or wells [E21B](#); tunnelling [E21D](#); laying electric, or combined optical and electric, cables [H02G](#); making special pipes joint, see the relevant groups for the joints)**
- F16L 1/26 · Repairing or joining pipes on or under water (buoyant hoses [F16L 11/133](#); joints per se [F16L 13/00](#) ~~to~~ [F16L 49/00](#); {Joining pipes to underwater installations [E21B](#)})
- U F16L 5/00** **Devices for use where pipes, cables or protective tubing pass through walls or partitions ({joining pipes to walls [F16L 41/00](#); joining plastic pipes to walls [F16L 47/26](#); passing insulated pipes through walls [F16L 59/121](#); for steam boilers [F22B 37/105](#)}; arrangements for leading electric cables or lines through walls, floors or ceilings [H02G 3/22](#))**
- F16L 5/02 · Sealing
- NOTE**  
Group [F16L 5/14](#) takes precedence over groups {[F16L 5/022](#), [F16L 5/025](#), [F16L 5/027](#) and}~~F16L 5/04~~ [F16L 5/12](#).
- U F16L 9/00** **Rigid pipes {(steam boiler tubes [F22B 37/10](#))}**

- F16L 9/01 · of wood ([F16L 9/16](#) ~~to~~ [F16L 9/22](#) take precedence)
- F16L 9/02 · of metal ([F16L 9/16](#) ~~to~~ [F16L 9/22](#) take precedence; finned pipes [F28F](#))
- F16L 9/08 · of concrete, cement, or asbestos cement, with or without reinforcement ([F16L 9/16](#) ~~to~~ [F16L 9/22](#) take precedence; {shaping clay or other ceramic compositions, slag or mixtures containing cementitious material [B28B](#)})
- F16L 9/10 · of glass or ceramics, e.g. clay, clay tile, porcelain ([F16L 9/16](#) ~~to~~ [F16L 9/22](#) take precedence)
- F16L 9/12 · of plastics with or without reinforcement ([F16L 9/16](#) ~~to~~ [F16L 9/22](#) take precedence)
- F16L 9/14 · Compound tubes, i.e. made of materials not wholly covered by any one of the preceding groups ([F16L 9/16](#) ~~to~~ [F16L 9/22](#) take precedence)
- U F16L 11/00 Hoses, i.e. flexible pipes (hose-like supports for pipes, cables or protective tubing, between relatively movable points [F16L 3/01](#); suction-cleaner hoses [A47L 9/24](#))**
- U F16L 11/14 · made of rigid material, e.g. metal or hard plastics
- F16L 11/18 · · Articulated hoses, e.g. composed of a series of rings.
- F16L 25/00 Constructive types of pipe joints not provided for in groups [F16L 13/00](#) ~~to~~ [F16L 23/00](#) (adjustable joints [F16L 27/00](#); couplings of the quick-acting type [F16L 37/00](#); specially adapted to be made of plastics or to be used with pipes made of plastics [F16L 47/00](#) ){Details of pipe joints not otherwise provided for, e.g. electrically conducting or insulating means}**
- U F16L 37/00 Couplings of the quick-acting type (radially binding sleeves [F16L 17/04](#), [F16L 21/06](#); connecting hoses to rigid members [F16L 33/00](#); connections made automatically when vehicles are brought together [B60D](#), [B61G](#); specially adapted for lubricating devices [F16N 21/00](#))**
- F16L 37/08 · in which the connection between abutting or axially overlapping ends is maintained by locking members ([F16L 37/22](#) ~~to~~ [F16L 37/26](#) take precedence)

**Project: RP0147 (F16L)**

- U F16L 37/084 · · combined with automatic locking {([F16L 37/22](#) takes precedence)}
- C F16L 37/091 · · · by means of a ring provided with teeth or fingers
- N F16L 37/0915 · · · · {with a separate member for releasing the coupling}

**Project: N/A (F16L)**

- U F16L 55/00 Devices or appurtenances for use in, or in connection with, pipes or pipe systems (the preceding groups and groups [F16L 57/00](#), [F16L 59/00](#) take precedence; repairing or joining pipes on or under water [F16L 1/26](#); nozzles [B05B](#); cleaning of pipes [B08B 9/02](#); {arrangements of draining devices for water main or service pipe systems [E03B 7/08](#);} devices for preventing bursting of water pipes by freezing [E03B 7/10](#); {draining devices for hydrants [E03B 9/14](#);} for domestic plumbing installations [E03C 1/00](#); {steam traps for draining of liquids from enclosures containing gases or vapours [F16T](#)}; arrangements for sealing leaky tubes or conduits of heat-exchangers [F28F 11/00](#))**
- F16L 55/24 · Preventing accumulation of dirt or other matter in the pipes, e.g. by traps, by strainers {(preventing accumulation in pneumatic ~~conveyers~~ [conveyors](#) [B65G 53/521](#))}
- U F16L 55/26 · Pigs or moles, i.e. devices movable in a pipe or conduit with or without self-contained propulsion means (tunnel railway systems [B61B 13/10](#); conveying articles through pipes or tubes, e.g. tube mail systems, [B65G 51/00](#))

F16L 55/265

- {specially adapted for work at or near a junction between a main and a lateral pipe}

NOTES

1. Pigs or moles specially adapted for particular applications are classified in the relevant places for the applications, e.g.

- stopping flow from or in pipes or hoses [F16L 55/12](#)
- repairing pipes [F16L 55/18](#)
- applying liquids or other fluent materials to the inside of tubes [B05C 7/08](#)
- cleaning pipes or tubes or systems of pipes or tubes [B08B 9/02](#)
- welding or cutting [B23K 37/02](#)
- earth drilling [E21B](#)
- {separating products [F17D 3/08](#);}
- cleaning chimneys [F23J 3/02](#)
- cleaning internal or external surfaces of heat-exchange or heat-transfer conduits [F28G](#)
- measuring, testing [G01](#)
- inspection of vessels in nuclear reactors [G21C 17/003](#)
- inspection or maintenance of pipe-lines or tubes in nuclear installations [G21C 17/017](#)
- installing electric, or combined optical and electric, cables or lines [H02G](#)

2. In groups [F16L 55/26](#) ~~to~~ [F16L 55/48](#), the indexing codes of [F16L 2101/00](#) ~~to~~ [F16L 2101/70](#) are added

U F16L 59/00

**Thermal insulation in general (heat, sound insulation in buildings [E04B](#); heat insulation of steam engines [F01B 31/08](#); {thermal or acoustic isolation for combustion engines [F02B 77/11](#)}; heat insulation in rotary piston machines [F01C 21/06](#); heat insulation of pumps [F04C 29/04](#); thermal insulation of pressure vessels [F17C 1/12](#); vessels not under pressure, with provision for insulation [F17C 3/02](#))**

F16L 59/14

- Arrangements for the insulation of pipes or pipe systems ([F16L 59/02](#) ~~to~~ [F16L 59/12](#) take precedence)

**Project: N/A (F16M)**

F16M 3/00

**Portable or wheeled frames or beds, e.g. for emergency power-supply aggregates, compressor sets (construction of vehicles in general [B60](#) ~~to~~ [B62](#))**

U F16M 11/00

**Stands or trestles as supports for apparatus or articles placed thereon {Stands for scientific apparatus such as gravitational force meters}{without heads [F16K 13/00](#); easels or stands for blackboard or the like [A47B 97/04](#); show-stands [A47F 7/00](#); for workmen [E04G 1/32](#); {sockets or holders for poles or posts [E04H 12/22](#)}; supporting, suspending for lighting devices [F21V 21/00](#); special modifications for particular apparatus or articles, see the appropriate subclasses)**

U F16M 11/02

- Heads

U F16M 11/04

- • Means for attachment of apparatus; Means allowing adjustment of the apparatus relatively to the stand

U F16M 11/06

- • • allowing pivoting

U F16M 11/12

- • • • in more than one direction

F16M 11/14

- • • • • with ball-joint (ball-jointed hinges [F16C 11/06](#) {adjustable mountings employing universal joints for lighting devices [F21V 21/26](#) ~~to~~ [F21V 21/30](#)})

F16M 11/18

- • with mechanism for moving the apparatus relatively to the stand ~~[N-C1202]~~

**Project: N/A (F16N)**

- U** F16N 2210/00      **Applications**  
 F16N 2210/24      · **Conveyers** **Conveyors**

**Project: N/A (F16P)**

F16P

**SAFETY DEVICES IN GENERAL; {SAFETY DEVICES FOR PRESSES}**NOTE

Attention is drawn to the following places:

<a href="#">A01D 75/18</a>	Harvesting machines
<a href="#">A01F 21/00</a>	Threshing machines or baling presses
<a href="#">B02C 23/04</a>	Crushing or disintegrating machines
<a href="#">B21B 33/00</a>	Rolling of metal
<a href="#">B21D 55/00</a>	Working sheet metal or tubes, rods or profiles without essentially removing material
<a href="#">B23B 25/04</a>	Turning-machines
<a href="#">B23Q 11/00</a>	Machine tools
<a href="#">B24B 55/00</a>	Grinding or polishing machines
<a href="#">B25J 19/06</a>	Manipulators
<a href="#">B26D 7/22</a>	Cutting machines
<a href="#">B27G 19/00</a>	Wood saws
<a href="#">B65B 57/00</a>	Packaging machines or apparatus
<a href="#">B65G 43/00</a>	<b>Conveyers</b> <b>Conveyors</b>
<a href="#">B65H 26/00</a>	Web-advancing mechanisms
<a href="#">B65H 63/00</a>	Handling or winding of thin or filamentary material
<a href="#">D01G 31/00</a>	Treatment of fibres
<a href="#">D01H 13/14</a>	Spinning or twisting
<a href="#">D05B 83/00</a>	Sewing machines
<a href="#">F21V 25/00</a>	Lighting devices.

**Project: MP0144 (F16P)**

- U** F16P 3/00      **Safety devices acting in conjunction with the control or operation of a machine; Control arrangements requiring the simultaneous use of two or more parts of the body ([F16P 5/00](#) takes precedence)**
- U** F16P 3/12      · with means, e.g. feelers, which in case of the presence of a body part of a person in or near the danger zone influence the control or operation of the machine ([F16P 3/08](#) takes precedence)
- M** F16P 3/14      · · the means being photocells or other devices sensitive without mechanical contact

**WARNING**

**Subgroups of F16P 3/14 are not complete pending a reorganisation, see also F16P 3/14**

**Project: N/A (F17C)**

F17C 1/00

**Pressure vessels, e.g. gas cylinder, gas tank, replaceable cartridge (pressurised apparatus for purposes other than storage, see the relevant subclasses such as [A62C](#), [B05B](#); associated with vehicles, see the appropriate subclass of classes [B60](#) to [B64](#); pressure vessels in general [F16J 12/00](#); {autoclaves [B01J 3/04](#); tank vehicles [B60P 3/22](#); railway tank wagons for carrying fluent materials [B61D 5/00](#); accumulators for supplying fluid under pressure [F15B 1/04](#); liquified gas stoves [F24C 3/00](#)})**

- U** F17C 13/00      **Details of vessels or of the filling or discharging of vessels**

- F17C 13/002 · {for vessels under pressure ([F17C 13/008](#) and [F17C 13/02](#) ~~to~~ [F17C 13/12](#) take precedence)}
- F17C 13/004 · {for large storage vessels not under pressure ([F17C 13/008](#) and [F17C 13/02](#) ~~to~~ [F17C 13/12](#) take precedence)}
- F17C 13/005 · {for medium-size and small storage vessels not under pressure ([F17C 13/008](#) and [F17C 13/02](#) ~~to~~ [F17C 13/12](#) take precedence)}

**Project: N/A (F17D)****U F17D 3/00****Arrangements for supervising or controlling working operations**

F17D 3/16

- for eliminating particles in suspension (from liquids by sedimentation [B01D 21/00](#); separation by filtration or otherwise [B01D 24/00](#) ~~to~~ [B01D 51/00](#); centrifugal apparatus [B04](#))

**Project: N/A (F21L)**

F21L 15/00

**Details of kinds solely applicable to the devices covered by groups [F21L 2/00](#) ~~to~~ [F21L 14/00](#)**

F21L 25/00

**Details of kinds solely applicable to the devices covered by groups [F21L 17/00](#) ~~to~~ [F21L 23/00](#)**

F21L 26/00

**Non-electric portable lighting devices, or systems thereof, not provided for in groups [F21L 17/00](#) ~~to~~ [F21L 23/00](#)**

**Project: N/A (F21S)**

F21S

**NON-PORTABLE LIGHTING DEVICES OR SYSTEMS THEREOF (burners [F23D](#))****NOTES**

1. This subclass covers devices or systems intended for fixed installation, e.g. vehicle lighting, or for use at a permanent location, e.g. free-standing floor- or table-lamps.
2. This subclass does not cover devices or systems specially adapted for transportation, which are covered by subclass [F21L](#).
3. Non-electric lighting devices or systems are classified in groups [F21S 11/00](#) ~~to~~ [F21S 15/00](#) only if a special adaptation related to the use of a non-electric light source is of interest.

F21S 2/00

**Systems of lighting devices, not provided for in main groups [F21S 4/00](#) ~~to~~ [F21S 10/00](#) or [F21S 19/00](#), e.g. of modular construction**

**U F21S 10/00****Lighting devices or systems producing a varying lighting effect**

F21S 10/02

- changing colors {([F21S 10/002](#) ~~to~~ [F21S 10/007](#), [F21S 10/04](#) take precedence)}

**Project: N/A (F21V)****U F21V 7/00****Reflectors for light sources (characterised by cooling arrangements [F21V 29/505](#))**

F21V 7/0066

- {specially adapted to co operate with point like light sources; specially adapted to co operate with light sources the shape of which is unspecified ([F21V 7/16](#) ~~to~~ [F21V 7/22](#) take precedence)}

**Project: MP0144 (F21V)****U F21V 15/00****Protecting lighting devices from damage (protection from thermal damage [F21V 29/00](#); gas-tight or water-tight arrangements [F21V 31/00](#))**

- M F21V 15/01
- Housings, e.g. material or assembling of housing parts ([F21V 15/02](#) takes precedence {housings forming signs or letters [G09F 13/04](#)})
- WARNING**  
Not complete, see [F21V 15/00](#)
- M F21V 15/015
- • Devices for covering joints between adjacent lighting devices; End coverings
- WARNING**  
Not complete, see [F21V 15/00](#)
- U F21V 17/00**
- Fastening of component parts of lighting devices, e.g. shades, globes, refractors, reflectors, filters, screens, grids or protective cages (of light sources or light holders [F21V 19/00](#))**
- M F21V 17/08
- onto the supporting or suspending arrangements of the lighting device, e.g. power cords, standards
- WARNING**  
Not complete, see [F21V 17/00](#)

**Project: N/A (F21V)**

- F21V 17/10
- characterised by specific fastening means or way of fastening ([F21V 17/02](#) to [F21V 17/08](#) take precedence)

**Project: MP0144 (F21V)**

- U F21V 21/00**
- Supporting, suspending, or attaching arrangements for lighting devices ([F21V 17/00](#), [F21V 19/00](#) take precedence; arrangement of signalling or lighting devices, the mounting or supporting thereof or circuits therefor, for vehicles in general [B60Q](#), stands for supporting apparatus or articles in general [F16M 11/00](#)); Hand grips**
- M F21V 21/005
- for several lighting devices in an end-to-end arrangement, i.e. light tracks
- WARNING**  
Not complete, see [F21V 21/00](#)
- M F21V 21/008
- Suspending from a cable or suspension line
- WARNING**  
Not complete, see [F21V 21/00](#)
- U F21V 21/10
- Pendants, arms, or standards; Fixing lighting devices to pendants, arms, or standards (adjustable mounting [F21V 21/14](#); construction of posts not peculiar to use with lighting devices [E04H 12/00](#))
- M F21V 21/104
- • Pendants
- WARNING**  
Not complete, see [F21V 21/10](#)
- M F21V 21/108
- • Arms
- WARNING**  
Not complete, see [F21V 21/10](#)
- M F21V 21/112
- • Fixing lighting devices to pendants ([F21V 21/002](#) takes precedence)
- WARNING**  
Not complete, see [F21V 21/10](#)

- M F21V 21/116
- Fixing lighting devices to arms or standards ([F21V 21/002](#) takes precedence)
- WARNING**  
Not complete, see [F21V 21/10](#)
- M F21V 21/13
- Spring-loaded poles fixed at both ends
- WARNING**  
Not complete, see [F21V 21/00](#)
- U F21V 21/14
- Adjustable mountings
- M F21V 21/15
- specially adapted for power operation, e.g. by remote control
- WARNING**  
Not complete, see [F21V 21/14](#)
- U F21V 21/34
- Supporting elements displaceable along a guiding element {(telescopic mounting of lighting devices [F21V 21/22](#))}
- M F21V 21/35
- with direct electrical contact between the supporting element and electric conductors running along the guiding element
- WARNING**  
Not complete, see [F21V 21/34](#)
- M F21V 21/40
- Hand grips
- WARNING**  
Not complete, see [F21V 21/00](#)
- U F21V 27/00
- Cable-stowing arrangements structurally associated with lighting devices, e.g. reels (storing lengths of cable in general [B65H](#) {the lighting devices being vehicle headlamps [F21S 48/1109](#); the lighting devices being vehicle lights [F21S 48/212](#)})**
- M F21V 27/02
- Cable inlets
- WARNING**  
Not complete, see [F21V 27/00](#)

**Project: N/A (F21W)**

F21W 2131/00

Uses or applications of lighting devices or systems not provided for in codes [F21W 2101/00](#) to [F21W 2121/00](#)

**Project: N/A (F22B)**

- U F22B 1/00
- Methods of steam generation characterised by form of heating method (solar heating [F24J](#); jackets or other cooling means in which steam is generated and which serve for cooling other apparatus, see the subclasses for such apparatus)**
- U F22B 1/02
- by exploitation of the heat content of hot heat carriers
- U F22B 1/18
- the heat carrier being a hot gas, e.g. waste gas such as exhaust gas of internal-combustion engines (use of waste heat of combustion engines, in general, [F02G](#))
- F22B 1/1892
- {Systems therefor not provided for in [F22B 1/1807](#) to [F22B 1/1861](#)}
- U F22B 27/00
- Instantaneous or flash steam boilers**
- F22B 27/04
- built-up from water tubes ([F22B 27/12](#) to [F22B 27/16](#) take precedence)

**Project: MP0144 (F23B)**

**U F23B 10/00** **Combustion apparatus characterised by the combination of two or more combustion chambers**

**M F23B 10/02** · including separate secondary combustion chambers

**WARNING**

Group F23B 10/02 is not complete pending a reorganisation. See also groups F23B 10/00

**Project: N/A (F23B)**

**U F23B 50/00** **Combustion apparatus in which the fuel is fed into or through the combustion zone by gravity, e.g. from a fuel storage situated above the combustion zone**

F23B 50/12 · the fuel being fed to the combustion zone by free fall or by sliding along inclined surfaces, e.g. from a ~~conveyer~~conveyor terminating above the fuel bed

**Project: MP0144 (F23B)**

**M F23B 90/00** **Combustion methods not related to a particular type of apparatus**

**NOTE**

Groups [F23B 90/00](#) - [F23B 90/08](#) correspond to IPC2012.01

**WARNING**

Groups F23B 90/00 to F23B 90/08 are not complete pending a reorganisation. See also groups F23B 1/00 to F23B 7/007

**Project: N/A (F23C)**

**U F23C 10/00** **Fluidised bed combustion apparatus**

F23C 10/002 · {for pulverulent solid fuel ([F23C 10/005](#) to [F23C 10/32](#) take precedence)}

**Project: N/A (F23D)**

**U F23D 11/00** **Burners using a direct spraying action of liquid droplets or vaporised liquid into the combustion space (spraying in general [B05B](#), [B05D](#))**

**U F23D 11/36** · Details {e.g. burner cooling means, noise reduction means}

F23D 11/40 · · Mixing tubes ~~{~~{or chambers}}; Burner heads

**U F23D 14/00** **Burners for combustion of a gas, e.g. of a gas stored under pressure as a liquid**

F23D 14/20 · Non-premix gas burners, i.e. in which gaseous fuel is mixed with combustion air on arrival at the combustion zone ([F23D 14/30](#) to [F23D 14/44](#) take precedence)

**Project: MP0144 (F23G)**

**U F23G 7/00** **Incinerators or other apparatus for consuming industrial waste, e.g. chemicals (incinerator closets [A47K 11/02](#); oxidation of sludge [C02F 11/06](#); burners in general, burner details [F23D](#); incinerating radioactive waste [G21F 9/00](#))**

- U F23G 7/06
- of waste gases or noxious gases, e.g. exhaust gases (exhaust apparatus for engines with means for rendering the exhaust innocuous, e.g. by thermal or catalytic conversion, [F01N 3/08](#); combustion of uncombusted material from primary combustion within apparatus for combustion of solid or fluent fuel [F23B](#), {of non combusted material from primary combustion of solid fuels [F23B 5/00](#); of gases produced by primary combustion of solid fuels [F23B 90/04](#)}, [F23C](#))

- M F23G 7/07
- in which combustion takes place in the presence of catalytic material

**WARNING**

This subgroup [IPC8] introduced in January 2006 is not complete. Documents from IPC7-based groups are in the process of being reorganised to this new group

**Project: N/A (F23J)**

- U F23J 1/00
- Removing ash, clinker, or slag from combustion chamber {(arrangements for collecting bottom ash and flyash [F23J 3/06](#); removing flyash from flue gas [F23J 15/022](#))}**

- F23J 1/02
- Apparatus for removing ash, clinker, or slag from ash-pits, e.g. by employing trucks or **conveyersconveyors**, by employing suction devices

**Project: N/A (F23N)**

- U F23N 1/00
- Regulating fuel supply**

- F23N 1/002
- {using electronic means ([F23N 1/04](#) ~~to~~ [F23N 1/10](#) take precedence)}
- F23N 1/005
- {using electrical or electromechanical means ([F23N 1/04](#) ~~to~~ [F23N 1/10](#) take precedence)}
- F23N 1/007
- {using mechanical means ([F23N 1/04](#) ~~to~~ [F23N 1/10](#) take precedence)}

- U F23N 3/00
- Regulating air supply or draught (conjointly with fuel supply [F23N 1/00](#))**

- F23N 3/002
- {using electronic means ([F23N 3/02](#) ~~to~~ [F23N 3/08](#) take precedence)}
- F23N 3/005
- {using electrical or electromechanical means ([F23N 3/02](#) ~~to~~ [F23N 3/08](#) take precedence)}
- F23N 3/007
- {using mechanical means ([F23N 3/02](#) ~~to~~ [F23N 3/08](#) take precedence)}

- U F23N 5/00
- Systems for controlling combustion ([F23N 1/00](#), [F23N 3/00](#) take precedence)**

- F23N 5/003
- {using detectors sensitive to combustion gas properties ([F23N 5/02](#), [F23N 5/18](#) ~~to~~ [F23N 5/26](#) take precedence)}

- U F23N 5/02
- using devices responsive to thermal changes or to thermal expansion of a medium

- F23N 5/022
- {using electronic means ([F23N 5/04](#) ~~to~~ [F23N 5/14](#) take precedence)}

- F23N 5/025
- {using electrical or electromechanical means ([F23N 5/04](#) ~~to~~ [F23N 5/14](#) take precedence)}

- F23N 5/027
- {using mechanical means ([F23N 5/04](#) ~~to~~ [F23N 5/14](#) take precedence)}

- F23N 5/24
- Preventing development of abnormal or undesired conditions, i.e. safety arrangements ([F23N 5/02](#) ~~to~~ [F23N 5/18](#) take precedence)

- U F23N 2021/00
- Pretreatment or prehandling**

- F23N 2021/02
- using belt **conveyersconveyors**

**Project: MP0144 (F23Q)**

- U F23Q 2/00
- Lighters containing fuel, e.g. for cigarettes**

- U F23Q 2/16
- Lighters with gaseous fuel, e.g. the gas being stored in liquid phase

- M F23Q 2/161
- {with friction wheel}
- WARNING**  
groups F23Q 2/161 and F23Q 2/165 are not complete, pending reorganisation. See also F23Q 2/16
- U F23Q 2/32
- Lighters characterised by being combined with other objects (combinations with smokers' equipment [A24F](#))
- M F23Q 2/325
- {combined with clock, timer or counter}
- WARNING**  
groups F23Q 2/325 is not complete, pending reorganisation. See also F23Q 2/32
- U F23Q 2/34
- Component parts or accessories
- M F23Q 2/345
- {Scent-distribution or flame-colouring devices}
- WARNING**  
[N: WARNING, groups F23Q 2/345 is not complete, pending reorganisation. See also F23Q 2/34
- U F23Q 2/36
- Casings
- M F23Q 2/365
- • {Tabletop lighters}
- WARNING**  
groups F23Q 2/365 is not complete, pending reorganisation. See also F23Q 2/36

**Project: N/A (F24)****F24**

**HEATING; RANGES; VENTILATING** (protecting plants by heating in gardens, orchards, or forests [A01G 13/06](#); baking ovens and apparatus [A21B](#); cooking devices other than ranges [A47J](#); forging [B21J](#), [B21K](#); specially adapted for vehicles, see the relevant subclasses of [B60](#) ~~to~~ [B64](#); combustion apparatus in general [F23](#); drying [F26B](#); ovens in general [F27](#); electric heating elements and arrangements [H05B](#))

**NOTE**

In this class, the following terms are used with the meanings indicated:

- "stove" includes apparatus which may have an open fire, e.g. fireplace;
- "range" means an apparatus for cooking having elements that perform different cooking operations or cooking and heating operations.

**Project: N/A (F24B)****F24B 3/00**

Heaters not covered by group [F24B 1/00](#), e.g. charcoal brazier (for cooking [A47J 27/00](#) ~~to~~ [A47J 37/00](#))

**Project: N/A (F24C)****F24C 1/00**

Stoves or ranges in which the fuel or energy supply is not restricted to solid fuel or to a type covered by a single one of the following groups [F24C 3/00](#) ~~to~~ [F24C 9/00](#); Stoves or ranges in which the type of fuel or energy supply is not specified

**U F24C 7/00**

Stoves or ranges heated by electrical energy (electric heating elements or arrangements [H05B](#))

**F24C 7/002**

- {Stoves ([F24C 7/02](#) ~~to~~ [F24C 7/10](#) take precedence)}

**F24C 9/00** Stoves or ranges heated by a single type of energy supply not covered by groups [F24C 3/00](#) to- [F24C 7/00](#) or [F24B](#) (using the heat from an exothermal reaction not involving a supply of free oxygen gas, {using special gaseous fuel e.g. acetylene, hydrogen,} using solar energy [F24J](#))

**Project: MP0144 (F24C)**

- |          |                   |   |
|----------|-------------------|---|
| <b>U</b> | <b>F24C 15/00</b> | <b>Details</b>  |
| U        | F24C 15/02        | <ul style="list-style-type: none"> <li>• Doors specially adapted for stoves or ranges (in general <a href="#">E06B</a>; for combustion chambers <a href="#">F23M</a>)</li> </ul>  |
| M        | F24C 15/025       | <ul style="list-style-type: none"> <li>• • {with air curtain closures}</li> </ul> <p style="color: red; margin-top: 10px;"><u>WARNING</u><br/>Groups <del>F24C 15/025-F24C 15/028</del> are not complete, pending reclassification. See also <del>F24C 15/02</del></p>                        |
| U        | F24C 15/08        | <ul style="list-style-type: none"> <li>• Foundations or supports plates; legs or pillars; Casings; Wheels (<a href="#">F24C 15/10</a> takes precedence)</li> </ul>  |
| M        | F24C 15/083       | <ul style="list-style-type: none"> <li>• • {Anti-tip arrangements}</li> </ul> <p style="color: red; margin-top: 10px;"><u>WARNING</u><br/>Groups <del>F24C 15/083-F24C 15/086</del> are not complete, pending reclassification. See also <del>F24C 15/08</del></p>                            |
| U        | F24C 15/10        | <ul style="list-style-type: none"> <li>• Tops, e.g. hot plate; Rings (<a href="#">F24C 15/12</a>, <a href="#">F24C 15/14</a> take precedence)</li> </ul>  |
| M        | F24C 15/108       | <ul style="list-style-type: none"> <li>• • {Mounting of hot plate on worktop}</li> </ul> <p style="color: red; margin-top: 10px;"><u>WARNING</u><br/>Group <del>F24C 15/108</del> is not complete, pending reclassification. See also <del>F24C 15/10</del></p>                               |
| U        | F24C 15/20        | <ul style="list-style-type: none"> <li>• Removing cooking fumes (parts, details or accessories of cooking-vessels for withdrawing or condensing cooking vapours from such vessels <a href="#">A47J 36/38</a>)</li> </ul>  |
| M        | F24C 15/2007      | <ul style="list-style-type: none"> <li>• • {from oven cavities}</li> </ul> <p style="color: red; margin-top: 10px;"><u>WARNING</u><br/>Groups <del>F24C 15/2007, F24C 15/2014, F24C 15/2028-F24C 15/2092</del> are not complete, pending reclassification. See also <del>F24C 15/20</del></p> |

**Project: N/A (F24D)**

- |                   |   |
|-------------------|---|
| <b>F24D 7/00</b>  | <b>Central heating systems employing heat-transfer fluids not covered by groups <a href="#">F24D 1/00</a> to- <a href="#">F24D 5/00</a>, e.g. oil, salt, gas (<a href="#">F24D 10/00</a>, <a href="#">F24D 11/00</a> take precedence)</b>       |
| <b>F24D 9/00</b>  | <b>Central heating systems employing combinations of heat transfer fluids covered by two or more of groups <a href="#">F24D 1/00</a> to- <a href="#">F24D 7/00</a> (<a href="#">F24D 10/00</a>, <a href="#">F24D 11/00</a> take precedence)</b> |
| <b>F24D 17/00</b> | <b>Domestic hot-water supply systems (combined with domestic- or space-heating systems <a href="#">F24D 1/00</a> to- <a href="#">F24D 15/00</a>)</b>  |

**Project: MP0144 (F24F)**

- M F24F 1/00** Rooms units, e.g. receiving primary air from a central station {or with supply of heating or cooling agents from a central station, such as those applied to air-treatment systems included in [F24F 3/00](#) and [F24F 5/00](#) (arrangement or assembly of components for the primary treatment of air [F24F 11/08](#); mixing chambers for air [F24F 13/04](#))}

**WARNING**

~~F24F 1/08 to F24F 1/24 and F24F 1/28 to F24F 1/68 not complete pending the completion of a reclassification; see also other groups of F24F 1/00~~

**Project: N/A (F24F)**

- U F24F 7/00** Ventilation, {e.g. by means of wall-ducts; systems using window or roof apertures}
- U F24F 7/007** · with forced flow (using ducting systems [F24F 7/06](#))
- F24F 7/013** · · using wall or window fans, displacing air through the wall or window {possibly through a grill or through a shutter or flap (with heating elements [F24F 3/00](#) ~~to~~ [F24F 3/14](#); ventilators with provision for recirculating air or piping it away [F24F 7/06](#); room ventilators, portable ventilators [F04D 25/08](#))}

**Project: N/A (F24H)**

- U F24H 1/00** Water heaters having heat generating means, e.g. boiler, flow- heater, water-storage heater ([F24H 7/00](#), [F24H 8/00](#) take precedence; details [F24H 9/00](#); steam boilers [F22B](#); domestic stoves or ranges with additional provisions for heating water [F24B 9/00](#), [F24C 13/00](#))
- U F24H 1/22** · Water heaters other than continuous-flow or water storage heaters, e.g. water-heaters for central heating ([F24H 1/50](#) takes precedence)
- F24H 1/44** · · with combinations of two or more of the types covered by groups [F24H 1/24](#) ~~to~~ [F24H 1/40](#), {e.g. boilers having a combination of features covered by [F24H 1/24](#) ~~to~~ [F24H 1/40](#)}

**Project: N/A (F25B)****F25B**

**REFRIGERATION MACHINES, PLANTS OR SYSTEMS; COMBINED HEATING AND REFRIGERATION SYSTEMS; HEAT-PUMP SYSTEMS** ({evaporation or evaporation apparatus for physical or chemical purposes, e.g. evaporation of liquids for gas phase reactions [B01B 1/005](#)}; heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants, or materials for the production of heat or cold by chemical reactions other than by combustion [C09K 5/00](#); pumps, compressors [F04](#); use of heat-pumps for domestic- or space-heating or for domestic hot-water supply [F24D](#); air-conditioning, air-humidification [F24F](#); fluid heaters using heat pumps [F24H](#))

**NOTES**

1. Attention is drawn to Note (2) following the title of subclass [F24F](#).
2. When classifying heat pump circuits or systems, groups [F25B 1/00](#) ~~to~~ [F25B 25/00](#) and [F25B 29/00](#) take precedence over group [F25B 30/00](#).

**F25B 19/00 -  
F25B 30/00**

**Machines, plant, or systems, with a single mode of operation, not covered by groups [F25B 1/00](#) ~~to~~ [F25B 17/00](#)**

**F25B 23/00**

**Machines, plant, or systems, with a single mode of operation not covered by groups [F25B 1/00](#) ~~to~~ [F25B 21/00](#), e.g. using selective radiation effect**

**F25B 25/00** Machines, plant, or systems, using a combination of modes of operation covered by two or more of the groups [F25B 1/00](#) ~~to~~ [F25B 23/00](#) (combinations of two or more modes of operation covered by a single main group, see the relevant group)

**Project: N/A (F25D)**

**F25D** REFRIGERATORS; COLD ROOMS; ICE-BOXES; COOLING OR FREEZING APPARATUS NOT COVERED BY ANY OTHER SUBCLASS (refrigerated show cases [A47F 3/04](#); thermally-insulated vessels for domestic use [A47J 41/00](#); refrigerated vehicles, see the appropriate subclasses of classes [B60](#) ~~to~~ [B64](#); containers with thermal insulation in general [B65D 81/38](#); heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants, or materials for the production of heat or cold by chemical reactions other than by combustion [C09K 5/00](#); thermally-insulated vessels for liquefied or solidified gases [F17C](#); air-conditioning or air-humidification [F24F](#); refrigeration machines, plants or systems [F25B](#); cooling of instruments and comparable apparatus without refrigeration [G12B](#); cooling of engines or pumps, see the relevant classes)

NOTES

- In this subclass, the following term is used with the meaning indicated:
  - "device" means an enclosed space to be cooled; such devices being associated either with refrigerating machinery, e.g. in a refrigerator, or with other cold sources, e.g. in an ice-box.
- Attention is drawn to Note (2) following the title of subclass [F24F](#).

- U F25D 3/00** **Devices using other cold materials; Devices using cold-storage bodies**
- U F25D 3/10** • using liquefied gases, e.g. liquid air {(for cooling semiconductor devices [H01L 23/445](#))}
- F25D 3/11** • • with [conveyersconveyors](#) carrying articles to be cooled through the cooling space
- U F25D 3/12** • using solidified gases, e.g. carbon-dioxide snow
- F25D 3/127** • • {Stationary devices with [conveyersconveyors](#) carrying articles to be cooled through the cooling space}
- F25D 9/00** **Devices not covered by groups [F25D 1/00](#) ~~to~~ [F25D 7/00](#); Combinations of devices covered by two or more of the groups [F25D 1/00](#) ~~to~~ [F25D 7/00](#)**
- U F25D 13/00** **Stationary devices, e.g. cold-rooms**
- F25D 13/06** • with [conveyersconveyors](#) carrying articles to be cooled through the cooling space
- F25D 13/062** • • {with refrigerated [conveyersconveyors](#)}
- F25D 17/00 - F25D 31/00** **Details or features of the devices covered by groups [F25D 1/00](#) ~~to~~ [F25D 16/00](#)**
- U F25D 25/00** **Charging, supporting, and discharging the articles to be cooled**
- F25D 25/04** • by [conveyersconveyors](#) (in general [B65G](#))

**Project: MP0144 (F25J)**

- U F25J 3/00** **Processes or apparatus for separating the constituents of gaseous {or liquefied gaseous} mixtures involving the use of liquefaction or solidification {(not used)}**

- U F25J 3/02 · by rectification, i.e. by continuous interchange of heat and material between a vapour stream and a liquid stream ([F25J 3/08](#) takes precedence; {purification of hydrocarbons in general [C07C 7/00](#); not used})
- M F25J 3/04 · · for air {(not used)}

**WARNING**

The reclassification has, for the moment, been carried out only down to January 1, 1960.

**Project: N/A (F25J)**

- U F25J 2205/00 Processes or apparatus using other separation and/or other processing means (not used)**
- F25J 2205/24 · using regenerators, cold accumulators or reversible heat exchangers;
- U F25J 2230/00 Processes or apparatus involving steps for increasing the pressure of gaseous process streams (not used)**
- F25J 2230/02 · Compressor intake arrangement, e.g. filtering or cooling;
- F25J 2290/00 Other details not covered by groups [F25J 2200/00](#) to [F25J 2280/00](#) (not used)**
- F25J 2290/62 · Details of storing a fluid in a tank;

**Project: N/A (F26B)**

- F26B 3/00 Drying solid materials or objects by processes involving the application of heat (in specific machines or apparatus [F26B 9/00](#) to [F26B 19/00](#))**
- U F26B 3/18 · by conduction, i.e. the heat is conveyed from the heat source, e.g. gas flame, to the materials or objects to be dried by direct contact
- F26B 3/20 · · the heat source being a heated surface {,e.g. a moving belt or ~~conveyer~~[conveyor](#)}([F26B 3/22](#) takes precedence)
- U F26B 9/00 Machines or apparatus for drying solid materials or objects at rest or with only local agitation; Domestic airing cupboards {(domestic laundry drying cabinets or chambers having heating or ventilating means [D06F 58/10](#))}**
- U F26B 9/06 · in stationary drums or chambers
- U F26B 9/08 · · including agitating devices, {e.g. pneumatic recirculation arrangements (unloading devices [F26B 25/002](#); spouted beds [F26B 3/0926](#))}
- U F26B 9/082 · · · {mechanically agitating or recirculating the material being dried}
- F26B 9/085 · · · · {moving the material in a substantially vertical sense using ~~conveyers~~[conveyors](#) or agitators, e.g. screws or augers with vertical axis, which are positioned inside the drying enclosure}
- F26B 15/00 Machines or apparatus for drying objects with progressive movement; Machines or apparatus with progressive movement for drying batches of material in compact form ([F26B 13/00](#), [F26B 17/00](#) take precedence; ~~conveyers in general B65G~~; ~~conveyors in general B65G~~)**
- U F26B 15/02 · with movement in the whole or part of a circle
- U F26B 15/08 · · in a vertical plane
- F26B 15/085 · · · {with endless clamp or tray ~~conveyer~~[conveyor](#), e.g. wicket ~~conveyer~~[conveyor](#)}
- U F26B 15/10 · with movement in a path composed of one or more straight lines, e.g. compound, {the movement being in alternate horizontal and vertical directions}
- U F26B 15/12 · · the lines being all horizontal or slightly inclined

- U F26B 15/14
- • • the objects or batches of materials being carried by trays or racks {or receptacles, which may be connected to endless chains or belts (trays, racks per se [F26B 25/18](#); with vertical movement [F26B 15/22](#))}
- F26B 15/146
- • • {applying multiple superimposed tray ~~conveyers~~[conveyors](#), the materials to be dried being dropped onto subsequent ~~conveyer~~[conveyor](#) stretches, e.g. by allowing the trays to tilt at one point}
- U F26B 15/20
- • the lines being all vertical or steeply inclined
- F26B 15/22
- • • the objects or batches of materials being carried by endless belts {the objects or batches of material being carried by trays or holders supported by endless belts or chains ([F26B 15/205](#) takes precedence; vertical bulk material ~~conveyer~~[conveyor](#)-driers [F26B 17/06](#))}
- U F26B 17/00** **Machines or apparatus for drying materials in loose, plastic, or fluidised form, e.g. granules, staple fibres, with progressive movement ([F26B 13/00](#) takes precedence; {feed or discharge arrangements [F26B 25/002](#))}**
- U F26B 17/001
- {the material moving down superimposed floors (superimposed belts [F26B 17/08](#))}
- F26B 17/002
- • {with floors which may rotate and turn over as a whole or in part, e.g. around a horizontal axis (superimposed tray ~~conveyers~~[conveyors](#) [F26B 15/146](#))}
- F26B 17/008
- {the material being a slurry or paste applied onto moving elements, e.g. chains, plates, for drying thereon, and subsequently removed therefrom (the element being an endless web or belt-like ~~conveyer~~[conveyor](#) [F26B 17/023](#); the element being a disc [F26B 17/282](#); the element being loose inert particles [F26B 3/205](#))}
- U F26B 17/02
- with movement performed by belts carrying the materials; with movement performed by belts {or elements attached to endless belts or chains} propelling the materials over stationary surfaces {(the movement being in a helical path [F26B 15/26](#); [F26B 17/003](#), [F26B 17/263](#) take precedence)}
- F26B 17/023
- • {the material being a slurry or paste, which adheres to a moving belt-like endless ~~conveyer~~[conveyor](#) for drying thereon, from which it may be removed in dried state, e.g. by scrapers, brushes or vibration}
- F26B 17/08
- • the belts being arranged in a sinuous or zig-zag path {([F26B 17/026](#) takes precedence; superimposed tray ~~conveyers~~[conveyors](#) [F26B 15/146](#))}
- F26B 17/18
- with movement performed by rotating helical blades or other rotary ~~conveyers~~[conveyors](#) {which may be heated} moving materials in stationary chambers, {e.g. troughs}
- F26B 17/26
- with movement performed by reciprocating or oscillating ~~conveyers~~[conveyors](#) propelling materials over stationary surfaces; with movement performed by reciprocating or oscillating shelves, sieves, or trays {([F26B 17/006](#) takes precedence)}
- F26B 17/263
- • {the conveying element making a rotary working movement while being transversely moved in one direction, the reverse or return movement being effected in an inoperative state, e.g. lifted, in rest}
- F26B 19/00** **Machines or apparatus for drying solid materials or objects not covered by groups [F26B 9/00](#) to- [F26B 17/00](#)**
- F26B 20/00** **Combinations of machines or apparatus covered by two or more of groups [F26B 9/00](#) to- [F26B 19/00](#)**
- U F26B 25/00** **Details of general application not covered by group [F26B 21/00](#) or [F26B 23/00](#) (loading, conveying, and unloading in general [B65G](#))**
- U F26B 25/001
- {Handling, e.g. loading or unloading arrangements}
- U F26B 25/003
- • {for articles}
- F26B 25/004
- • • {in the shape of discrete sheets (~~wicket conveyers~~[F26B 15/085](#)~~wicket conveyors~~ [F26B 15/085](#))}

**Project: N/A (F27B)****F27B****FURNACES, KILNS, OVENS, OR RETORTS IN GENERAL; OPEN SINTERING OR LIKE APPARATUS**NOTE

Attention is drawn to the references and notes following the title of class [F27](#) and the note (par. III) following the Contents of Section H.

WARNING

The following IPC groups are not used in the CPC system. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">F27B 1/09</a>	covered by	<a href="#">F27B 1/08</a>
<a href="#">F27B 5/05</a>	" "	<a href="#">F27B 5/04</a>
<a href="#">F27B 14/16</a> , <a href="#">F27B 14/18</a>	" "	<a href="#">F27B 14/0806</a>
<a href="#">F27B 21/08</a> <del>to</del> <a href="#">F27B 21/14</a>	" "	<a href="#">F27D</a>

**U F27B 9/00**

**Furnaces through which the charge is moved mechanically, e.g. of tunnel type ([F27B 7/14](#) takes precedence); Similar furnaces in which the charge moves by gravity**

- U F27B 9/02
  - of multiple-track type; of multiple-chamber type; Combinations of furnaces
- F27B 2009/026
  - • {Two or more [conveyersconveyors](#), e.g. mounted successively}
- U F27B 9/06
  - heated without contact between combustion gases and charge; electrically heated
- U F27B 9/062
  - • {electrically heated}
- U F27B 9/063
  - • • {Resistor heating, e.g. with resistors also emitting IR rays}
- F27B 9/065
  - • • • {the resistance being transported by the [conveyerconveyor](#)}
- U F27B 9/14
  - characterised by the path of the charge during treatment; characterised by the means by which the charge is moved during treatment ([F27B 9/28](#) takes precedence; travelling or movable supports or containers for the charge [F27D 3/12](#))
- U F27B 9/20
  - • the charge moving in a substantially straight path {tunnel furnace}
- U F27B 9/201
  - • • {walking beam furnace}
- F27B 9/202
  - • • • {[ConveyerConveyor](#) mechanisms therefor}
- F27B 9/207
  - • • • • {consisting of two or more [conveyersconveyors](#)}
- F27B 9/24
  - • • being carried by a [conveyerconveyor](#) {(transport by conveyers in general [B65G](#) transport by conveyors in general [B65G](#))}
- F27B 9/2407
  - • • • {the [conveyerconveyor](#) being constituted by rollers (roller hearth furnace)}
- F27B 9/243
  - • • • {Endless-strand [conveyerconveyor](#)}
- F27B 9/2453
  - • • • {Vibrating [conveyerconveyor](#) (shaker hearth furnace)}
- F27B 9/2461
  - • • • {the charge being suspended from the [conveyerconveyor](#)}
- F27B 9/2469
  - • • • {the [conveyerconveyor](#) being constituted by rollable bodies}
- F27B 9/2476
  - • • • {the [conveyerconveyor](#) being constituted by air cushion}
- F27B 2009/2484
  - • • • {the [conveyerconveyor](#) being a helical device}
- F27B 2009/2492
  - • • • {the [conveyerconveyor](#) being constituted by series of little rams or ratchets, moving the charge along}

**F27B 15/00**

**Fluidised-bed furnaces; Other furnaces using or treating finely-divided materials in dispersion {(apparatus in general for carrying out chemical or physical processes in a fluidised bed reactor [B01J 8/24](#) ~~to~~ [B01J 8/44](#))}**

**Project: N/A (F27D)**

- U F27D 3/00** **Charging; Discharging; Manipulation of charge (moving charge through a furnace [F27B 9/14](#))**
- U F27D 2003/0034 · {Means for moving, conveying, transporting the charge in the furnace or in the charging facilities}
- F27D 2003/0067 · · {comprising **conveyersconveyors** where the translation is communicated by friction from at least one rotating element, e.g. two opposed rotations combined}
- U F27D 3/02 · Skids or tracks for heavy objects
- F27D 3/026 · · {transport or **conveyerconveyor** rolls for furnaces; roller rails (**conveyer rolls in general B65Gconveyor rolls in general B65G**)}
- U F27D 19/00** **Arrangements of controlling devices**
- U F27D 2019/0028 · {Regulation}
- F27D 2019/0059 · · {Regulation involving the control of the **conveyerconveyor** movement, e.g. speed or sequences}

**Project: N/A (F28C)**

F28C

**HEAT-EXCHANGE APPARATUS, NOT PROVIDED FOR IN ANOTHER SUBCLASS, IN WHICH THE HEAT-EXCHANGE MEDIA COME INTO DIRECT CONTACT WITHOUT CHEMICAL INTERACTION (safety devices in general [F16P](#); fluid heaters having heat generating means [F24H](#); with an intermediate heat-transfer medium coming into direct contact with heat-exchange media [F28D 15/00](#) ~~to~~ [F28D 19/00](#); details of heat-exchange apparatus of general application [F28F](#))**

**Project: N/A (F28D)**

- U F28D 7/00** **Heat-exchange apparatus having stationary tubular conduit assemblies for both heat-exchange media, the media being in contact with different sides of a conduit wall**
- F28D 7/16 · the conduits being arranged in parallel spaced relation ({[F28D 7/0008](#) ~~to~~ [F28D 7/0058](#) take precedence}; [F28D 7/02](#) - [F28D 7/10](#) take precedence)
- U F28D 20/00** **Heat storage plants or apparatus in general (specially adapted for particular applications, see the relevant places, e.g. [F24D 15/02](#)); Regenerative heat-exchange apparatus not covered by groups [F28D 17/00](#) or [F28D 19/00](#)**
- U F28D 20/02 · using latent heat
- F28D 20/021 · · {the latent heat storage material and the heat-exchanging means being enclosed in one container ([F28D 20/023](#) ~~to~~ [F28D 20/028](#) take precedence)}
- F28D 21/00** **Heat-exchange apparatus not covered by any of the groups [F28D 1/00](#) ~~to~~ [F28D 20/00](#)**
- NOTE
- { Particular use of heat exchangers is classified in [F28D 21/00](#) and subgroups, whereas additionally the type of the heat exchangers is classified in the groups [F28D 1/00](#) ~~to~~ [F28D 20/00](#)}

**Project: MP0144 (F28D)**

- M F28D 21/0001 · {Recuperative heat exchangers}

**WARNING**

the groups F28D 21/0001-F28D 21/0014 are not complete, pending reorganisation. See also F28D 21/00

**Project: N/A (F28F)**

- U F28F 5/00** Elements specially adapted for movement (arrangements for moving the elements, see the appropriate subclass for the apparatus concerned)
- F28F 5/06 · Hollow screw **conveyersconveyors**
- F28F 13/00** Arrangements for modifying heat-transfer, e.g. increasing, decreasing (**F28F 1/00 to- F28F 11/00** take precedence)

**Project: N/A (F28G)**

- F28G 13/00** Appliances or processes not covered by groups **F28G 1/00 to- F28G 11/00**; Combinations of appliances or processes covered by groups **F28G 1/00 to- F28G 11/00**

**Project: N/A (F41A)**

- U F41A 5/00** Mechanisms or systems operated by propellant charge energy for automatically opening the lock
- U F41A 5/18** · gas-operated
- F41A 5/26** · · Arrangements or systems for bleeding the gas from the barrel (**F41A 5/20 to- F41A 5/24** take precedence)
- U F41A 9/00** Feeding or loading of ammunition ({conveying ammunition through pipes by the action of flowing gases **B65G 51/025**}; adaptations for feeding or loading missiles from magazines in air guns **F41B 11/50**); Magazines; Guiding means for the extracting of cartridges (cartridge extractors or ejectors **F41A 15/00**)
- U F41A 9/01** · Feeding of unbelted ammunition
- F41A 9/02** · · using wheel **conveyersconveyors**, e.g. star-wheel-shaped **conveyersconveyors**
- F41A 9/03** · · using screw or rotary-spiral **conveyersconveyors**
- F41A 9/06** · · using cyclically moving **conveyersconveyors**, i.e. **conveyersconveyors** having ammunition pusher or carrier elements which are emptied or disengaged from the ammunition during the return stroke
- F41A 9/07** · · · Reciprocating **conveyersconveyors**, i.e. **conveyersconveyors** pushing a plurality of ammunition during the feeding stroke
- U F41A 9/37** · Feeding two or more kinds of ammunition to the same gun; Feeding from two sides
- F41A 9/375** · · {Feeding propellant charges and projectiles as separate units}
- NOTE**  
Feeding elements or concepts of general interest, not specially adapted for feeding two or more kinds of ammunition or from two sides, are classified in groups **F41A 9/01 to- F41A 9/29**.
- U F41A 9/61** · Magazines
- U F41A 9/64** · · for unbelted ammunition
- F41A 9/76** · · · Magazines having an endless-chain **conveyerconveyor**
- F41A 9/77** · · · Magazines having a screw **conveyerconveyor**
- F41A 9/78** · · · Magazines having a reciprocating **conveyerconveyor**
- F41A 11/00** Assembly or disassembly features; Modular concepts; Articulated or collapsible guns (**F41A 3/64, F41A 19/10 to- F41A 19/15, F41A 21/48, F41A 25/26** take precedence)
- U F41A 17/00** Safety arrangements, e.g. safeties

- F41A 17/46 · Trigger safeties, i.e. means for preventing trigger movement ([F41A 17/02](#) to- [F41A 17/40](#) take precedence)
- F41A 17/56 · Sear safeties, i.e. means for rendering ineffective an intermediate lever transmitting trigger movement to firing pin, hammer, bolt or sear ([F41A 17/02](#) to- [F41A 17/40](#) take precedence)
- F41A 17/64 · Firing-pin safeties, i.e. means for preventing movement of slidably- mounted strikers ([F41A 17/02](#) to- [F41A 17/40](#) take precedence)
- F41A 17/74 · Hammer safeties, i.e. means for preventing the hammer from hitting the cartridge or the firing pin ([F41A 17/02](#) to- [F41A 17/40](#) take precedence)

**U F41A 19/00****Firing or trigger mechanisms; Cocking mechanisms**

- F41A 19/06 · Mechanical firing mechanisms, {e.g. counterrecoil firing, recoil actuated firing mechanisms} ([F41A 19/01](#) to- [F41A 19/05](#), [F41A 19/59](#) take precedence)

**Project: MP0144 (F41B)****U F41B 11/00****Compressed-gas guns, e.g. air guns; Steam guns**

- U F41B 11/50 · Magazines for compressed-gas guns; Arrangements for feeding or loading projectiles from magazines
- U F41B 11/52 · · the projectiles being loosely held in a magazine above the gun housing, e.g. in a hopper
- M F41B 11/53 · · · the magazine having motorised feed-assisting means

**WARNING**

~~This group is not complete pending reclassification; see also group F41B 11/52~~

- U F41B 11/70 · Details not provided for in [F41B 11/50](#) or [F41B 11/60](#)

- M F41B 11/72 · · Valves; Arrangement of valves

**WARNING**

~~Groups F41B 11/721 to F41B 11/724 are not complete pending reclassification; see also group F41B 11/72~~

- U F41B 11/80 · specially adapted for particular purposes

- M F41B 11/85 · · for launching hypodermic projectiles

**WARNING**

~~This group is not complete pending reclassification; see also groups F41B 11/50-F41B 11/724~~

- M F41B 11/87 · · for industrial purposes, e.g. for surface treatment

**WARNING**

~~This group is not complete pending reclassification; see also groups F41B 11/50-F41B 11/724~~

**Project: N/A (F41J)****F41J 1/00**

**Targets; Target stands; Target holders ([F41J 2/00](#) to- [F41J 11/00](#) take precedence; targets combined with bullet catchers [F41J 13/02](#))**

**Project: N/A (F42B)****U F42B 1/00**

**Explosive charges characterised by form or shape but not dependent on shape of container**

- U F42B 1/02 · Shaped or hollow charges (blasting cartridges with cavities in the charge [F42B 3/08](#); oil winning using shaped-charge perforators [E21B 43/116](#))

F42B 1/036      · · Manufacturing processes therefor {([F42B 33/0214](#) ~~to~~ [F42B 33/0292](#) take precedence)}

**U F42B 3/00      **Blasting cartridges, i.e. case and explosive (fuse cords, e.g. detonating fuse cords [C06C 5/00](#); chemical aspects of detonators, blasting caps or primers [C06C 7/00](#))****

F42B 3/10      · Initiators therefor (percussion fuzes [F42C 7/00](#); percussion caps [F42C 19/10](#); electric primers [F42C 19/12](#))

NOTE

Group [F42B 3/18](#) takes precedence over groups [F42B 3/103](#) ~~to~~ [F42B 3/16](#).

**U F42B 8/00      **Practice or training ammunition****

U F42B 8/12      · Projectiles or missiles ([F42B 10/48](#), [F42B 12/36](#), [F42B 19/36](#) take precedence)

F42B 8/14      · · disintegrating in flight or upon impact

NOTE

Group [F42B 8/14](#) takes precedence over groups [F42B 8/18](#) ~~to~~ [F42B 8/26](#)

**U F42B 39/00      **Packaging or storage of ammunition or explosive charges; Safety features thereof; Cartridge belts or bags****

F42B 39/26      · Packages or containers for a plurality of ammunition, e.g. cartridges ([F42B 39/14](#) ~~to~~ [F42B 39/24](#), [F42B 39/28](#) take precedence)

**Project: N/A (F42C)**

**U F42C 9/00      **Time fuzes; Combined time and percussion or pressure-actuated fuzes; Fuzes for timed self-destruction of ammunition****

U F42C 9/14      · Double fuzes; Multiple fuzes

F42C 9/16      · · for self-destruction of ammunition {([F42C 9/141](#) ~~to~~ [F42C 9/148](#) take precedence)}

**F42C 11/00      **Electric fuzes ({in combination with other fuzes [F42C 9/14](#)}; proximity fuzes [F42C 13/00](#); {safety or arming effected by electric means [F42C 15/40](#); electric contact parts for fuzes [F42C 19/06](#)}; electric igniters [F42C 19/12](#), {[F42B 3/12](#) ~~to~~ [F42B 3/18](#); optical initiators [F42B 3/113](#))}****

F42C 11/001      · {Electric circuits for fuzes characterised by the ammunition class or type ([F42C 11/02](#) ~~to~~ [F42C 11/06](#) take precedence; mechanical fuzes having electric igniters for hand grenades or marine warheads [F42C 14/025](#), [F42C 14/045](#))}

## Project: N/A (G01B)

## G01B

MEASURING LENGTH, THICKNESS OR SIMILAR LINEAR DIMENSIONS; MEASURING ANGLES; MEASURING AREAS; MEASURING IRREGULARITIES OF SURFACES OR CONTOURS {(measuring human body, see the relevant places, where such exist, e.g. [A41H 1/00](#), [A43D 1/02](#), [A61B 5/103](#); measuring appliances combined with walking-sticks [A45B 3/08](#); sorting according to dimensions [B07](#); tool-setting or drawing instruments not specially modified for measuring [B23B 49/00](#), [B23Q 15/00](#) ~~to~~ [B23Q 17/00](#), [B43L](#); combinations of measuring devices with writing-appliances [B43K 29/08](#); geodetical, nautical or aeronautical measuring, surveying, rangefinding [G01C](#); photogrammetry [G01C 11/00](#); measuring force or stress, in general [G01L 1/00](#); investigating or analysing particle size, investigating or analysing surface area of porous material [G01N](#); measuring position, distance or direction, in general, by reception or emission of radiowaves or other waves and based on propagation effects, e.g. Doppler effect, propagation time, direction of propagation [G01S](#); geophysical measuring [G01V](#); measuring length or roll diameter of film in cameras or projectors [G03B 1/60](#); combinations of measuring devices with means for controlling or regulating [G05](#); methods or arrangements for converting the position of a manually-operated writing or tracing member into an electrical signal [G06K 11/00](#); measuring elapsed travel of recording medium in recording and playback equipment, sensing diameter of record in autochange gramophones [G11B](#); means structurally associated with electric rotary current collectors for indicating brush wear [H01R 39/58](#); indicating consumption of electrodes in arc lamps [H05B 31/34](#)}}

## NOTES

1. This subclass covers measuring of position or displacement in terms of linear or angular dimensions.
2. In this subclass, the groups are distinguished by the means of measurement which is of major importance. Thus the mere application of other means for giving a final indication does not affect the classification.
3. Attention is drawn to the Notes following the title of class [G01](#).
4. Machines operated on similar principles to the hand-held devices specified in this subclass are classified with these devices.
5. Measuring arrangements or details thereof covered by two or more of groups [G01B 3/00](#) - [G01B 17/00](#) are classified in group [G01B 21/00](#) if no single other group can be selected as being predominantly applicable.

## U G01B 3/00

Instruments as specified in the subgroups and characterised by the use of mechanical measuring means (arrangements for measuring particular parameters [G01B 5/00](#); devices of general interest specially adapted or mounted for storing and repeatedly paying-out and re-storing lengths of material [B65H 75/34](#))

U G01B 3/02  
G01B 3/10

- Rulers or tapes with scales or marks for direct reading
- flexible {, e.g. tape measures}

## NOTE

Group [G01B 3/1002](#) takes precedence over groups [G01B 3/1005](#) ~~to~~ [G01B 3/1084](#) ]

## U G01B 5/00

Measuring arrangements characterised by the use of mechanical means (instruments of the types covered by group [G01B 3/00](#) per se [G01B 3/00](#))

U G01B 5/20  
G01B 5/207

- for measuring contours or curvatures
- using a plurality of fixed, simultaneously operating transducers ([G01B 5/213](#) ~~to~~ [G01B 5/22](#) take precedence)

**Project: MP0187 (G01B)**

- U G01B 7/00 Measuring arrangements characterised by the use of electric or magnetic means**
- U G01B 7/02 · for measuring length, width or thickness ([G01B 7/004](#), [G01B 7/12](#) take precedence)
- U G01B 7/06 · · for measuring thickness {(measuring during the manufacture of coatings [C23C 14/54](#))}
- M G01B 7/08 · · · {using capacitive means}
- M G01B 7/10 · · · {using magnetic means, e.g. by measuring change of reluctance}

**Project: N/A (G01B)**

- U G01B 9/00 Instruments as specified in the subgroups and characterised by the use of optical measuring means (arrangements for measuring particular parameters [G01B 11/00](#))**
- U G01B 9/02 · Interferometers {for determining dimensional properties of, or relations between, measurement objects}
- WARNING  
The subgroups [G01B 9/02001](#) - [G01B 9/02097](#) are not complete pending completion of a reorganization, provisionally see [G01B 9/02](#)
- U G01B 9/021 · · using holographic techniques
- G01B 9/023 · · · for contour producing ([G01B 9/025](#) ~~to~~ [G01B 9/029](#) take precedence)
- U G01B 11/00 Measuring arrangements characterised by the use of optical means (instruments of the types covered by group [G01B 9/00](#) per se [G01B 9/00](#))**
- U G01B 11/24 · for measuring contours or curvatures
- G01B 11/245 · · using a plurality of fixed, simultaneously operating transducers ({[G01B 11/2408](#) ~~to~~ [G01B 11/2425](#), } [G01B 11/255](#) take precedence)

**Project: N/A (G01C)**

- G01C 11/00 Photogrammetry or videogrammetry, e.g. stereogrammetry; Photographic surveying (cameras combined with surveying instruments, e.g. with theodolites, [G01C 1/00](#), [G01C 3/00](#), [G01C 5/00](#), [G01C 9/00](#); surveying cameras [G03B 37/00](#))**
- WARNING  
The following IPC group is not used in the CPC scheme: Subject-matter covered by this group is classified in the following CPC groups: [G01C 11/36](#) covered by [G01C 11/00](#) ~~to~~ [G01C 11/34](#)
- G01C 2011/36 · {Videogrammetry, i.e. electronic processing of video signals from a single source or from different sources to give parallax or range information}
- WARNING  
This group it is currently not used for classification purpose in ECLA. Subject-matter covered by the IPC group [G01C 11/36](#) is rather classified in the following CPC groups: [G01C 11/00](#) ~~to~~ [G01C 11/34](#)
- G01C 15/00 surveying instruments or accessories not provided for in groups [G01C 1/00](#) ~~to~~ [G01C 13/00](#)**
- U G01C 19/00 Gyroscopes; Turn-sensitive devices using vibrating masses; Turn-sensitive devices without moving masses; Measuring angular rate using gyroscopic effects**

- U G01C 19/56
- Turn-sensitive devices using vibrating masses, e.g. vibratory angular rate sensors based on Coriolis forces
- NOTE  
Attention is drawn to the Notes following the titles of class [B81](#) and subclass [B81B](#) relating to "micro-structural devices" and "micro-structural systems"
- G01C 19/5776
- • Signal processing not specific to any of the devices covered by groups [G01C 19/5607](#) ~~to~~ [G01C 19/5719](#)
- G01C 19/5783
- • Mountings or housings not specific to any of the devices covered by groups [G01C 19/5607](#) ~~to~~ [G01C 19/5719](#)

**Project: N/A (G01D)**

- U G01D 5/00
- Mechanical means for transferring the output of a sensing member; Means for converting the output of a sensing member to another variable where the form or nature of the sensing member does not constrain the means for converting; Transducers not specially adapted for a specific variable ([G01D 3/00](#) takes precedence; specially adapted for apparatus giving results other than momentary value of variable [G01D 1/00](#); sensing members, see the relevant subclasses, e.g. of [G01](#), [H01](#); for converting a single current or a single voltage into a mechanical displacement [G01R 5/00](#); specially adapted for high-voltage or high-current measuring arrangements [G01R 15/04](#), [G01R 15/14](#); measuring currents or voltages using digital measurement techniques [G01R 19/25](#); transmission systems for measured values, control or similar signals [G08C](#), e.g. electrical signals [G08C 19/00](#))**
- NOTE  
The subgroups of this main group are distinguished by the means which is of major importance. Thus the mere application of other means for giving a final indication does not affect the classification.
- U G01D 5/12
- using electric or magnetic means ([G01D 5/06](#) takes precedence)
- U G01D 5/244
- • influencing characteristics of pulses or pulse trains; generating pulses or pulse trains
- U G01D 5/24471
- • • {Error correction}
- G01D 5/24476
- • • • {Signal processing ([G01D 5/2448](#) ~~to~~ [G01D 5/24495](#) take precedence)}
- G01D 18/00**
- Testing or calibrating of apparatus or arrangements provided for in groups [G01D 1/00](#) ~~to~~ [G01D 15/00](#)**

**Project: N/A (G01F)**

- G01F**
- MEASURING VOLUME, VOLUME FLOW, MASS FLOW OR LIQUID LEVEL; METERING BY VOLUME (milk flow sensing devices in milking machines or devices [A01J 5/01](#); measuring or recording blood flow [A61B 5/02](#), [A61B 8/06](#); metering media to the human body [A61M 5/168](#); burettes or pipettes [B01L 3/02](#); arrangements of liquid volume meters or volume-flow meters in liquid-delivering apparatus, e.g. for retail sale purposes, [B67D 7/16](#); pumps, fluid motors, details common to measuring or metering devices and pumps or fluid motors [F01](#) ~~to~~ [F04](#); {sampling [G01N 1/00](#)}; locating, determining distance or velocity using reflection or reradiation of radio waves, analogous arrangements using other waves [G01S](#); systems for ratio control [G05D 11/00](#); {coin-freed apparatus for metering flow of liquid or gas [G07F 15/00](#)})**

NOTE

Attention is drawn to the Notes following the title of class [G01](#).

**G01F 1/00** Measuring the volume flow or mass flow of fluid or fluent solid material wherein the fluid passes through the meter in a continuous flow (measuring a proportion of the volume flow [G01F 5/00](#); measuring speed of flow [G01P 5/00](#); indicating presence or absence of flow [G01P 13/00](#); regulating quantity or ratio {[G05D 7/00](#), [G05D 11/02](#)})

## NOTE

[G01F 1/72](#), [G01F 1/74](#) and [G01F 1/76](#) take precedence over [G01F 1/05](#) ~~to-~~ [G01F 1/68](#)

- U G01F 1/704
  - using marked regions or existing inhomogeneities within the fluid stream, e.g. statistically occurring variations in a fluid parameter ([G01F 1/76](#), [G01F 25/00](#) take precedence)
- U G01F 1/708
  - • Measuring the time taken to traverse a fixed distance
- G01F 1/712
  - • • using auto-correlation or cross-correlation detection means ({[G01F 1/7082](#) ~~to-~~ [G01F 1/7088](#) take precedence); measuring speed by using correlation means in general [G01P 3/80](#), [G01P 5/22](#))
- U **G01F 11/00** Apparatus requiring external operation and adapted at each repeated and identical operation to measure and separate a predetermined volume of fluid or fluent solid material from a supply or container without regard to weight and to deliver it
- U G01F 11/28
  - with stationary measuring chambers having constant volume during measurement (with measuring chambers which expand or contract during measurement [G01F 11/02](#))
- G01F 11/284
  - • {combined with electric level detecting means ([G01F 11/282](#), [G01F 11/30](#) ~~to-~~ [G01F 11/46](#) take precedence)}
- U **G01F 23/00** Indicating or measuring liquid level, or level of fluent solid material, e.g. indicating in terms of volume, indicating by means of an alarm (in wells [E21B 47/04](#); adaptation to, or mounting on, steam boilers [F22B 37/78](#); level regulation [G05D](#); alarm devices [G08B](#); {for accumulators [H01M 10/48](#)})
- G01F 23/0007
  - {for discrete indicating and measuring ([G01F 23/02](#) ~~to-~~ [G01F 23/28](#) take precedence)}
- G01F 23/0038
  - {using buoyant probes (with floats [G01F 23/30](#) ~~to-~~ [G01F 23/76](#))}
- U G01F 23/22
  - by measurement of physical variables, other than linear dimensions, pressure or weight, dependent on the level to be measured, e.g. by difference of heat transfer of steam or water (involving use of floats [G01F 23/30](#))
- U G01F 23/28
  - • by measuring the variations of parameters of electric or acoustic waves applied directly to the liquid or fluent solid material
- U G01F 23/296
  - • • Acoustic waves
- G01F 23/2961
  - • • • {for discrete levels ([G01F 23/2962](#) ~~to-~~ [G01F 23/2968](#) take precedence)}
- U **G01F 25/00** Testing or calibrating apparatus for measuring volume, volume flow or liquid level, or for metering by volume
- U G01F 25/0007
  - {for measuring volume flow}
- G01F 25/0053
  - • {specially adapted for gas meters ([G01F 25/0015](#) ~~to-~~ [G01F 25/0046](#) take precedence)}

## Project: N/A (G01G)

**G01G 11/00** Apparatus for weighing a continuous stream of material during flow; **Conveyer Conveyor** belt weighers

- U G01G 13/00** **Weighing apparatus with automatic feed or discharge for weighing-out batches of material (for weighing a continuous stream [G01G 11/00](#); check-weighing [G01G 15/00](#); for fluids [G01G 17/04](#); apportioning by weight materials to be mixed [G01G 19/22](#); combinatorial weighing [G01G 19/387](#))**
- U G01G 13/02
- G01G 13/022
- G01G 13/026
- U G01G 13/04
- G01G 13/08
- U G01G 13/16
- G01G 13/20
- U G01G 13/24
- U G01G 13/28
- U G01G 13/285
- U G01G 13/2851
- U G01G 13/2852
- G01G 13/2855
- U G01G 13/29
- U G01G 13/2906
- U G01G 13/2912
- G01G 13/2925
- U G01G 13/295
- U G01G 13/2951
- G01G 13/2954
- U G01G 19/00** **Weighing apparatus or methods adapted for special purposes not provided for in the preceding groups {(electric measuring arrangements involving comparison with a reference value [G01R 17/00](#))}**
- U G01G 19/02
- G01G 19/021
- Means for automatically loading weigh pans or other receptacles, e.g. disposable containers, under control of the weighing mechanism
  - • {Material feeding devices ([G01G 13/04](#) ~~to~~ [G01G 13/14](#) take precedence)}
  - • • {by mechanical conveying means, e.g. belt or vibratory ~~conveyer~~[conveyor](#)}
  - • involving dribble-feed means controlled by the weighing mechanism to top up the receptacle to the target weight
  - • • wherein the main feed is effected by mechanical conveying means, e.g. by belt ~~conveyers~~[conveyors](#), by vibratory ~~conveyers~~[conveyors](#)
  - Means for automatically discharging weigh receptacles under control of the weighing mechanism
  - • by screw ~~conveyers~~[conveyors](#) in the weigh receptacle
  - Weighing mechanism control arrangements for automatic feed or discharge
  - • involving variation of an electrical variable which is used to control loading or discharge of the receptacle
  - • • involving comparison with a reference value ([G01G 13/29](#) takes precedence; {electric measuring arrangements involving comparison with a reference value [G01R 17/00](#)})
  - • • • {for controlling automatic loading of weigh pans or other receptacles ([G01G 13/29](#) takes precedence)}
  - • • • • {involving dribble-feed means controlled by the weighing mechanism to top up the receptacle to the target weight}
  - • • • • • {wherein the main feed is effected by mechanical conveying means, e.g. by belt ~~conveyers~~[conveyors](#), by vibratory ~~conveyers~~[conveyors](#)}
  - • • involving digital counting
  - • • • {for controlling automatic loading of weigh-pans or other receptacles}
  - • • • • {involving dribble-feed means controlled by the weighing mechanism to top up the receptacle to the target weight}
  - • • • • • {wherein the main feed is effected by mechanical means, e.g. by belt ~~conveyers~~[conveyors](#), by vibratory ~~conveyers~~[conveyors](#)}
  - • • for controlling automatic loading of the receptacle {([G01G 13/285](#), [G01G 13/29](#) take precedence)}
  - • • • {involving dribble-feed means controlled by the weighing mechanism to top up the receptacle to the target weight}
  - • • • • {wherein the main feed is effected by mechanical conveying means, e.g. by belt ~~conveyers~~[conveyors](#), by vibratory ~~conveyers~~[conveyors](#)}

**Project: N/A (G01K)**

- G01K 17/00** **Measuring quantity of heat (measuring temperature by calorimetry [G01K 3/00](#) ~~to~~ [G01K 11/00](#); specially adapted for measuring thermal properties of materials, e.g. specific heat, heat of combustion [G01N](#))**

**Project: N/A (G01L)****G01L 5/00**

**Apparatus for, or methods of, measuring force, e.g. due to impact, work, mechanical power, or torque, adapted for special purposes (measuring pressure of a fluent medium [G01L 7/00](#) to- [G01L 21/00](#); measuring rapid changes of pressure in gas, steam or liquid [G01L 23/00](#))**

U G01L 5/0061

- {Force sensors associated with industrial machines or actuators (for the specific machine or actuator involved see relevant class, e.g. [F01](#), [F04](#), [F16](#), [B66](#), [E21](#))}

G01L 5/0076

- {Force sensors associated with manufacturing machines ([G01L 5/0066](#), [G01L 5/0071](#) and [B23Q 17/09](#) take precedence; for the specific machine or operation involved see relevant class, e.g. [B21](#) to- [B42](#))}

**Project: N/A (G01M)****U G01M 15/00****Testing of engines**NOTE

Informative note

References listed below indicate IPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

Measurement of mechanical vibrations in general [G01H](#)

Analysing gases in general [G01N](#)

Arrangements for testing electrical properties; Arrangements for locating electric faults; Arrangements for electrical testing characterised by what is being tested not provided for elsewhere [G01R 31/00](#).

G01M 15/04

- Testing of internal-combustion engines, e.g. diagnostic testing of piston engines

NOTES

1. Informative note

References listed below indicate IPC places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:

Monitoring or diagnostic devices for exhaust-gas treatment apparatus

[F01N 11/00](#)

Indicating or supervising devices of internal-combustion engines [F02B 77/08](#)

Running in of internal-combustion engines [F02B 79/00](#)

Controlling combustion engines [F02D](#)

Apparatus for testing, tuning or synchronising carburettors, e.g. carburettor flow stands [F02M 19/01](#)

Testing fuel-injection apparatus [F02M 65/00](#)

Testing internal-combustion engine ignition, e.g. timing [F02P 17/00](#)

Devices for determining the value of power, e.g. by measuring and simultaneously multiplying the values of torque and revolutions per unit of time, by multiplying the values of tractive or propulsive force and velocity [G01L 3/24](#)

Determining the characteristic of torque in relation to revolutions per unit of time [G01L 5/26](#)

Devices for detecting or indicating knocks in internal-combustion engines [G01L 23/22](#)

Devices for measuring pressure in inlet or exhaust ducts of internal combustion engines [G01L 23/24](#)

Means for indicating positions of pistons or cranks of internal-combustion engines by measuring pressure [G01L 23/30](#).

2. Group [G01M 15/05](#) takes precedence over groups [G01M 15/042](#) and [G01M 15/06](#) to- [G01M 15/12](#).

G01M 15/042

- {by monitoring a single specific parameter not covered by groups [G01M 15/06](#) to- [G01M 15/12](#)}

**Project: N/A (G01N)**

- U G01N 1/00 Sampling; Preparing specimens for investigation**
- U G01N 1/02 · Devices for withdrawing samples (for medical or veterinary purposes [A61](#); {sampling of foundation soil [E02D 1/04](#)}; obtaining samples of soil or well fluids [E21B 49/00](#); {collecting or conveying radioactive samples [G01T 7/00](#), e.g. [G01T 7/02](#), [G01T 7/08](#)})
- U G01N 1/10 · · in the liquid or fluent state {(burettes, pipettes [B01L 3/02](#); Sampling of ground water [E02D 1/06](#); metering by volume of fluids or fluent solid material [G01F 11/00](#), [G01F 13/00](#))}
- U G01N 1/18 · · · with provision for splitting samples into portions ([G01N 1/12](#), [G01N 1/14](#) take precedence; fraction-collection apparatus for chromatography [B01D 15/08](#))
- G01N 2001/185 · · · · {**ConveyerConveyor** of containers successively filled}
- U G01N 1/20 · · · for flowing or falling materials ({[G01N 1/2035](#)} [G01N 1/12](#), [G01N 1/14](#) take precedence)
- G01N 2001/2007 · · · · {Flow **conveyersconveyors**}
- G01N 2001/2014 · · · · · {Pneumatic **conveyersconveyors**}
- U G01N 1/22 · · in the gaseous state {(specially adapted for biological material [G01N 33/497](#); measuring breath flow [A61B 5/087](#))}
- G01N 1/24 · · · Suction devices ({[G01N 1/22](#) ~~to~~ [G01N 1/2294](#) take precedence})
- U G01N 9/00 Investigating density or specific gravity of materials; Analysing materials by determining density or specific gravity (weighing apparatus [G01G](#))**
- G01N 9/36 · Analysing materials by measuring the density or specific gravity, e.g. determining quantity of moisture (methods of measurement in general [G01N 9/02](#) ~~to~~ [G01N 9/32](#))
- G01N 19/00 Investigating materials by mechanical methods ([G01N 3/00](#) ~~to~~ [G01N 17/00](#) take precedence)**
- U G01N 21/00 Investigating or analysing materials by the use of optical means, i.e. using infra-red, visible or ultra-violet light ([G01N 3/00](#)-[G01N 19/00](#) take precedence)**
- NOTE
- This group does not cover the investigation of spectral properties of light per se, or measurements of the properties of materials where spectral properties of light are sensed and primary emphasis is placed on creating, detecting or analysing the spectrum providing that the properties of the materials to be investigated are of minor importance (see also Note (4) after the title of class [G01](#)). Those subjects are covered by group [G01J 3/00](#).
- U G01N 21/01 · Arrangements or apparatus for facilitating the optical investigation
- U G01N 21/03 · · Cuvette constructions
- G01N 21/0303 · · · {Optical path conditioning in cuvettes, e.g. windows; adapted optical elements or systems; path modifying or adjustment ([G01N 21/031](#) ~~to~~ [G01N 21/15](#) take precedence)}
- G01N 21/0317 · · · {High pressure cuvettes; ([G01N 21/0332](#) ~~to~~ [G01N 21/15](#) take precedence)}
- U G01N 2021/0346 · · · {Capillary cells; Microcells}
- U G01N 2021/035 · · · · {Supports for sample drops}
- G01N 2021/0353 · · · · · {**ConveyerConveyor** of successive sample drops}
- U G01N 21/17 · Systems in which incident light is modified in accordance with the properties of the material investigated (where the material investigated is optically excited causing a change in wavelength of the incident light [G01N 21/63](#))

- U G01N 21/25      · · Colour; Spectral properties, i.e. comparison of effect of material on the light at two or more different wavelengths or wavelength bands
- U G01N 21/31      · · · Investigating relative effect of material at wavelengths characteristic of specific elements or molecules, e.g. atomic absorption spectrometry {{[G01N 21/72](#) takes precedence}}
- U G01N 21/314      · · · · {with comparison of measurements at specific and non-specific wavelengths (dual wavelength spectrometry [G01J 3/427](#))}
- G01N 21/3151      · · · · · {using two sources of radiation of different wavelengths ([G01N 21/33](#) ~~to~~ [G01N 21/39](#) take precedence)}
- U G01N 21/41      · · Refractivity; Phase-affecting properties, e.g. optical path length ([G01N 21/21](#) takes precedence)
- U G01N 21/45      · · · using interferometric methods; using Schlieren methods
- G01N 21/453      · · · · {Holographic interferometry (for dimensional measurements [G01B 9/021](#) ~~to~~ [G01B 9/029](#))}
- U G01N 21/62      · Systems in which the material investigated is excited whereby it emits light or causes a change in wavelength of the incident light
- U G01N 21/63      · · optically excited
- U G01N 21/64      · · · Fluorescence; Phosphorescence
- G01N 21/645      · · · · {Specially adapted constructive features of fluorimeters}
- WARNING  
Not complete, see also [G01N 21/6428](#) ~~to~~ [G01N 21/6447](#)
- G01N 21/6452      · · · · · {Individual samples arranged in a regular 2D-array, e.g. multiwell plates}
- WARNING  
Not complete, see also [G01N 21/6428](#) ~~to~~ [G01N 21/645](#) and [G01N 21/253](#)
- G01N 21/6456      · · · · · {Spatial resolved fluorescence measurements; Imaging}
- WARNING  
Not complete, see also [G01N 21/6428](#) ~~to~~ [G01N 21/6447](#)
- G01N 21/6458      · · · · · · {Fluorescence microscopy (fluorescence microscopes per se [G02B 21/0076](#) and [G02B 21/16](#))}
- WARNING  
Not complete, see also [G01N 21/6428](#) ~~to~~ [G01N 21/6447](#)
- G01N 21/6486      · · · · {Measuring fluorescence of biological material, e.g. DNA, RNA, cells ([G01N 21/6428](#) takes precedence)}
- WARNING  
Not complete, see also [G01N 21/6428](#) ~~to~~ [G01N 21/6447](#)
- U G01N 21/84      · Systems specially adapted for particular applications
- G01N 2021/845      · · {Objects on a ~~conveyer~~[conveyor](#)}
- U G01N 21/88      · · Investigating the presence of flaws or contamination
- G01N 21/8851      · · · {Scan or image signal processing specially adapted therefor, e.g. for scan signal adjustment, for detecting different kinds of defects, for compensating for structures, markings, edges ([G01N 21/8806](#) and [G01N 21/93](#) ~~to~~ [G01N 21/95692](#) take precedence; optical measurement of dimensions [G01B 11/00](#); optical scanning [G02B 26/10](#); image transformation [G06T 3/00](#); computerised image enhancement [G06T 5/00](#); image processing per se for flaw detection [G06T 7/0002](#))}

- G01N 21/95
- • • characterised by the material or shape of the object to be examined ([G01N 21/89](#) ~~to~~ [G01N 21/91](#), [G01N 21/94](#) take precedence)
- G01N 22/00** Investigating or analysing materials by the use of microwaves ([G01N 3/00](#) ~~to~~ [G01N 17/00](#), [G01N 24/00](#) take precedence)
- G01N 23/00** Investigating or analysing materials by the use of wave or particle radiation not covered by [G01N 21/00](#) or [G01N 22/00](#), e.g. X-rays or neutrons ([G01N 3/00](#) ~~to~~ [G01N 17/00](#) take precedence; measuring stress in general [G01L 1/00](#); measurement of nuclear or X-radiation [G01T](#); introducing objects or materials into nuclear reactors, or removing them therefrom, or storing them after treatment therein [G21C](#); construction or operation of X-ray apparatus or circuits therefor [H05G](#))
- G01N 23/005
- {by using neutrons ([G01N 23/02](#) ~~to~~ [G01N 23/227](#) take precedence)}
- U G01N 23/02
- by transmitting the radiation through the material
- U G01N 23/06
- • and measuring the absorption
- U G01N 23/08
- • • using electric detection means
- G01N 23/083
- • • • the radiation being X-rays ([G01N 23/10](#) ~~to~~ [G01N 23/18](#) take precedence)
- WARNING  
Not complete, see also [G01N 23/08](#)
- G01N 25/00** Investigating or analyzing materials by the use of thermal means ([G01N 3/00](#) ~~to~~ [G01N 23/00](#) take precedence)
- G01N 27/00** Investigating or analysing materials by the use of electric, electro-chemical, or magnetic means ([G01N 3/00](#) ~~to~~ [G01N 25/00](#) take precedence; measurement or testing electric or magnetic variables or of electric or magnetic properties of materials [G01R](#))
- G01N 29/00** Investigating or analysing materials by the use of ultrasonic, sonic or infrasonic waves; Visualisation of the interior of objects by transmitting ultrasonic or sonic waves through the object ([G01N 3/00](#) ~~to~~ [G01N 27/00](#) take precedence; measuring or indicating of ultrasonic, sonic or infrasonic waves in general [G01H](#); systems using the reflection or reradiation of acoustic waves, e.g. acoustic imaging, [G01S 15/00](#); obtaining records by techniques analogous to photography using ultrasonic, sonic or infrasonic waves [G03B 42/06](#); {medical diagnosis by ultrasounds [A61B 8/00](#); generating or transmitting mechanical or acoustic waves [B06B](#), [G10K](#); seismic or acoustic prospecting or detecting [G01V 1/00](#)})
- G01N 30/00** Investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography ([G01N 3/00](#) ~~to~~ [G01N 29/00](#) take precedence; separation for the preparation or production of components [B01D 15/00](#), [B01D 53/02](#), [B01D 53/14](#); solid sorbent compositions in general [B01J 20/00](#); ion-exchange in general [B01J 39/00](#) ~~to~~ [B01J 49/00](#) ) {or field flow fractionation (for preparation or production of components [B01D 21/00](#), [B01D 43/00](#), [B01D 45/00](#) or [B03C](#))}  
NOTE  
In this group, the following term is used with the meaning indicated:
- "conditioning" refers to the adjustment or control of environmental parameters, e.g. temperature or pressure.
- U G01N 30/02
- Column chromatography
- G01N 30/88
- • Integrated analysis systems specially adapted therefor, not covered by a single one of the groups [G01N 30/04](#) ~~to~~ [G01N 30/86](#) (signal analysis systems per se [G06F](#), [G06G](#))

- U G01N 31/00** Investigating or analysing non-biological materials by the use of the chemical methods specified in the subgroup (testing the effectiveness or completeness of sterilisation procedures without using enzymes or microorganisms [A61L 2/28](#); measuring or testing processes involving enzymes or micro-organisms [C12Q 1/00](#)); Apparatus specially adapted for such methods
- U G01N 31/005 · {investigating the presence of an element by oxidation ([G01N 31/12](#) takes precedence)}
- G01N 31/007 · · {by measuring the quantity of water resulting therefrom ([G01N 31/12](#) takes precedence)}
- NOTE  
The observation of the progress of the reaction specified below by any of the methods specified in groups [G01N 3/00](#) ~~to~~ [G01N 3/00](#) ~~to~~ [G01N 29/00](#), if this is of major importance, is dealt with in the group concerned.
- U G01N 33/00** Investigating or analysing materials by specific methods not covered by the preceding groups
- G01N 33/48 · biological material, e.g. blood, urine ([G01N 33/02](#) ~~to~~ [G01N 33/14](#), [G01N 33/26](#), [G01N 33/44](#), [G01N 33/46](#) take precedence; determining the germinating capacity of seeds [A01C 1/02](#)); Haemocytometers (counting blood corpuscles distributed over a surface by scanning the surface [G06M 11/02](#))
- U G01N 33/483 · · Physical analysis of biological material
- U G01N 33/487 · · · of liquid biological material
- G01N 33/48742 · · · · {Determining urea by measuring the volume of a gas (in general [G01N 7/14](#) ~~to~~ [G01N 7/18](#))}
- G01N 33/50 · · Chemical analysis of biological material, e.g. blood, urine; Testing involving biospecific ligand binding methods; Immunological testing (measuring or testing processes involving enzymes or micro-organisms, compositions or test papers therefor; processes for forming such compositions, condition responsive control in microbiological or enzymological processes [C12Q](#))
- NOTES
1. The expression "involving", when used in relation to a material includes the testing for the material as well as employing the material as a determinant or reactant in a test for a different material.
  2. In groups [G01N 33/52](#) ~~to~~ [G01N 33/96](#), in the absence of an indication to the contrary, an invention is also classified in the last appropriate place.
  3. Documents relating to new peptides or new DNA or its corresponding mRNA, encoding for the peptides, and their use in measuring or testing processes are classified in subclass [C07K](#) or in group [C12N 9/00](#) according to the peptides, with the appropriate indexing codes relating to their use in diagnostics. However, if the investigating or analysing aspects are of interest, the documents are classified in this group
- U G01N 33/53 · · Immunoassay; Biospecific binding assay (preparations containing antigens or antibodies for therapeutic purposes [A61K 39/00](#); haptens in general, see the relevant places in class [C07](#); proteins in general [C07K](#))
- G01N 33/574 · · · · for cancer
- NOTE  
In this group:
- relevant features relating to a specifically defined cancer are only classified in groups [G01N 33/57407](#) ~~to~~ [G01N 33/57449](#)

- relevant features describing cancer markers related to multiple forms of cancer are classified in groups [G01N 33/57484](#) to- [G01N 33/57496](#)
- G01N 33/577
  - • • involving monoclonal antibodies {binding reaction mechanisms characterised by the use of monoclonal antibodies; monoclonal antibodies per se are classified with their corresponding antigens; ([G01N 33/53](#) to- [G01N 33/576](#) take precedence)}
- G01N 33/579
  - • • involving limulus lysate
  - NOTE  
Groups [G01N 33/53](#) to- [G01N 33/576](#) take precedence over groups [G01N 33/58](#) to- [G01N 33/98](#)
- G01N 33/98
  - • • involving alcohol, e.g. ethanol in breath
  - NOTE  
In groups [G01N 35/00](#) to- [G01N 35/085](#), the indexing codes of [G01N](#) are added
- G01N 35/00** **Automatic analysis not limited to methods or materials provided for in any single one of groups [G01N 1/00](#) to- [G01N 33/00](#); Handling materials therefor**
- G01N 35/02
  - using a plurality of sample containers moved by a [conveyorconveyor](#) system past one or more treatment or analysis stations {([G01N 35/0098](#) and [G01N 35/0099](#) take precedence)}
- G01N 35/021
  - {having a flexible chain, e.g. "cartridge belt", [conveyorconveyor](#) for reaction cells or cuvettes}
- G01N 35/04
  - • Details of the [conveyorconveyor](#) system {([G01N 35/021](#) to- [G01N 35/028](#) take precedence)}
- U G01N 2035/0401
  - • • {Sample carriers, cuvettes or reaction vessels}
- U G01N 2035/0418
  - • • • {Plate elements with several rows of samples}
- G01N 2035/0422
  - • • • • {carried on a linear [conveyorconveyor](#)}
- G01N 2035/0424
  - • • • • {Two or more linear [conveyersconveyors](#)}
- G01N 2035/046
  - • • {General [conveyorconveyor](#) features}
- G01N 2035/0465
  - • • • {Loading or unloading the [conveyorconveyor](#)}
- G01N 2035/0474
  - • • {Details of actuating means for [conveyersconveyors](#) or pipettes}
- U G01N 2223/00** **Investigating materials by wave or particle radiation**
- U G01N 2223/60
  - Specific applications or type of materials
- G01N 2223/643
  - • object on [conveyorconveyor](#)
- G01N 2333/00** **Assays involving biological materials from specific organisms or of a specific nature**
- NOTE  
In groups [G01N 2333/47](#) to- [G01N 2333/994](#) indexing codes are assigned according to the chemical nature of the materials irrespective of the source organism.
- G01N 2333/195
  - from bacteria
  - NOTE  
In groups [G01N 2333/20](#) to- [G01N 2333/365](#), where appropriate, after the bacteria terminology, the indication of the order (O), family (F) or genus (G) of the bacteria is given in brackets.
- U G01N 2333/435
  - from animals; from humans

- U G01N 2333/46  
G01N 2333/465
- • from vertebrates
  - • • from birds

NOTE

In groups [G01N 2333/47](#) to [G01N 2333/994](#) indexing codes are assigned irrespective to the source of the indicated proteins.

**Project: N/A (G01P)****G01P 3/00**

**Measuring linear or angular speed; Measuring differences of linear or angular speeds ([G01P 5/00](#) to [G01P 11/00](#) take precedence; {direction and speed indication [G01P 13/045](#)}; counting mechanisms [G06M](#))**

NOTE

The sub-groups of this group are distinguished by the method of measurement which is of major importance. Thus the mere application of other methods for giving a final indication does not affect the classification.

**Project: N/A (G01R)****G01R**

**MEASURING ELECTRIC VARIABLES; MEASURING MAGNETIC VARIABLES (measuring physical variables of any kind by conversion into electric variables, see Note (4) following the title of class [G01](#); measuring diffusion of ions in an electric field, e.g. electrophoresis, electro-osmosis [G01N](#); investigating non-electric or non-magnetic properties of materials by using electric or magnetic methods [G01N](#); indicating correct tuning of resonant circuits [H03J 3/12](#); monitoring electronic pulse counters [H03K 21/40](#); monitoring operation of communication systems [H04](#))**

NOTES

1. This subclass covers:

- measuring all kinds of electric or magnetic variables directly or by derivation from other electric or magnetic variables;
- measuring all kinds of electric or magnetic properties of materials;
- testing electric or magnetic devices, apparatus or networks, (e.g. discharge tubes, amplifiers) or measuring their characteristics;
- indicating presence or sign of current or voltage;
- NMR, EPR or other spin-effect apparatus, not specially adapted for a particular application;
- equipment for generating signals to be used for carrying out such tests and measurements.

2. In this subclass, the following terms or expressions are used with the meanings indicated :

- "measuring" includes investigating;
- "instruments" or "measuring instruments" means electro-mechanical measuring mechanisms;
- "arrangements for measuring" means apparatus, circuits, or methods for measuring;

3. Attention is drawn to the Notes following the title of class [G01](#).

4. In this subclass, group [G01R 17/00](#) takes precedence over groups [G01R 19/00](#) to [G01R 31/00](#).

**G01R 1/00**

**Details of instruments or arrangements of the types included in groups [G01R 5/00](#) to [G01R 13/00](#) and [G01R 31/00](#) (constructional details particular to {electromechanical} arrangements for measuring the electric consumption [G01R 11/02](#))**

- U G01R 11/00** Electromechanical arrangements for measuring time integral of electric power {i.e. electric energy} or current, e.g. of consumption ({other arrangements for measuring time integral of electric power or current [G01R 22/00](#); Boards, panels, desks for energy meters, [H02B 1/03](#)}; monitoring electric consumption of electrically-propelled vehicles [B60L 3/00](#))
- NOTE  
For the definition of "arrangement" see Note (2) under [G01R](#)
- U G01R 11/02** • Constructional details (applicable to electric measuring instruments in general [G01R 1/00](#))
- G01R 11/25** • • Arrangements for indicating or signalling faults (seals [G09F 3/03](#); preventing tampering with detection circuits in signalling or alarm circuits [G08B 29/046](#))
- NOTE  
Groups [G01R 11/48](#) ~~to~~ [G01R 11/66](#) take precedence over groups [G01R 11/30](#) ~~to~~ [G01R 11/46](#).
- G01R 15/00** **Details of measuring arrangements of the types provided for in groups [G01R 17/00](#) ~~to~~ [G01R 29/00](#) and [G01R 33/00](#) ~~to~~ [G01R 35/00](#) (details of instruments [G01R 1/00](#); overload protection arrangements [G01R 1/36](#))**
- U G01R 15/14** • Adaptations providing voltage or current isolation, e.g. for high-voltage or high-current networks (instrument transformers [H01F 38/20](#); voltage dividers [G01R 15/04](#); {means for converting the output of a sensing member to another variable [G01D 5/00](#); visible signalling arrangements or devices [G08B 5/00](#); transmission systems for measured values [G08C 17/00](#), [G08C 23/00](#)})
- G01R 15/142** • • {Arrangements for simultaneous measurements of several parameters employing techniques covered by groups [G01R 15/14](#) ~~to~~ [G01R 15/26](#)}
- U G01R 15/18** • • using inductive devices, e.g. transformers
- G01R 15/186** • • • {using current transformers with a core consisting of two or more parts, e.g. clamp-on type ([G01R 15/142](#) ~~to~~ [G01R 15/16](#) take precedence; tong testers [G01R 1/22](#))}
- U G01R 15/24** • • using light-modulating devices
- G01R 15/247** • • • {Details of the circuitry or construction of devices covered by [G01R 15/241](#) ~~to~~ [G01R 15/246](#)}
- G01R 19/00** **Arrangements for measuring currents or voltages or for indicating presence or sign thereof ([G01R 5/00](#) takes precedence; {voltage measurements using secondary electron emission when testing electronic circuits [G01R 31/305](#)}; for measuring bio-electric currents or voltages [A61B 5/04](#))**
- NOTE  
Within groups [G01R 19/02](#) ~~to~~ [G01R 19/32](#), group [G01R 19/28](#) takes precedence. Groups [G01R 19/18](#) ~~to~~ [G01R 19/257](#) take precedence over groups [G01R 19/02](#) ~~to~~ [G01R 19/17](#) and [G01R 19/30](#).
- U G01R 19/25** • using digital measurement techniques (arrangements for displaying measured electric variables in digital form [G01R 13/02](#) {Analogue/digital conversion [H03M](#)})
- G01R 19/2503** • • {for measuring voltage only, e.g. digital volt meters (DVM's) ([G01R 19/2506](#) ~~to~~ [G01R 19/257](#) take precedence)}
- G01R 19/32** • Compensating for temperature change ({[G01R 19/02](#) ~~to~~ [G01R 19/30](#) take precedence } ; modifications of instruments for temperature compensation [G01R 1/44](#))

- U G01R 21/00 Arrangements for measuring electric power or power factor ([G01R 7/12](#) takes precedence)**
- G01R 21/06 · by measuring current and voltage ([G01R 21/08](#) ~~to~~ [G01R 21/133](#) take precedence)
- U G01R 27/00 Arrangements for measuring resistance, reactance, impedance, or electric characteristics derived therefrom {(measuring super-conductive properties [G01R 33/1238](#))}**
- G01R 27/02 · Measuring real or complex resistance, reactance, impedance, or other two-pole characteristics derived therefrom, e.g. time constant (by measuring phase angle only [G01R 25/00](#))
- NOTE**
- Groups [G01R 27/02](#) ~~to~~ [G01R 27/22](#) cover variables that directly or indirectly can be measured over two poles of a component or a Thevenin two-pole equivalent. Subgroup [G01R 27/26](#) also covers other techniques, e.g. using electro magnetic waves or network analyzers
- G01R 29/00 Arrangements for measuring or indicating electric quantities not covered by groups [G01R 19/00](#) ~~to~~ [G01R 27/00](#)**
- U G01R 31/00 Arrangements for testing electric properties; Arrangements for locating electric faults; Arrangements for electrical testing characterised by what is being tested not provided for elsewhere (measuring leads, measuring probes [G01R 1/06](#); {measuring superconductive properties [G01R 33/1238](#)}; indicating electrical condition of switchgear or protective devices [H01H 71/04](#), [H01H 73/12](#), [H02B 11/10](#), [H02H 3/04](#); testing or measuring semiconductors or solid state devices during manufacture [H01L 22/00](#); testing substation equipment, e.g. mobile phones [H04M 1/24](#); testing or monitoring of control systems [G05B 23/02](#); {testing or monitoring transmitters or receivers [H04B 17/00](#))}**
- U G01R 31/12** · Testing dielectric strength or breakdown voltage; {Testing or monitoring effectiveness or level of insulation, e.g. of a cable or of an apparatus, for example using partial discharge measurements; Electrostatic testing ([G01R 31/06](#), [G01R 31/08](#) and [G01R 31/327](#) take precedence; measuring in plasmas [G01R 19/0061](#); Measuring dielectric constants [G01R 27/2617](#); ESD, EMC or EMP testing of circuits [G01R 31/002](#))}
- G01R 31/14 · · Circuits therefor, {e.g. for generating test voltages, sensing circuits ([G01R 31/1209](#) ~~to~~ [G01R 31/1227](#) take precedence; for testing switches [G01R 31/327](#))}
- U G01R 31/26** · Testing of individual semiconductor devices (testing or measuring during manufacture or treatment [H01L 22/00](#); testing of photovoltaic devices [H02S 50/10](#))
- U G01R 31/2607** · · {Circuits therefor ([G01R 31/2642](#) takes precedence)}
- G01R 31/2637 · · · {for testing other individual devices ([G01R 31/2608](#) ~~to~~ [G01R 31/2632](#), [G01R 31/27](#) take precedence)}
- U G01R 31/28** · Testing of electronic circuits, e.g. by signal tracer ({EMC, EMP or similar testing of electronic circuits [G01R 31/002](#)}; testing for short-circuits, discontinuities, leakage or incorrect line connection [G01R 31/02](#); checking computers {or computer components} [G06F 11/00](#); checking static stores for correct operation [G11C 29/00](#); {testing receivers or transmitters of transmission systems [H04B 17/00](#))}
- U G01R 31/2801** · · {Testing of printed circuits, backplanes, motherboards, hybrid circuits or carriers for multichip packages [MCP] ([G01R 31/318508](#) takes precedence; contactless testing [G01R 31/302](#); testing contacts or connections [G01R 31/04](#))}

- G01R 31/2806
- • • {Apparatus therefor, e.g. test stations, drivers, analysers, ~~conveyers~~ **conveyors** ([G01R 31/2805](#), [G01R 31/281](#), [G01R 31/2818](#) take precedence)}
- U G01R 31/2832
- • {Specific tests of electronic circuits not provided for elsewhere (contains no documents; [G01R 31/2801](#) and [G01R 31/316](#) take precedence)}
- G01R 31/2836
- • • {Fault-finding or characterising ([G01R 31/2822](#) ~~to~~ [G01R 31/2831](#) take precedence)}
- U G01R 31/302
- • Contactless testing (non contact-making probes [G01R 1/07](#) )([G01R 31/04](#) takes precedence)}
- G01R 31/303
- • • of integrated circuits ([G01R 31/305](#) ~~to~~ [G01R 31/315](#) take precedence)
- G01R 31/304
- • • of printed or hybrid circuits ([G01R 31/305](#) ~~to~~ [G01R 31/315](#) take precedence)
- U G01R 33/00 Arrangements or instruments for measuring magnetic variables**
- G01R 33/02
- Measuring direction or magnitude of magnetic fields or magnetic flux ([G01R 33/20](#) takes precedence ; measuring direction or magnitude of the earth's field for navigation or surveying [G01C](#); for prospecting, for measuring the magnetic field of the earth [G01V 3/00](#))
- NOTE  
Groups [G01R 33/022](#), [G01R 33/10](#) take precedence over groups [G01R 33/025](#) ~~to~~ [G01R 33/09](#).
- U G01R 33/20
- involving magnetic resonance (medical aspects [A61B 5/055](#); magnetic resonance gyrometers [G01C 19/00](#) {investigating materials using NMR [G01N 24/00](#); prospecting or detecting using NMR [G01V 3/00](#)})
- G01R 33/28
- • Details of apparatus provided for in groups [G01R 33/44](#) ~~to~~ [G01R 33/64](#)
- WARNING  
Groups [G01R 33/281](#) - [G01R 33/288](#) are not complete pending reclassification. See also this group

**Project: N/A (G01T)**

- U G01T 7/00 Details of radiation-measuring instruments**
- G01T 7/02
- Collecting means for receiving or storing samples to be investigated {and possibly directly transporting the samples to the measuring arrangement; particularly for investigating radioactive fluids (sampling, preparing specimens for investigation in general [G01N 1/00](#), [G01N 1/02](#); shielded cells or rooms structurally combined with manipulative devices [G21F](#); measuring of chromatographically separated samples [G01N 30/00](#) ~~to~~ [G01N 30/96](#)}

**Project: N/A (G01V)**

- G01V 1/00 Seismology; Seismic or acoustic prospecting or detecting**
- NOTE  
Groups [G01V 1/44](#) ~~to~~ [G01V 1/52](#) take precedence over groups [G01V 1/001](#) ~~to~~ [G01V 1/393](#) [G01V 1/42](#)
- U G01V 3/00 Electric or magnetic prospecting or detecting (by optical means [G01V 8/00](#)); Measuring magnetic field characteristics of the earth, e.g. declination, deviation (for navigation, for surveying [G01C](#); {measuring direction or magnitude of magnetic fields or magnetic flux in general [G01R 33/02](#)})**
- U G01V 3/15
- specially adapted for use during transport, e.g. by a person, vehicle or boat
- G01V 3/16
- • specially adapted for use from aircraft ([G01V 3/165](#) ~~to~~ [G01V 3/175](#) take precedence)

- U G01V 7/00 Measuring gravitational fields or waves; Gravimetric prospecting or detecting**
- G01V 7/005 · {using a resonating body or device, e.g. string ([G01V 7/08](#) ~~to~~ [G01V 7/12](#) take precedence; measuring resonant frequency of mechanical vibrations [G01H 13/00](#); measuring frequency per se [G01R 23/00](#))}
- U G01V 8/00 Prospecting or detecting by optical means (measurement of characteristics of light [G01J](#); optical scanning systems [G02B 26/10](#); discharge tubes detecting the presence of radiation [H01J 40/00](#), [H01J 47/00](#); semiconductor devices sensitive to light [H01L 31/00](#))**
- NOTE  
This group covers the use of {millimetre waves,} infra-red, visible or ultra-violet light.
- G01V 8/10 · Detecting, e.g. by using light barriers (by reflection from the object [G01S 17/00](#); counting of objects carried by a ~~conveyer~~[conveyor](#) [G06M 7/00](#); signalling or calling arrangements [G08B](#); detecting movement of traffic to be counted or controlled [G08G 1/01](#); proximity switches [H03K 17/945](#), [H03K 17/965](#))
- G01V 9/00 Prospecting or detecting by methods not provided for in groups [G01V 1/00](#) ~~to~~ [G01V 8/00](#)**
- G01V 11/00 prospecting or detecting by methods combining techniques covered by two or more of main groups [G01V 1/00](#) ~~to~~ [G01V 9/00](#)**

**Project: N/A (G02B)**

- U G02B 5/00 Optical elements other than lenses (light guides [G02B 6/00](#); optical logic elements [G02F 3/00](#))**
- U G02B 5/20 · Filters (polarising elements [G02B 5/30](#); {manufacturing optical filters by photographic processes [G03C 7/12](#), by lithographic processes [G03F 7/0007](#))
- G02B 5/22 · · Absorbing filters {([G02B 5/201](#) ~~to~~ [G02B 5/208](#) take precedence)}
- U G02B 5/28 · · Interference filters
- G02B 5/285 · · · {comprising deposited thin solid films ([G02B 5/281](#) ~~to~~ [G02B 5/289](#) take precedence; multilayered film filters for fibre optic multiplexing [G02B 6/29361](#))}
- U G02B 9/00 Optical objectives characterised both by the number of the components and their arrangements according to their sign, i.e. + or - ([G02B 15/00](#) takes precedence)**
- U G02B 9/34 · having four components only
- G02B 9/36 · · arranged + -- +
- NOTE  
In sub-groups [G02B 9/38](#), [G02B 9/44](#) ~~to~~ [G02B 9/56](#) the first mentioned applicable sub-group takes precedence over later-mentioned sub-groups.
- U G02B 21/00 Microscopes (eyepieces [G02B 25/00](#); polarising systems [G02B 27/28](#); measuring microscopes [G01B 9/04](#); microtomes [G01N 1/06](#); scanning-probe techniques or apparatus [G01Q](#))**
- U G02B 21/0004 · {specially adapted for specific applications}
- U G02B 21/002 · · {Scanning microscopes (scanning near field optical microscopes [G01Q 60/18](#))}

- U G02B 21/0024
- • • {Confocal scanning microscopes (CSOMs) or confocal "macrosopes"; Accessories which are not restricted to use with CSOMs, e.g. sample holders}
- NOTE  
Objective revolvers or the like are classified in other groups of [G02B 21/00](#)
- G02B 21/0032
- • • • {Optical details of illumination, e.g. light-sources, pinholes, beam splitters, slits, fibers ([G02B 21/0036](#) ~~to~~ [G02B 21/008](#); means for illumination of specimens in general [G02B 21/06](#))}
- U G02B 25/00 Eyepieces; Magnifying glasses (simple lenses [G02B 3/00](#))**
- U G02B 25/002
- {Magnifying glasses}
- G02B 25/008
- • {comprising two or more lenses ([G02B 25/004](#) ~~to~~ [G02B 25/007](#) take precedence)}
- G02B 26/00**
- Optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light, e.g. switching, gating, modulating (specially adapted to measuring characteristics of light [G01J](#); using devices or arrangements the optical operation of which is modified by changing the optical properties of the medium of the devices or the arrangements [G02F 1/00](#); control of light in general [G05D 25/00](#); control of light sources [H01S 3/10](#), [H05B 37/00](#) ~~to~~ [H05B 43/00](#); mechanically operable parts of lighting devices for the control of light [F21V](#))**

**Project: N/A (G02C)**

- U G02C 1/00 Assemblies of lenses with bridges or browbars**
- U G02C 1/02
- Bridge or browbar secured to lenses without the use of rims
- G02C 1/023
- • {with lenses secured to the fixing parts by clamping, luting, soldering, gluing without holes or recesses in the lenses ([G02C 1/04](#) ~~to~~ [G02C 1/08](#) take precedence)}
- G02C 1/026
- • {with auxiliary bars ([G02C 1/04](#) ~~to~~ [G02C 1/08](#) take precedence)}
- U G02C 7/00 Optical parts (characterised by the material [G02B 1/00](#))**
- U G02C 7/02
- Lenses; Lens systems; {Methods of designing lenses}
- G02C 7/021
- • {with pattern for identification or with cosmetic or therapeutic effects (methods and processes take preference, e.g. printing, marking or copying processes [B41M](#); identification in general [G09F 3/00](#); producing decorative effects in general [B44C](#); surface treatment of glass [C03C 15/00](#) ~~to~~ [C03C 23/00](#); positioning or marking of lenses [B24B 13/0055](#))}
- G02C 9/00 Attaching auxiliary optical parts (auxiliary optical parts per se [G02C 7/08](#) ~~to~~ [G02C 7/16](#))**
- G02C 2200/00 Generic mechanical aspects applicable to one or more of the groups [G02C 1/00](#) ~~to~~ [G02C 5/00](#) and [G02C 9/00](#) ~~to~~ [G02C 13/00](#) and their subgroups**

**Project: N/A (G02F)****G02F 1/00**

Devices or arrangements for the control of the intensity, colour, phase, polarisation or direction of light arriving from an independent light source, e.g. switching, gating, or modulating; Non-linear optics (thermometers using change of colour or translucency [G01K 11/12](#); using changes in fluorescence [G01K 11/32](#); light guide devices [G02B 6/00](#); optical devices or arrangements using movable or deformable elements for controlling light independent of the light source [G02B 26/00](#); control of light in general [G05D 25/00](#); visible signalling systems [G08B 5/00](#); indicating arrangements for variable information by selection or combination of individual elements [G09F 9/00](#); control arrangements or circuits for visual indicators other than cathode-ray tubes [G09G 3/00](#); control of light sources [H01S 3/10](#), [H05B 33/08](#), [H05B 35/00](#) ~~to~~ [H05B 43/00](#); {photochromic filters [G02B 5/23](#); optical logic elements [G02F 3/00](#)})

NOTE

This group covers only :

- devices or arrangements, e.g. cells, the optical operation of which is modified by changing the optical properties of the medium of the devices or arrangements by the influence or control of physical parameters, e.g. electric fields, electric current, magnetic fields, sound or mechanical vibrations, stress or thermal effects;
- devices or arrangements in which the electric or magnetic field component of the light beams influences the optical properties of the medium, i.e. non-linear optics;
- control of light by electromagnetic waves, e.g. radio waves, or by electrons or other elementary particles.

## G02F 1/01

- for the control of the intensity, phase, polarisation or colour ([G02F 1/29](#), [G02F 1/35](#) take precedence; polarising elements per se [G02B 5/30](#); static storage per se [G11C](#); image tube screens acting as light valves by shutter operation [H01J 29/12](#); such screens acting by discoloration [H01J 29/14](#); {projection arrangements for television image reproduction, e.g. using eidophor [H04N 5/74](#); recording by light [G11B 7/00](#) ~~to~~ [G11B 11/00](#)})

## U G02F 1/03

- based on ceramics or electro-optical crystals, e.g. exhibiting Pockels effect or Kerr effect ([G02F 1/061](#) takes precedence)

## G02F 1/0305

- {Constructional arrangements ([G02F 1/0327](#) ~~to~~ [G02F 1/05](#) take precedence)}

## U G02F 1/13

- based on liquid crystals, e.g. single liquid crystal display cells (liquid crystal materials [C09K 19/00](#))

## U G02F 1/137

- characterised by a particular electro- or magneto-optical effect, e.g. field-induced phase transition, orientation effect, guest-host interaction, dynamic scattering

## G02F 1/13762

- {containing luminescent or electroluminescent additives (luminescent materials in general [C09K 11/00](#); compositions of liquid crystals comprising additives [C09K 19/52](#) ~~to~~ [C09K 19/603](#); electroluminescent light sources [H05B 33/00](#))}

## G02F 1/17

- based on variable absorption elements ([G02F 1/015](#) ~~to~~ [G02F 1/167](#) take precedence; {tenebrescent compositions [C09K 9/00](#)})

## G02F 1/19

- based on variable reflection or refraction elements ([G02F 1/015](#) ~~to~~ [G02F 1/167](#) take precedence)

## G02F 1/23

- for the control of the colour ([G02F 1/03](#) ~~to~~ [G02F 1/21](#) take precedence)

**G02F 2201/00**

**Constructional arrangements not provided for in groups [G02F 1/00](#) ~~to~~ [G02F 7/00](#)**

**Project: N/A (G03B)**

G03B 1/00 -  
G03B 5/00      **Details common to at least two of the following types of apparatus: cameras, projectors, printers (details common to cameras only [G03B 7/00](#) ~~to~~ [G03B 17/00](#), to projectors only [G03B 21/00](#), [G03B 23/00](#), to printers only [G03B 27/00](#))**

**U    G03B 7/00      Control of exposure by setting shutters, diaphragms or filters, separately or conjointly (control of exposure in television cameras by means of circuitry influencing the optical part of the camera [H04N 5/238](#))**

**WARNING**

Group [G03B 7/00](#) is impacted by reclassification into groups [G03B 7/01](#) and [G03B 7/30](#).

Groups [G03B 7/00](#), [G03B 7/01](#) and [G03B 7/30](#) should be considered in order to perform a complete search.

G03B 7/003      • {setting of both shutter and diaphragm ([G03B 7/02](#) ~~to~~ [G03B 7/22](#) take precedence)}

G03B 7/006      • {setting of both diaphragm and distance ([G03B 7/02](#) ~~to~~ [G03B 7/22](#) take precedence)}

**U    G03B 11/00      Filters or other obturators specially adapted for photographic purposes (filters per se [G02B](#) {[G02B 5/20](#)})**

G03B 11/04      • Hoods or caps for eliminating unwanted light from lenses, viewfinders or focusing aids

**WARNING**

Groups [G03B 11/041](#) ~~to~~ [G03B 11/048](#) are not complete pending reclassification; see also [G03B 11/04](#)

G03B 11/048      • • {Hoods or caps not provided for in groups [G03B 11/041](#) ~~to~~ [G03B 11/046](#)}

**U    G03B 17/00      Details of cameras or camera bodies; Accessories therefor (lens hoods or caps [G03B 11/04](#))**

G03B 17/56      • Accessories (camera cases [A45C 11/38](#); {lens caps [G03B 11/041](#); stands or trestles as support for apparatus or articles placed thereon [F16M 11/00](#); means for attachment of apparatus allowing quick-release [F16M 11/041](#); means for supporting on, or holding steady relative to a person [F16M 13/04](#); tripods [F16M 11/24](#); tripods with telescopic legs [F16M 11/32](#); monopod or tripod having a central telescopic column [F16M 11/28](#); heads or undercarriages for supporting an object and allowing movement thereof [F16M 11/043](#) ~~to~~ [F16M 11/14](#) or [F16M 11/2007](#) ~~to~~ [F16M 11/24](#)})

**WARNING**

Groups [G03B 17/561](#) ~~to~~ [G03B 17/568](#) are not complete pending reclassification; see also [G03B 17/56](#)

G03B 17/568      • • {Camera accessories not provided in groups [G03B 17/561](#) ~~to~~ [G03B 17/566](#)}

- G03B 21/00** Projectors or projection-type viewers; Accessories therefor (devices for changing pictures [G03B 23/00](#); Zoetropes [G03B 25/00](#); photographic printing apparatus [G03B 27/00](#); arrangements for obtaining special effects on stages or in circuses or in arenas [F21W 2111/06](#); optical projection comparators [G01B 9/08](#); projection microscopes [G02B 21/36](#) {laser projectors using scanning devices [H04N 9/3129](#); interactive projectors, e.g. whiteboards, with input means to control the projection [G06F 3/00](#); optical distortion correction, e.g. keystone [G03B 21/14](#); projection devices comprising an electronic spatial light modulator and peculiar thereto [H04N 5/74](#) or [H04N 9/31](#)})
- WARNING  
Groups [G03B 21/001](#) ~~to~~ [G03B 21/008](#) are incomplete pending reclassification of documents from group [G03B 21/00](#).
- Until reclassification is complete, groups [G03B 21/00](#) and [G03B 21/001](#) ~~to~~ [G03B 21/008](#) should be considered in order to perform a complete search.
- G03B 21/14** · Details
- WARNING  
Groups [G03B 21/142](#) ~~to~~ [G03B 21/147](#) are incomplete pending reclassification of documents from group [G03B 21/14](#).
- Until reclassification is complete, groups [G03B 21/14](#) and [G03B 21/142](#) ~~to~~ [G03B 21/147](#) should be considered in order to perform a complete search.
- U G03B 21/20** · · Lamp houses (condensers per se [G02B](#))
- G03B 21/2093** · · · {Details of lamp houses not provided in groups [G03B 21/2006](#) ~~to~~ [G03B 21/2086](#)}
- U G03B 21/54** · Accessories
- U G03B 21/56** · · Projection screens
- G03B 21/562** · · · {Screens moving during projection ([G03B 21/58](#) ~~to~~ [G03B 21/62](#) take precedence)}
- G03B 21/565** · · · {Screens allowing free passage of sound ([G03B 21/58](#) ~~to~~ [G03B 21/62](#) take precedence)}
- U G03B 27/00** **Photographic printing apparatus (film-strip handling [G03B 1/00](#))**
- U G03B 27/32** · Projection printing apparatus, e.g. enlarger, copying camera
- G03B 27/323** · · {Copying cameras ([G03B 27/34](#) ~~to~~ [G03B 27/70](#) take precedence)}
- G03B 27/326** · · {Enlargers ([G03B 27/34](#) ~~to~~ [G03B 27/70](#) take precedence)}
- U G03B 37/00** **Panoramic or wide-screen photography; photographing extended surfaces, e.g. for surveying; Photographing internal surfaces, e.g. of pipe**
- G03B 37/005** · {Photographing internal surfaces, e.g. of pipe, ([G03B 37/02](#) ~~to~~ [G03B 37/06](#) take precedence; Instruments for performing medical examinations of cavities or tubes of the body by photographic inspection [A61B 1/00](#))}
- G03B 41/00** **Special techniques not covered by groups [G03B 31/00](#) ~~to~~ [G03B 39/00](#); Apparatus therefor**
- U G03B 2205/00** **Adjustment of optical system relative to image or object surface other than for focusing**
- G03B 2205/0092** · Other types of adjustments, not provided for in groups [G03B 2205/0007](#) ~~to~~ [G03B 2205/0084](#) e.g. for collapsing
- U G03B 2215/00** {Special procedures for taking photographs; Apparatus therefor}



**G03D 13/00**      **Processing apparatus or accessories therefor, not covered by groups [G11B 3/00](#) ~~to~~ [G11B 11/00](#)**

**U G03D 15/00**      **Apparatus for treating processed material**  
 G03D 15/02      • Drying; Glazing (combined with processing apparatus [G11B 3/00](#) ~~to~~ [G11B 13/00](#); drying in general [F26B](#))

**Project: N/A (G03F)**

**U G03F 7/00**      **Photomechanical, e.g. photolithographic, production of textured or patterned surfaces, e.g. printing surfaces; Materials therefor, e.g. comprising photoresists; Apparatus specially adapted therefor (using photoresist structures for special production processes, see the relevant places, e.g. [B44C](#), [H01L](#), e.g. [H01L 21/00](#), [H05K](#))**

U G03F 7/004      • Photosensitive materials ([G03F 7/12](#), [G03F 7/14](#) take precedence)

U G03F 7/09      • • characterised by structural details, e.g. supports, auxiliary layers (supports for printing plates in general [B41N](#))

G03F 7/11      • • • having cover layers or intermediate layers, e.g. subbing layers  
 {([G03F 7/091](#) ~~to~~ [G03F 7/093](#), [B41N 3/03](#) take precedence)}

G03F 7/26      • Processing photosensitive materials; Apparatus therefor ([G03F 7/12](#) ~~to~~ [G03F 7/24](#) take precedence)

G03F 7/36      • • Imagewise removal not covered by groups [G03F 7/30](#) ~~to~~ [G03F 7/34](#), e.g. using gas streams, using plasma

**Project: N/A (G03G)**

**U G03G 5/00**      **Recording members for original recording by exposure, e.g. to light, to heat, to electrons; Manufacture thereof; Selection of materials therefor (recording surfaces for measuring apparatus [G01D 15/34](#); photosensitive materials for photographic purposes [G03C](#))**

U G03G 5/02      • Charge-receiving layers ([G03G 5/153](#) takes precedence)

U G03G 5/04      • • Photoconductive layers; Charge-generation layers or charge-transporting layers; Additives therefor; Binders therefor

U G03G 5/05      • • • Organic bonding materials; Methods for coating a substrate with a photoconductive layer; Inert supplements for use in photoconductive layers

G03G 5/0528      • • • • {Macromolecular bonding materials}

NOTE

In groups [G03G 5/0528](#) ~~to~~ [G03G 5/0596](#), in the absence of an indication to the contrary, a polymer is classified in the last appropriate place

G03G 5/06      • • • characterised by the photoconductive material being organic

NOTE

In groups [G03G 5/06](#) ~~to~~ [G03G 5/0698](#), in the absence of an indication to the contrary, an invention is classified in the last appropriate place

U G03G 5/14      • Inert intermediate or cover layers for charge-receiving layers ([G03G 5/04](#) takes precedence)

U G03G 5/147      • • Cover layers

U G03G 5/14708      • • • {comprising organic material}

- G03G 5/14713      · · · · {Macromolecular material}
- NOTE  
In groups [G03G 5/14713](#) ~~to~~ [G03G 5/14795](#), in the absence of an indication to the contrary, a polymer is classified in the last appropriate place
- U G03G 9/00      Developers**
- U G03G 9/08      · with toner particles
- G03G 9/0827      · · {characterised by their shape, e.g. degree of sphericity}
- NOTE  
In groups [G03G 9/083](#) ~~to~~ [G03G 9/135](#), in the absence of an indication to the contrary, classification is made in the last appropriate place
- U G03G 9/087      · · Binders for toner particles
- G03G 9/08784      · · · {Macromolecular material not specially provided for in a single one of groups [G03G 9/08702](#) ~~to~~ [G03G 9/08775](#)}
- U G03G 9/097      · · Plasticisers; Charge controlling agents
- U G03G 9/09733      · · · {Organic compounds ([G03G 9/08782](#) takes precedence)}
- G03G 9/09775      · · · · {containing atoms other than carbon, hydrogen or oxygen ([G03G 9/09741](#) ~~to~~ [G03G 9/09766](#) take precedence)}
- G03G 9/16      · Developers not provided for in groups [G03G 9/06](#) ~~to~~ [G03G 9/135](#), e.g. solutions, aerosols
- U G03G 13/00      Electrographic processes using a charge pattern ([G03G 15/00](#), [G03G 16/00](#), [G03G 17/00](#) take precedence)**
- NOTE  
Group [G03G 15/00](#) also deals with processes in so far as they are characterised by the use or manipulation of apparatus classifiable per se in group [G03G 15/00](#) and therefor takes precedence
- G03G 13/22      · Processes involving a combination of more than one step according to groups [G03G 13/02](#) ~~to~~ [G03G 13/20](#) ([G03G 13/01](#) takes precedence)
- U G03G 15/00      Apparatus for electrographic processes using a charge pattern ([G03G 16/00](#), [G03G 17/00](#) take precedence; {xerographic printers for data processors per se [G06K 15/14](#)})**
- U G03G 15/01      · For producing multicoloured copies {(colour correction in photography [G03C](#); colour correction in printing plate production)}
- U G03G 15/0142      · · {Structure of complete machines}
- U G03G 15/0147      · · · {using a single reusable electrographic recording member}
- U G03G 15/0152      · · · · {onto which the monocolour toner images are superposed before common transfer from the recording member}
- G03G 15/0163      · · · · · {primary transfer to the final recording medium}
- WARNING  
Groups [G03G 15/0163](#) ~~to~~ [G03G 15/0173](#) are not complete pending reorganisation. See also [G03G 15/0147](#) - [G03G 15/0157](#)
- U G03G 15/0178      · · · {using more than one reusable electrographic recording member, e.g. one for every monocolour image}

- G03G 15/0184
- • • {at least one recording member having plural associated developing units}
- WARNING  
Groups [G03G 15/0184](#) ~~to~~ [G03G 15/0194](#) are not complete pending reorganisation. See also [G03G 15/0178](#)
- U G03G 15/04
- for exposing, i.e. imagewise exposure by optically projecting the original image on a photoconductive recording material
- NOTE  
The original image is obtained by direct optical projection or received from other sources, e.g. by computer modified or generated image data, by scanning, e.g. digital copiers
- U G03G 15/04036
- {Details of illuminating systems, e.g. lamps, reflectors (lamp housings for copying cameras, reflex exposure lighting [G03B 27/542](#))}
- G03G 15/04045
- • • {for exposing image information provided otherwise than by directly projecting the original image onto the photoconductive recording material, e.g. digital copiers ([G03G 15/041](#), [G03G 15/043](#) take precedence)}
- WARNING  
Groups [G03G 15/04054](#) ~~to~~ [G03G 15/04081](#) are not complete pending reorganisation. See also [G03G 15/04](#), [G03G 15/04036](#), [G03G 15/043](#), [G03G 15/0435](#) and [G03G 15/326](#)
- U G03G 15/06
- for developing
- U G03G 15/08
- • using a solid developer, e.g. powder developer
- U G03G 15/0822
- • • {Arrangements for preparing, mixing, supplying or dispensing developer}
- G03G 15/0848
- • • • {Arrangements for testing or measuring developer properties or quality, e.g. charge, size, flowability}
- WARNING  
[G03G 15/0848](#) ~~to~~ [G03G 15/0862](#) are not complete pending reorganisation. See also [G03G 15/0822](#) - [G03G 15/0831](#)
- G03G 15/0865
- • • • {Arrangements for supplying new developer}
- WARNING  
Groups [G03G 15/0877](#) ~~to~~ [G03G 15/0893](#) are not complete pending reorganisation. See also [G03G 15/0832](#) - [G03G 15/0843](#)
- G03G 15/0896
- • • {Arrangements or disposition of the complete developer unit or parts thereof not provided for by groups [G03G 15/08](#) ~~to~~ [G03G 15/0894](#)}
- U G03G 15/20
- for fixing, e.g. by using heat
- U G03G 15/2003
- • {using heat}
- U G03G 15/2014
- • • {using contact heat}
- G03G 15/2017
- • • • {Structural details of the fixing unit in general, e.g. cooling means, heat shielding means ([G03G 15/2053](#) takes precedence)}
- WARNING  
Groups [G03G 15/2017](#) ~~to~~ [G03G 15/205](#) are not complete pending reorganisation. See also [G03G 15/2064](#) - [G03G 15/2089](#)
- G03G 15/22
- involving the combination of more than one step according to groups [G03G 13/02](#) ~~to~~ [G03G 13/20](#) ([G03G 15/01](#) takes precedence)
- U G03G 15/50
- {Machine control of apparatus for electrographic processes using a charge pattern, e.g. regulating different parts of the machine, multimode copiers, microprocessor control (sequencing control [G03G 21/14](#))}

- U G03G 15/5033
- {by measuring the photoconductor characteristics, e.g. temperature, or the characteristics of an image on the photoconductor}
- G03G 15/5041
- • {Detecting a toner image, e.g. density, toner coverage, using a test patch ([G03G 15/553](#) takes precedence)}
- WARNING
- Groups [G03G 15/5041](#) ~~to~~ [G03G 15/505](#) are not complete, pending reorganisation. See also [G03G 15/5033](#)
- U G03G 15/65
- {Apparatus which relate to the handling of copy material (handling sheets or webs in general [B65H](#); for photographic purposes in general [G03B](#))}
- U G03G 15/6588
- • {characterised by the copy material, e.g. postcards, large copies, multi-layered materials, coloured sheet material}
- G03G 15/6591
- • • {characterised by the recording material, e.g. plastic material, OHP, ceramics, tiles, textiles (details transferring the toner pattern onto particular materials [G03G 15/1625](#))}
- WARNING
- Groups [G03G 15/6591](#) ~~to~~ [G03G 15/6594](#) are not complete, pending reorganisation. See also [G03G 15/6588](#)
- U G03G 17/00**
- Electrographic processes using patterns other than charge patterns, e.g. an electric conductivity pattern; Processes involving a migration, e.g. photoelectrophoresis, photoelectrosology; Processes involving a selective transfer, e.g. electrophoto-adhesive processes; Apparatus essentially involving a single such process**
- G03G 17/005
- {Radiation field photography, e.g. Kirlian photography, colour-discharge photography (recording electrical waveforms in general [G01R 13/04](#), e.g. [G01R 13/12](#) ~~to~~ [G01R 13/14](#))}
- G03G 21/00**
- Arrangements not provided for by groups [G03G 13/00](#) ~~to~~ [G03G 19/00](#), e.g. cleaning, elimination of residual charge**
- U G03G 21/0005
- {for removing solid developer or debris from the electrographic recording medium}
- U G03G 21/007
- • {Arrangement or disposition of parts of the cleaning unit}
- G03G 21/0076
- • • {Plural or sequential cleaning devices}
- WARNING
- Groups [G03G 21/0076](#) ~~to~~ [G03G 21/0082](#) are not complete pending reorganisation. See also [G03G 21/007](#)
- U G03G 21/16
- Mechanical means for facilitating the maintenance of the apparatus, e.g. modular arrangements
- G03G 21/18
- • using a processing cartridge, {whereby the process cartridge comprises at least two image processing means in a single unit}
- WARNING
- Groups [G03G 21/1803](#) ~~to~~ [G03G 21/1896](#) are not complete pending reorganisation. See also this group

**Project: N/A (G03H)**

- U G03H 1/00**
- Holographic processes or apparatus using light, infra-red or ultra-violet waves for obtaining holograms or for obtaining an image from them; Details peculiar thereto**
- G03H 1/22
- Processes or apparatus for obtaining an optical image from holograms ([G03H 1/26](#) ~~to~~ [G03H 1/34](#) take precedence)

**Project: N/A (G04B)**

- U G04B 13/00** **Gearwork** {(Gearwork for driving the hands [G04B 19/02](#); calibers [G04B 33/00](#); dispositions and components for transmission in general [F16H](#))}
- U G04B 13/02
- Wheels; Pinions; Spindles; Pivots (bearings [G04B 31/00](#) {chain wheels, spindles for chain wheels, also chains and driving weights [G04B 1/08](#)})
- WARNING  
Groups [G04B 13/021-G04B 13/028](#) are not complete pending reorganisation, see also [G04B 13/026](#)
- G04B 13/026
- {Assembly and manufacture (assembly and manufacture of springs [G04B 1/145](#); machines and tools for the manufacture of chain wheels for clocks [G04D 3/00](#); component parts and manufacture of the escape wheel [G04B 15/14](#); steel alloys [C22C 33/00](#) ~~to~~ [C22C 38/00](#); manufacture of pinions from synthetic material [B29](#); non-ferrous alloys [C22C](#); pinions manufactured by milling and planing [B23F](#))}
- WARNING  
This group is no longer used for the classification of new documents as from March 1, 2011. The backlog of this group is being reclassified to subgroups of [G04B 13/02](#)
- U G04B 19/00** **Indicating the time by visual means** {(indicating the time optically by electric means [G04C 17/00](#), e.g.) by electric lamps [G04C 17/02](#); display arrangements in general [G09F](#))}
- G04B 19/26
- Clocks or watches with indicators for tides, for the phases of the moon, or the like {(planetaria [G09B 27/00](#) ~~to~~ [G09B 27/06](#); arrangements for table reference e.g. menstrual tables [G06C 3/00](#))}
- G04B 37/00** **Cases** {(Cases with a special shape [G04B 45/0069](#); ornamentation of the case [G04B 47/04](#); cartridges [A45C 11/00](#) ~~to~~ [A45C 11/38](#))}
- G04B 37/18
- for pocket or wrist watches ([G04B 37/02](#) ~~to~~ [G04B 37/16](#) takes precedence {not used; see provisionally [G04B 37/00](#)})

**Project: N/A (G04C)**

- U G04C 1/00** **Winding mechanical clocks electrically** (winding mechanically [G04B 3/00](#) {electrical winding of spring driven arrangements for gramophones [G11B 19/20](#)})
- G04C 1/006
- {for clocksystems ([G04C 1/02](#) ~~to~~ [G04C 1/04](#) take precedence)}
- U G04C 3/00** **Electromechanical clocks or watches independent of other time-pieces and in which the movement is maintained by electric means** {(Synchronisation [G04C 11/00](#))}
- G04C 3/14
- incorporating a stepping motor ([G04C 3/02](#) ~~to~~ [G04C 3/12](#) take precedence {generating timing pulses [G04F 5/00](#), [G04G 3/00](#); setting [G04G 5/00](#); synchronisation [G04G 7/00](#); generating commutating pulses in masterclocks [G04C 13/0463](#), [G04C 13/02](#); slave clocks actuated intermittently by electromechanical step advancing mechanisms [G04C 13/10](#); control circuits for stepping motors in general [H02P 8/00](#)})
- G04C 3/16
- incorporating an electro-dynamic continuously rotating motor ([G04C 3/02](#) ~~to~~ [G04C 3/12](#) take precedence; clocks driven by synchronous motors [G04C 15/00](#); {apparatus which can be set and started to measure-off predetermined or adjustably-fixed time intervals with electric driving means, e.g. incorporating clocks [G04F 3/06](#), [G04F 3/08](#); electromechanical stop watches [G04F 8/00](#)})

**Project: MP0232 (G04D)**

- M G04D APPARATUS OR TOOLS SPECIALLY DESIGNED FOR MAKING OR MAINTAINING CLOCKS OR WATCHES (~~machine tools in general B23, B24; hand tools in general B25~~)
- M G04D 9/00 Demagnetising devices (~~demagnetising in general H01F 13/00~~)

**Project: N/A (G04F)**

- G04F 13/00 Apparatus for measuring unknown time intervals by means not provided for in groups [G04F 5/00](#) ~~to~~ [G04F 10/00](#)

**Project: N/A (G04G)**

- U G04G 3/00 Producing timing pulses (driving circuits for stepping motors [G04C 3/14](#); producing preselected time intervals for use as timing standards [G04F 5/00](#); pulse technique in general [H03K](#); control, synchronisation, or stabilisation of generators in general [H03L](#))
- G04G 3/02 . Circuits for deriving low frequency timing pulses from pulses of higher frequency (pulse frequency dividers in general [H03K 23/00](#) ~~to~~ [H03K 29/00](#))

**Project: N/A (G05B)**

- U G05B 19/00 Programme-control systems (specific applications see the relevant places, e.g. [A47L 15/46](#); clocks with attached or built-in means operating any device at a preselected time interval [G04C 23/00](#); marking or sensing record carriers with digital information [G06K](#); information storage [G11](#); time or time-programme switches which automatically terminate their operation after the programme is completed [H01H 43/00](#))
- U G05B 19/02 . electric
- U G05B 19/04 . . Programme control other than numerical control, i.e. in sequence controllers or logic controllers ([G05B 19/418](#) takes precedence; numerical control [G05B 19/18](#))
- G05B 19/0405 . . . {Programme-control specially adapted for machine tool control and not otherwise provided for ([B23Q](#) takes precedence; [G05B 19/06](#) ~~to~~ [G05B 19/16](#) take precedence)}
- U G05B 19/18 . . Numerical control [NC], i.e. automatically operating machines, in particular machine tools, e.g. in a manufacturing environment, so as to execute positioning, movement or co-ordinated operations by means of programme data in numerical form ([G05B 19/418](#) takes precedence)
- G05B 19/182 . . . {characterised by the machine tool function, e.g. thread cutting, cam making, tool direction control ([G05B 19/21](#) ~~to~~ [G05B 19/40](#) take precedence)}
- U G05B 19/19 . . . characterised by positioning or contouring control systems, e.g. to control position from one programmed point to another or to control movement along a programmed continuous path
- NOTE**  
In this group, the measuring system for an axis is used to measure the displacement along that axis. This measurement is used as position-feedback in the servo-control system.
- U G05B 19/21 . . . . using an incremental digital measuring device
- U G05B 19/23 . . . . . for point-to-point control
- U G05B 19/231 . . . . . {the positional error is used to control continuously the servomotor according to its magnitude}

- G05B 19/237 . . . . . {with a combination of feedback covered by [G05B 19/232](#) to-  
[G05B 19/235](#)}
- U G05B 19/25 . . . . . for continuous-path control
- U G05B 19/251 . . . . . {the positional error is used to control continuously the servomotor  
according to its magnitude}
- G05B 19/258 . . . . . {with a combination of feedback covered by [G05B 19/253](#) to-  
[G05B 19/256](#)}
- U G05B 19/27 . . . . . using an absolute digital measuring device
- U G05B 19/29 . . . . . for point-to-point control
- U G05B 19/291 . . . . . {the positional error is used to control continuously the servomotor  
according to its magnitude}
- G05B 19/298 . . . . . {with a combination of feedback covered by [G05B 19/293](#) to-  
[G05B 19/296](#)}
- U G05B 19/31 . . . . . for continuous-path control
- U G05B 19/311 . . . . . {the positional error is used to control continuously the servomotor  
according to its magnitude}
- G05B 19/318 . . . . . {with a combination of feedback covered by [G05B 19/313](#) to-  
[G05B 19/316](#)}
- U G05B 19/33 . . . . . using an analogue measuring device
- U G05B 19/35 . . . . . for point-to-point control
- U G05B 19/351 . . . . . {the positional error is used to control continuously the servomotor  
according to its magnitude}
- G05B 19/358 . . . . . {with a combination of feedback covered by [G05B 19/353](#) to-  
[G05B 19/356](#)}
- U G05B 19/37 . . . . . for continuous-path control
- U G05B 19/371 . . . . . {the positional error is used to control continuously the servomotor  
according to its magnitude}
- G05B 19/378 . . . . . {with a combination of feedback covered by [G05B 19/373](#) to-  
[G05B 19/376](#)}
- U G05B 19/418 . . . Total factory control, i.e. centrally controlling a plurality of machines, e.g.  
direct or distributed numerical control [DNC], flexible manufacturing systems  
[FMS], integrated manufacturing systems [IMS], computer integrated  
manufacturing [CIM]
- G05B 19/41815 . . . {characterised by the cooperation between machine tools, manipulators and  
[conveyerconveyor](#) or other workpiece supply system, workcell}
- G05B 19/4182 . . . . {manipulators and [conveyerconveyor](#) only}
- G05B 21/00** **Systems involving sampling of the variable controlled ([G05B 13/00](#) to-  
[G05B 19/00](#) take precedence; transmission systems for measured values  
[G08C](#); electronic switching or gating [H03K 17/00](#))**
- U G05B 2219/00** **Program-control systems**
- U G05B 2219/30 . . . Nc systems
- U G05B 2219/32 . . . Operator till task planning
- G05B 2219/32357 . . . Simulation of material handling, flexible [conveyerconveyor](#) system fcs

Project: N/A (G05D)

G05D

**SYSTEMS FOR CONTROLLING OR REGULATING NON-ELECTRIC VARIABLES (for continuous casting of metals [B22D 11/16](#) ; valves per se [F16K](#); sensing non-electric variables, see the relevant subclasses of [G01](#); for regulating electric or magnetic variables [G05F](#))**

NOTES

1. This subclass does not cover features of general applicability to regulating systems, e.g. anti-hunting arrangements, which are covered by subclass [G05B](#).
2. In this subclass, the following term is used with the meaning indicated:
  - "systems" includes self-contained devices such as speed governors, pressure regulators.
3. Control systems specially adapted for particular apparatus, machines or processes are classified in the subclasses for the apparatus, machines or processes, provided that there is specific provision for control or regulation relevant to the special adaptation, either at a detailed level, (e.g. [A21B 1/40](#) : "for regulating temperature in bakers' ovens") or at a general level, (e.g. [B23K 9/095](#) : "for automatic control of welding parameters in arc welding"). Otherwise, classification is made in the most appropriate place in this subclass.

The following are lists of places where there is specific provision of the kind referred to above. Where such provision is at a detailed level, the places have been grouped according to the main groups of this subclass. Where the provision is at a general level (e.g. of a kind appropriate to more than one of the main groups specified in the lists, or to main groups [G05D 27/00](#) or [G05D 29/00](#) ), the places are listed under the title "General References".

Places related to [G05D 1/00](#)

<a href="#">A01B 69/00</a>	Agricultural machines or implements
<a href="#">A63H 17/36</a>	Toy vehicles
<a href="#">B60V 1/11</a>	Air-cushion vehicles
<a href="#">B62D 1/00</a>	Steering controls of motor vehicles or trailers, i.e. means for initiating a change of direction
<a href="#">B62D 6/00</a>	Arrangements for automatically controlling the steering depending on driving conditions
<a href="#">B62D 55/116</a>	Chassis of endless-tracked vehicles
<a href="#">B63H 25/00</a>	Marine steering; control of waterborne vessels
<a href="#">B64C 13/00</a>	<del>to</del> <a href="#">B64C 15/00</a> Controlling aircraft
<a href="#">B64D 25/10</a>	Controlling attitude or direction of aircraft ejector seats
<a href="#">B64G 1/24</a>	Cosmonautic vehicles
<a href="#">F41G 7/00</a>	Self-propelled missiles
<a href="#">F42B 15/01</a>	Guided missiles
<a href="#">F42B 19/01</a>	Marine torpedoes
Places related to <a href="#">G05D 3/00</a>	
<a href="#">A43D 119/00</a>	Footwear manufacture
<a href="#">B21K 31/00</a>	Tool carriers in forging or pressing
<a href="#">B23B 39/26</a>	Pattern-controlled boring or drilling tools
<a href="#">B23D 1/30</a>	, <a href="#">B23D 3/06</a> , <a href="#">B23D 5/04</a>
	Planing or slotting machines controlled by copying device

[B23H 7/18](#) Electrode to workpiece spacing in electric discharge and electrochemical machining  
[B23K 26/02](#) Workpiece in laser welding or cutting  
[B23K 37/04](#) Workpiece in welding  
[B23K 37/06](#) Molten metal in welding  
[B23Q 5/20](#) Spindles in machine tools  
[B23Q 15/00](#) , [B23Q 16/00](#) Tool or work position in machine tools  
[B23Q 35/00](#) Tools controlled by pattern or master model  
[B24B 17/00](#) Grinding controlled by patterns, drawings, magnetic tape or the like  
[B24B 47/22](#) Starting position in grinding  
[B30B 15/24](#) Actuating members in presses  
[B62D 55/116](#) Chassis of tracked vehicles  
[B65H 23/18](#) Web-advancing mechanisms  
[E02F 3/43](#) Dippers or buckets in dredgers  
[F15B 9/00](#) Fluid-pressure servomotors with follow-up action  
[F24J 2/38](#) Tracking of solar heat collectors  
[G03F 9/00](#) Photomechanical production of patterned or textured surfaces  
[G11B 5/588](#) Rotating heads in information storage systems  
[G21C 7/12](#) Movement of control elements in nuclear reactors

Places related to [G05D 5/00](#)

[A24B 7/14](#) Tobacco cutting  
[B05C 11/02](#) Thickness of coating of fluent material on surface  
[B21B 37/16](#) Thickness, width, diameter or other transverse dimensions of the products of metal-rolling mills  
[C03B 18/04](#) Dimension of glass ribbon  
[D21F 7/06](#) Thickness of layer in paper making

Places related to [G05D 7/00](#)

[A45D 20/26](#) Air in hair drying helmets  
[A61M 5/168](#) Flow of media to the human body  
[B03C 3/36](#) Gases or vapour in electrostatic separators  
[B05C 11/10](#) Fluent material in coating devices  
[B67D 1/12](#) Dispensing beverages on draught  
[B67D 7/28](#) Transferring liquids  
[C10K 1/28](#) Gas purifiers  
[E21B 21/08](#) Flushing boreholes  
[E21B 43/12](#) Obtaining liquids from wells  
[F01D 17/00](#) Flow in non-positive-displacement machines or systems

[F01M 1/16](#) Lubrication arrangements  
[F01P 7/00](#) Coolant flow in cooling devices  
[F02C 9/16](#) ,  
[F02C 9/50](#) Gas-turbine working fluid  
[F16L 55/027](#) Throttle passages in pipes  
[F24F 11/00](#) Air-flow or supply of heating or  
cooling  
fluids in air treatment arrangements  
[F26B 21/12](#) Air or gas flow in dryers  
[G01G 11/08](#) Continuous flow weighing  
apparatus  
[G21D 3/14](#) Coolant in nuclear power plant

Places related to [G05D 9/00](#)  
[B01D 21/34](#) Liquid level in sedimentation  
arrangements  
[B41L 27/04](#) Ink level in printing, manifolding  
or  
duplicating arrangements  
[F22D 5/00](#) Feed water for boilers  
[H01J 1/10](#) , [H01J 13/14](#) Liquid pool  
electrodes in electric discharge  
tubes or lamps

Places related to [G05D 11/00](#)  
[B01D 21/32](#) Density in sedimentation  
arrangements  
[B01F 15/04](#) Mixers  
[B24C 7/00](#) Abrasive blasts  
[B28C 7/00](#) Mixtures of clays or cements  
[B65G 53/66](#) Bulk material  
~~conveyers~~conveyors  
[F02K 3/075](#) Flow ratio in jet-propulsion plants

Places related to [G05D 13/00](#)  
[B21C 1/12](#) Drum speed in metal drawing  
[B23Q 15/00](#) Cutting velocity of tool or  
work  
[B30B 15/20](#) Ram speed in presses  
[B60K 31/00](#) Setting or limiting speed of  
vehicles  
[B60L 15/00](#) Electrically-propelled vehicles  
[B64D 31/08](#) Cruising speed of aircraft  
[D01D 1/09](#) Feed rate in manufacture of  
artificial  
filaments, threads, fibres, bristles or  
ribbons  
[D01G 15/36](#) Carding machines  
[D02H 13/14](#) Warping, beaming or leasing  
machines  
[D03D 51/16](#) Cyclically varying speed of  
looms  
[G01N 30/32](#) Speed of fluid carrier in chemical  
analysis  
[G11B 15/46](#) Filamentary or web record carriers or  
heads  
for such carriers in information storage  
systems  
[G11B 19/28](#) Non-filamentary, non-web record  
carriers, or  
heads for such carriers in information storage

systems

Places related to [G05D 15/00](#)  
[B25D 9/26](#) Portable percussive tools  
[B30B 15/22](#) Ram pressure in presses  
[B65H 59/00](#) Tension in filamentary material  
{[B65H 23/00](#) , [B65H 59/00](#)} Tension in  
webs, tapes, filamentary material  
[B66D 1/50](#) Rope, cable or chain tension  
[D03D 49/04](#) Tension in looms  
[D05B 47/04](#) Tension in sewing machines  
[D21F 3/06](#) Pressure in paper-making  
machines  
[F26B 13/12](#) Drying fabrics  
[F26B 21/10](#) Pressure in dryers  
[G11B 15/43](#) Record carrier tension in  
information  
storage arrangements

Places related to [G05D 16/00](#)  
[B60C 23/00](#) Tyre pressure  
[B63C 11/08](#) Air within diving suit  
[B64D 13/00](#) Aircraft air-pressure  
[B65G 53/66](#) Bulk material  
~~conveyers~~[conveyors](#)  
[D01D 1/09](#) Manufacture of artificial filaments,  
threads,  
fibres, bristles or ribbons  
[E21B 21/08](#) Flushing boreholes  
[F01M 1/16](#) Lubrication arrangements  
[G01N 30/32](#) Pressure of fluid carrier in chemical  
analysis  
[H01J 7/14](#) Pressure in electric discharge tubes or  
lamps  
[H01K 1/52](#) Pressure in electric incandescent  
lamps

Places related to [G05D 19/00](#)  
[B25D 9/26](#) Portable percussion tools  
[B65G 27/32](#) Jigging ~~conveyers~~[conveyors](#)

Places related to [G05D 21/00](#)  
[B01D 21/32](#) Density in sedimentation  
arrangements  
[B01D 53/30](#) Treating gases or vapours  
[G01N 30/34](#) Composition of fluid carrier in  
chemical  
analysis

Places related to [G05D 22/00](#)  
[A01G 25/16](#) Watering gardens, fields, sports  
grounds  
or the like  
[A01K 41/04](#) Poultry incubators  
[A24B 9/00](#) Tobacco products  
[F24F 11/00](#) Air conditioning  
[F26B 21/08](#) Dryers

Places related to [G05D 23/00](#)  
[A21B 1/40](#) Bakers' ovens  
[A45D 6/20](#) Hair curlers

[B21C 31/00](#) Metal extruding  
[B60C 23/00](#) Tyre temperature  
[B64G 1/50](#) Cosmonautic vehicles  
[C03B 18/18](#) ,  
[C03B 18/22](#) Float baths in glass making  
[D01D 1/09](#) Manufacture of artificial  
filaments,  
threads, fibres, bristles or ribbons  
[D04B 35/30](#) Knitting machines  
[D06F 75/26](#) Hand irons  
[D21F 5/06](#) Paper-making machines  
[F01M 5/00](#) Lubricant in lubrication  
arrangements  
[F16N 7/08](#) Arrangements for supplying oil or  
unspecified  
lubricant from a reservoir  
[F22G 5/00](#) Steam superheat  
[F26B 21/10](#) Dryers  
[G01N 30/30](#) Temperature of fluid carrier in  
chemical  
analysis  
[H01M 10/60](#) Electric storage cells  
[H05B 6/06](#) ,  
[H05B 6/50](#) ,  
[H05B 6/68](#) Dielectric, induction or microwave  
heating  
[H05G 1/36](#) Anode of X-ray tube

Places related to [G05D 25/00](#)  
[B41B 21/08](#) Photographic composing machines  
[H01S 3/10](#) ,  
[H05B 33/08](#) ,  
[H05B 35/00](#) to  
[H05B 43/00](#) Lasers and other light sources

General references  
[A01J 5/007](#) Milking machines  
[B23K 9/095](#) Welding parameters  
[B23Q 35/00](#) Copying  
[B24B 17/00](#) ,  
[B24B 49/00](#) Grinding or polishing  
[B24C 7/00](#) Abrasive blasts  
[B67D 1/12](#) Dispensing beverages on draught  
[G03G 21/20](#) Electrographic, electrophotographic  
or  
magnetographic processes  
[H02P 5/00](#) to  
[H02P 9/00](#) Dynamo-electric motors or generators

**U G05D 1/00**

**Control of position, course or altitude of land, water, air, or space vehicles, e.g. automatic pilot (steering applicable only to other than landborne vehicles, e.g. three-dimensional steering applicable to both aircraft and submarines [B60K](#) ; construction or disposition of steering means on land vehicles [B62](#) , on waterborne vessels [B63](#) ; manual or automatic control of aircraft, e.g. using automatic pilot or radiated signal [B64C](#) ; radio navigation systems or analogous systems using other waves [G01S](#))**

- G05D 1/12
- Target-seeking control
- NOTE  
Within groups [G05D 3/00](#) ~~to~~ [G05D 3/20](#) , in the absence of an indication of the contrary, an invention is classified in the last appropriate place
- G05D 23/00**
- Control of temperature (automatic switching arrangements for electric heating apparatus [H05B 1/02](#) ; controlling induction heating [H05B 6/06](#) ; regulating temperature of anode of X-ray tube [H05G 1/36](#))**
- NOTE  
Within groups [G05D 23/01](#) ~~to~~ [G05D 23/32](#) , an invention is classified in the last appropriate place in the absence of an indication of the contrary
- G05D 23/19
- characterised by the use of electric means {([G05D 23/1393](#) takes precedence)}
- NOTE  
In this group, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its subgroups, which is considered to represent information of interest for search, should be classified in each of those subgroups. Temperature control arrangements are classified in subgroups [G05D 23/20](#) ~~to~~ [G05D 23/275](#) on the base of the type of temperature sensor and in the subgroups directly under [G05D 23/19](#) for each aspect related to temperature control in general.
- G05D 25/00**
- Control of light, e.g. intensity, colour, phase (mechanically operable parts of lighting devices for the control of light [F21V](#) ; optical devices or arrangements using movable or deformable elements for controlling light independent of the light source [G02B 26/00](#) ; devices or arrangements, the optical operation of which is modified by changing the optical properties of the medium of the devices or arrangements for the control of light, circuit arrangements specially adapted therefor, control of light by electromagnetic waves, electrons or other elementary particles [G02F 1/00](#) ; circuit arrangements for controlling light sources [H01S 3/10](#) , [H05B 33/08](#) , [H05B 35/00](#) ~~to~~ [H05B 43/00](#))**

**Project: N/A (G05G)**

- G05G**
- CONTROL DEVICES OR SYSTEMS INsofar AS CHARACTERISED BY MECHANICAL FEATURES ONLY ("Bowden" or like mechanisms [F16C 1/10](#); gearings or mechanisms not peculiar to this purpose [F16H](#); speed changing or reversing mechanisms for gearings conveying rotary motion [F16H 59/00](#) ~~to~~ [F16H 63/00](#))**

NOTES

1. This subclass covers:
  - members of general applicability for mechanical control;
  - mechanical systems for moving members to one or more definite settings.
2. Systems peculiar to the control of particular machines or apparatus provided for in a single other class are classified in the relevant class for such machines or apparatus, for example:

- [A61G 13/02](#) Controls for adjusting operating tables  
[A61G 15/02](#) Controls for adjusting operating chairs  
[A63F 13/20](#), [A63F 13/98](#) Accessories for games using an electronically generated display  
[B25J](#) Manipulators, e.g. controls therefor  
[B60K 26/00](#) Arrangement or mounting of propulsion-unit control devices in vehicles  
[B60T 7/00](#) Vehicle brake-action initiating means

[B62D 33/073](#) Adaptations of control devices for movable vehicle cabs  
[B62K 21/00](#) Cycle-steering devices  
[B62K 23/00](#) Rider-operated controls specially adapted for cycles  
[B62L 3/00](#) Brake-actuating mechanisms specially adapted for cycles  
[B63H 25/02](#) Marine steering initiating means  
[B66B 1/00](#) Controls for elevators  
[B66C 13/18](#) Control systems or devices for cranes  
[B66C 13/56](#) Arrangements of handles or pedals for crane operation  
[E02F 9/20](#) Control devices for dredging or soil shifting machines  
[F16C 3/28](#) Adjustable cranks or eccentrics  
[F16D 43/00](#) Automatic clutches  
[F16K 31/00](#), [F16K 33/00](#) Controls for valves  
[F16P 3/00](#) Safety devices acting in conjunction with the control or operation of a machine  
[F16P 7/02](#) Stopping machines on occurrence of dangerous conditions therein  
[G02B 21/32](#) Micromanipulators structurally combined with microscopes  
[G04B 1/00](#) ~~to-~~ [G04B 18/00](#) Driving mechanisms in clocks or watches  
[G06C](#) Digital computers in which all the computation is effected mechanically  
[G06F 3/02](#) Manual computer input arrangements  
[G06K 11/00](#) Converting a pattern of mechanical parameters into electric signals  
[G21C 7/08](#) Displacement of solid control elements in nuclear reactors  
[H01H](#) Mechanisms for operating switch contacts  
[H03J 1/00](#) Mechanical control of resonant circuits.

**U G05G 7/00 Manually-actuated control mechanisms provided with one single controlling member co-operating with one single controlled member; Details thereof (controlling members [G05G 1/00](#))**

U G05G 7/02 · Characterised by special provisions for conveying or converting motion, or for acting at a distance

G05G 7/10 · · specially adapted for remote control ([G05G 7/04](#) ~~to-~~ [G05G 7/08](#) take precedence)

**Project: N/A (G06C)**

**G06C 15/00 Computing mechanisms; Actuating devices therefor (mechanisms for operating automatically upon more than two numbers otherwise than by repeated addition or subtraction [G06C 21/00](#))**

**NOTE**

Group [G06C 15/00](#) takes precedence over groups [G06C 15/04](#) ~~to-~~ [G06C 15/42](#)

**G06C 23/00 Driving mechanisms for functional elements ([G06C 23/08](#) takes precedence over [G06C 23/02](#) ~~to-~~ [G06C 23/06](#))**

## Project: N/A (G06F)

## G06F

**ELECTRICAL DIGITAL DATA PROCESSING (computers in which a part of the computation is effected hydraulically or pneumatically [G06D](#); optically [G06E](#); self-contained input or output peripheral equipment [G06K](#); impedance networks using digital techniques [H03H](#))**

NOTE

In this subclass, the following terms or expressions are used with the meaning indicated:

- "handling" includes processing or transporting of data;
- "data processing equipment" means an association of an electric digital data processor classifiable under group [G06F 7/00](#), with one or more arrangements classifiable under groups [G06F 1/00](#) ~~to~~ [G06F 5/00](#) and [G06F 9/00](#) ~~to~~ [G06F 13/00](#).

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[G06F 3/18](#) covered by [G06F 3/00](#), [G06K 11/00](#)

[G06F 7/04](#) covered by [G06F 7/02](#)

[G06F 9/302](#) - [G06F 9/318](#) covered by [G06F 9/30](#)

- [G06F 9/40](#) covered by [G06F 9/4425](#) and subgroups

- [G06F 9/42](#) covered by [G06F 9/4426](#) and subgroups

- [G06F 9/45](#) covered by [G06F 8/41](#) and subgroups

## G06F 1/00

**Details of data-processing equipment not covered by groups [G06F 3/00](#) ~~to~~ [G06F 13/00](#), {e.g. cooling, packaging or power supply specially adapted for computer application (security arrangements for protecting computers or computer systems against unauthorised activity [G06F 21/00](#))}**

- |   |             |  |
|---|-------------|--|
| U | G06F 1/04   | • Generating or distributing clock signals or signals derived directly therefrom   |
|   | G06F 1/06   | • • Clock generators producing several clock signals {( <a href="#">G06F 1/08</a> <del>to</del> <a href="#">G06F 1/14</a> take precedence)}  |
| U | G06F 1/16   | • Constructional details or arrangements (instrument details <a href="#">G12B</a> )  |
| U | G06F 1/1613 | • • {for portable computers (cooling arrangements therefor <a href="#">G06F 1/203</a> ; constructional details or arrangements for pocket calculators, electronic agendas or books <a href="#">G06F 15/0216</a> ; constructional details of portable telephone sets: with several bodies <a href="#">H04M 1/0202</a> )}  |
|   | G06F 1/1633 | • • • {Constructional details or arrangements of portable computers not specific to the type of enclosures covered by groups <a href="#">G06F 1/1615</a> <del>to</del> <a href="#">G06F 1/1626</a> }   |
|   | G06F 1/1684 | • • • • {Constructional details or arrangements related to integrated I/O peripherals not covered by groups <a href="#">G06F 1/1635</a> <del>to</del> <a href="#">G06F 1/1675</a> }  |
| U | G06F 3/00   | <b>Input arrangements for transferring data to be processed into a form capable of being handled by the computer; Output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements (typewriters <a href="#">B41J</a>; conversion of physical variables <a href="#">F15B 5/00</a>, <a href="#">G01</a>; image acquisition <a href="#">G06T 1/00</a>, <a href="#">G06F 9/00</a>; coding, decoding or code conversion in general <a href="#">H03M</a>; transmission of digital information <a href="#">H04L</a>; {in regulating or control systems <a href="#">G05B</a>})</b> |
|   | G06F 3/002  | • {Specific input/output arrangements not covered by <a href="#">G06F 3/02</a> <del>to</del> <a href="#">G06F 3/16</a> , e.g. facsimile, microfilm (facsimile per se <a href="#">H04N 1/00</a> ; viewers photographic printing <a href="#">G03B</a> ; electrography, magnetography <a href="#">G03G</a> ; other optical apparatus <a href="#">G02B 27/00</a> )}  |
| U | G06F 3/01   | • Input arrangements or combined input and output arrangements for interaction between user and computer ( <a href="#">G06F 3/16</a> takes precedence)   |

- U G06F 3/02
  - • Input arrangements using manually operated switches, e.g. using keyboards or dials (keyboard switches per se [H01H 13/70](#); electronic switches characterised by the way in which the control signals are generated [H03K 17/94](#))
- G06F 3/0227
  - • • {Cooperation and interconnection of the input arrangement with other functional units of a computer ([G06F 3/023](#) ~~to~~ [G06F 3/037](#) take precedence)}
- G06F 3/048
  - • Interaction techniques based on graphical user interfaces [GUI]

NOTE

1.

~~This group covers subject matter where the focus is placed on the way the user can interact with the displayed data. The mere presence of a standard GUI in the context of the disclosure of a specific software application or a specific device capable of processing data related to its specific function, should be in general classified in the appropriate subclasses related to those software applications or specific devices.~~

~~In this group, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, should be classified in each of those groups.~~

*This group covers subject matter where the focus is placed on the way the user can interact with the displayed data. The mere presence of a standard GUI in the context of the disclosure of a specific software application or a specific device capable of processing data related to its specific function, should be in general classified in the appropriate subclasses related to those software applications or specific devices.*

*2. In this group, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups, which is considered to represent information of interest for search, should be classified in each of those groups.*

- U **G06F 7/00** **Methods or arrangements for processing data by operating upon the order or content of the data handled (logic circuits [H03K 19/00](#))**
- U G06F 7/38
  - Methods or arrangements for performing computations using exclusively denominational number representation, e.g. using binary, ternary, decimal representation
- U G06F 7/48
  - • using non-contact-making devices, e.g. tube, solid state device; using unspecified devices
- G06F 7/50
  - • • Adding; Subtracting ([G06F 7/483](#) ~~to~~ [G06F 7/491](#), [G06F 7/544](#) take precedence)
- G06F 7/52
  - • • Multiplying; Dividing ([G06F 7/483](#) ~~to~~ [G06F 7/491](#), [G06F 7/544](#) take precedence)
- U G06F 7/60
  - Methods or arrangements for performing computations using a digital non-denominational number representation, i.e. number representation without radix; Computing devices using combinations of denominational and non-denominational quantity representations, {e.g. using difunction pulse trains, STEELE computers, phase computers (conversion of digital data to or from non-denominational form [H03M 5/00](#), [H03M 7/00](#))}

WARNING

Not complete: for computing devices using combinations of denominational and non-denominational quantity representations see also [G06F 7/62](#)

- G06F 7/68
- using pulse rate multipliers or dividers {pulse rate multipliers or dividers per se} ([G06F 7/70](#) takes precedence {; frequency division in electronic watches [G04G 3/02](#); frequency multiplication or division in oscillators [H03B 19/00](#); frequency dividing counters per se [H03K 23/00](#) ~~to~~ [H03K 29/00](#)})
- U G06F 7/76
- Arrangements for rearranging, permuting or selecting data according to predetermined rules, independently of the content of the data (according to the content of the data [G06F 7/06](#), [G06F 7/22](#); parallel / series conversion or vice versa [H03M 9/00](#))
- G06F 7/762
- {having at least two separately controlled rearrangement levels, e.g. multistage interconnection networks ([G06F 7/764](#) ~~to~~ [G06F 7/768](#) take precedence)}
- G06F 11/00**
- Error detection; Error correction; Monitoring (methods or arrangements for verifying the correctness of marking on a record carrier [G06K 5/00](#); in information storage based on relative movement between record carrier and transducer [G11B](#), e.g. [G11B 20/18](#); in static stores [G11C](#); coding, decoding or code conversion, for error detection or error correction, in general [H03M 13/00](#))**
- NOTE
- In this group the indexing codes of [G06F 1/00](#) ~~to~~ [G06F 15/00](#) are added
- G06F 11/28
- by checking the correct order of processing ([G06F 11/08](#) ~~to~~ [G06F 11/26](#) take precedence; monitoring patterns of pulse trains [H03K 5/19](#))
- U **G06F 13/00**
- Interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units (interface circuits for specific input/output devices [G06F 3/00](#); multiprocessor systems [G06F 15/16](#); transmission of digital information in general [H04L](#); selecting [H04Q](#); {multiprogramme control therefor [G06F 9/46](#)})**
- G06F 13/10
- Programme control for peripheral devices ([G06F 13/14](#) ~~to~~ [G06F 13/42](#) take precedence)
- G06F 15/00**
- Digital computers in general (details [G06F 1/00](#) ~~to~~ [G06F 13/00](#)); Data processing equipment in general (neural networks for image data processing [G06T](#))**
- U **G06F 17/00**
- Digital computing or data processing equipment or methods, specially adapted for specific functions**
- U G06F 17/30
- Information retrieval; Database structures therefor; {File system structures therefor (data processing systems or methods specially adapted for administrative, commercial, financial managerial, supervisory or forecasting purposes [G06Q](#))}
- G06F 17/30067
- {File systems; File servers ([G06F 17/3061](#), [G06F 17/30017](#), [G06F 17/30244](#), [G06F 17/3074](#), [G06F 17/30781](#) take precedence; dedicated interfaces to storage systems [G06F 3/0601](#); error detection, correction or monitoring [G06F 11/00](#))}
- WARNING
- Groups [G06F 17/3007](#) ~~to~~ [G06F 17/30238](#) are not complete pending reclassification. See also this group
- U **G06F 2203/00**
- Indexing scheme relating to [G06F 3/00](#) - [G06F 3/048](#)**
- U G06F 2203/033
- Indexing scheme relating to [G06F 3/033](#)
- G06F 2203/0338
- • Fingerprint track pad, i.e. fingerprint sensor used as pointing device tracking the fingertip image.
- U G06F 2203/041
- Indexing scheme relating to [G06F 3/041](#) -[G06F 3/045](#)

- G06F 2203/04109
- FTIR in optical digitiser, i.e. touch detection by frustrating the total internal reflection within an optical waveguide due to changes of optical properties or deformation at the touch location.
- U G06F 2203/048
- Indexing scheme relating to [G06F 3/048](#)
- G06F 2203/04803
- Split screen, i.e. subdividing the display area or the window area into separate subareas.
- G06F 2203/04808
- Several contacts: gestures triggering a specific function, e.g. scrolling, zooming, right-click, when the user establishes several contacts with the surface simultaneously; e.g. using several fingers or a combination of fingers and pen.
- G06F 2211/00** Indexing scheme relating to details of data-processing equipment not covered by groups [G06F 3/00](#) to- [G06F 13/00](#)

**Project: N/A (G06G)**

- U **G06G 7/00** **Devices in which the computing operation is performed by varying electric or magnetic quantities**
- G06G 7/02
- Details not covered by [G06G 7/04](#) to- [G06G 7/10](#), {e.g. monitoring, construction, maintenance}

**Project: N/A (G06K)**

- U **G06K 7/00** **Methods or arrangements for sensing record carriers, {e.g. for reading patterns}(G06K 9/00 takes precedence)**
- U G06K 7/10
- by electromagnetic radiation, e.g. optical sensing; by corpuscular radiation
- G06K 7/14
- using light without selection of wavelength, e.g. sensing reflected white light {([G06K 7/10831](#) to- [G06K 7/1097](#) take precedence)}
- G06K 9/00** **Methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints (processing or analysis of tracks of nuclear particles [G01T 5/02](#); {information retrieval [G06F 17/30](#); medical diagnosis [G06F 19/34](#); recognition of molecular sequences [G06F 19/70](#); radio frequency identification [G06K 7/00](#); recognition of barcodes and similar code images [G06K 7/10](#); computer systems based on specific computational models [G06N](#); image analysis, inspection, positioning or tracking [G06T 7/00](#); recognition of acoustic speech signals [G10L 15/00](#); acoustic speaker identification [G10L 17/00](#)})**

NOTES

- In this group, the following term is used with the meaning indicated:
  - "recognising" includes several functions such as extracting features, clustering, classifying or matching.
- IPC subgroups [G06K 9/20](#), [G06K 9/36](#), [G06K 9/62](#) and [G06K 9/74](#) refer to methods or arrangements that can be applied to a pattern independently of its nature or to that are applied to specific patterns not included in the subgroups in the range [G06K 9/00006](#) to- [G06K 9/00852](#). The CPC subgroups in the range [G06K 9/00006](#) to- [G06K 9/00852](#) refer to the same methods or arrangements when applied or specially adapted to the specific patterns to which these subgroups relate.
- The present group does not cover the use of recognised patterns in specific applications, e.g. the use of traced gestures recognised as commands to be input to a computer is covered by the groups under [G06F 3/00](#)

- G06K 9/36
- Image preprocessing, i.e. processing the image information without deciding about the identity of the image (image data processing or generation, in general [G06T](#))

NOTE

Group [G06K 9/58](#) takes precedence over groups [G06K 9/38](#) ~~to~~ [G06K 9/54](#)

- U G06K 15/00** Arrangements for producing a permanent visual presentation of the output data {, e.g. computer output printers}(printing or plotting combined with another operation, e.g. with conveying, [G06K 17/00](#) {; construction of printing heads [B41J 2/00](#); special arrangements for scanning and reproduction of pictures involving their transmission, e.g. facsimile [H04N 1/00](#); for photocomposing [B41B 19/00](#))}
- U G06K 15/02
- using printers
- U G06K 15/12
- · by photographic printing {e.g. by laser printers}
- G06K 15/1204
- · · {involving the fast moving of an optical beam in the main scanning direction ([G06K 15/1233](#) ~~to~~ [G06K 15/129](#) take precedence)}
- G06K 15/1228
- · · {involving the fast moving of a light beam in two directions ([G06K 15/1233](#) ~~to~~ [G06K 15/129](#) take precedence)}
- G06K 15/18
- · {Conditioning data for presenting it to the physical printing elements (for data conditioning specific to a type of printer see subgroups [G06K 15/028](#) ~~to~~ [G06K 15/14](#); print job translation or parsing [G06F 3/1244](#))}
- U G06K 2209/00** Indexing scheme relating to methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints
- G06K 2209/03
- Recognising information on displays, dials, clocks;

**Project: N/A (G06M)**

- G06M** COUNTING MECHANISMS; COUNTING OF OBJECTS NOT OTHERWISE PROVIDED FOR (counting by measuring volume or weight of articles to be counted [G01F](#), [G01G](#); computers [G06C](#) ~~to~~ [G06J](#); counting electric pulses [H03K](#); counting characters, words or messages in switching networks for transmission of digital information [H04L 12/08](#))

NOTE

This subclass covers:

- stepping or continuously-moving mechanical counters operated through one or more inputs applied to the lowest order mechanically or electrically;
- counting systems involving applications of either mechanical, electrical, or electronic counters.

- G06M 7/00** Counting of objects carried by a ~~conveyer~~ conveyor

- G06M 2207/00** Indexing scheme relating to counting of objects carried by a ~~conveyer~~ conveyor

**Project: N/A (G06Q)**

G06Q

**DATA PROCESSING SYSTEMS OR METHODS, SPECIALLY ADAPTED FOR ADMINISTRATIVE, COMMERCIAL, FINANCIAL, MANAGERIAL, SUPERVISORY OR FORECASTING PURPOSES; SYSTEMS OR METHODS SPECIALLY ADAPTED FOR ADMINISTRATIVE, COMMERCIAL, FINANCIAL, MANAGERIAL, SUPERVISORY OR FORECASTING PURPOSES, NOT OTHERWISE PROVIDED FOR**

NOTES

1. Groups [G06Q 10/00](#) ~~to~~ [G06Q 50/00](#) and [G06Q 99/00](#) only cover systems or methods that involve significant data processing operations, i.e. data processing operations that need to be carried out by a technological, e.g. computing, system or device. Group [G06Q 90/00](#) covers systems or methods that do not involve significant data processing, when both of the following conditions are fulfilled:

- the systems or methods are specially adapted for the purposes mentioned in the subclass title or the titles of groups [G06Q 10/00](#) ~~to~~ [G06Q 50/00](#); and
- the systems or methods cannot be classified elsewhere in the IPC, for example by applying the principles described in paragraph 96 of the Guide.

When classifying such systems or methods in group [G06Q 90/00](#), additional classification may be made in the most closely related group of this or any other subclass, if this classification gives information about the application of the systems or methods that could be of interest for searching. Such non-obligatory classification must be given as "additional information".

2. When classifying in groups [G06Q 10/00](#) ~~to~~ [G06Q 40/00](#), systems or methods that are specially adapted for a specific business sector must also be classified in group [G06Q 50/00](#), when the special adaptation is determined to be novel and non-obvious.

3. In this subclass, the first place priority rule is applied, i.e. at each hierarchical level, classification is made in the first appropriate place.

WARNING

[G06Q](#) has been largely refined to bring most of the former USPC 705 groups into ECLA, prior to CPC launch. Therefore, most of the new [G06Q](#) subdivisions are not complete pending reclassification. Users are invited to systematically consult also the hierarchically higher groups, up to the first valid IPC group. For example, while searching in [G06Q 50/2053](#), it is appropriate to consult also [G06Q 50/205](#) and [G06Q 50/20](#)

**Project: N/A (G06T)**

U G06T 5/00

**Image enhancement or restoration, e.g. from bit-mapped to bit-mapped creating a similar image**

U G06T 5/001

• {Image restoration}

G06T 5/002

• - {Denoising; Smoothing (noise processing or correction adapted to be used in an image pickup device containing and electronic image sensor [H04N 5/217](#), [H04N 5/357](#) ~~to~~ [H04N 5/365](#))}

**Project: N/A (G07C)**

G07C 1/00

**Registering, indicating or recording the time of events or elapsed time, e.g. time-recorders for work people (registering or indicating the working of machines or vehicles [G07C 3/00](#), [G07C 5/00](#))**

NOTE

Subgroups [G07C 1/20](#) ~~to~~ [G07C 1/32](#) take precedence over subgroups [G07C 1/02](#) ~~to~~ [G07C 1/18](#)

G07C 2209/00

**Indexing scheme relating to groups [G07C 9/00](#) ~~to~~ [G07C 9/02](#)**

- G07C 2209/40      · Indexing scheme relating to group [G07C 9/00007](#) ~~to-~~ [G07C 9/00119](#)  
 G07C 2209/60      · Indexing scheme relating to groups [G07C 9/00174](#) ~~to-~~ [G07C 9/00944](#)

**Project: N/A (G07D)**

- G07D 5/00**      **Testing specially adapted to determine the identity or genuineness of coins, e.g. for segregating coins which are unacceptable or alien to a currency {(in combination with apparatus freed or actuated by coins or the like [G07F 3/00](#))}**

WARNING

Not complete pending a reclassification. See also groups [G07F 3/00](#) ~~to-~~ [G07F 3/027](#)

- G07D 7/00**      **Testing specially adapted to determine the identity or genuineness of paper currency or similar valuable papers, e.g. for segregating those which are unacceptable or alien to a currency {(arrangements for verifying the correctness of markings on a record carrier [G06K 5/00](#))}**

NOTE

In this group, groups [G07D 7/16](#) ~~to-~~ [G07D 7/20](#) take precedence over groups [G07D 7/02](#) ~~to-~~ [G07D 7/14](#).

WARNING

Groups [G07D 7/0006](#), [G07D 7/0046](#) and [G07D 7/0093](#) are not complete pending a reclassification. See also group [G07D 7/004](#)

- G07D 7/0006      · {Security markings visible to the naked eye}

WARNING

Groups [G07D 7/0006](#) ~~to-~~ [G07D 7/002](#) are not complete pending a reorganisation. See also groups [G07D 7/124](#) ~~to-~~ [G07D 7/127](#)

- U    G07D 7/06      · using wave or particle radiation, {e.g. radiating waves onto the banknote ([G07D 7/004](#) takes precedence)}
- U    G07D 7/12      · · Visible light, infra-red or ultra violet radiation
- G07D 7/124    · · · {Optical security elements}

WARNING

Groups [G07D 7/124](#) ~~to-~~ [G07D 7/127](#) are no longer used for the classification of new documents as from March 1, 2008. The backlog of these groups is being continuously reclassified to groups [G07D 7/0006](#) ~~to-~~ [G07D 7/002](#)

**Project: N/A (G07F)**

- G07F 3/00**      **Coin testing or sorting means or arrangements for coin-freed apparatus (apparatus for testing coins for use apart from coin-freed apparatus [G07D](#))**

WARNING

The groups [G07F 3/00](#) ~~to-~~ [G07F 3/027](#) are no longer used for the classification of new documents from October 1, 2007. The backlog of these groups is being continuously reclassified to the group [G07D 5/00](#) and subgroups

- U    **G07F 11/00**      **Coin-freed apparatus for dispensing, or the like, discrete articles**
- U    G07F 11/46      · from movable storage containers or supports
- G07F 11/58      · · the articles being supported on or by endless belts or like ~~conveyers~~ [conveyors](#)

- G07F 11/60
- the storage containers or supports being rectilinearly movable (endless belts or like ~~conveyers~~ ~~conveyors~~ [G07F 11/58](#))
- U G07F 17/00** **Coin-freed apparatus for hiring articles; Coin-freed facilities or services**
- U G07F 17/32
- for games, toys, sports or amusements, {e.g. casino games, online gambling or betting (game play without financial reward [A63F](#))}
- G07F 17/3286
- {Type of games}
- NOTE  
Classification in this group is given only in addition to one or more symbols already given in groups [G07F 17/3202](#) ~~to~~ [G07F 17/3283](#)
- G07F 17/34
- depending on the stopping of moving members {in a mechanical slot machine}, e.g. "fruit" machines
- NOTE  
Classification in this group is given only in addition to one or more symbols already given in groups [G07F 17/3202](#) ~~to~~ [G07F 17/3283](#)

**Project: N/A (G08B)**

- U G08B 5/00** **Visible signalling systems, e.g. personal calling systems, remote indication of seats occupied ({locks with visible signalling devices [E05B 39/00](#); electro-, magneto- or acousto-optic display devices [G02F](#)}; display of time signals [G04B 19/00](#), [G04C 17/00](#), [G04C 19/00](#), [G04G 9/00](#); for display of alphanumeric information [G09F](#); flags, banners [G09F](#); {display tubes [H01J 17/49](#), [H01K 7/04](#); electro-luminescent devices [H05B 33/00](#))}**
- G08B 5/40
- using smoke, fire or coloured gases (sky-writing [G09F 21/16](#) {missiles, e.g. of tracer, illuminating, signal or smoke producing type [F42B](#); chemical compositions therefor [C06B](#); smoke producers for aircraft [B64D 1/16](#) ~~to~~ [B64D 1/20](#); for personal calling arrangements see provisionally [G08B 3/1008](#), [G08B 3/1016](#)})
- G08B 7/00** **Signalling systems according to more than one of groups [G08B 3/00](#) ~~to~~ [G08B 6/00](#) (combinations of display arrangements with audible advertising [G09F 27/00](#)); Personal calling systems according to more than one of groups [G08B 3/00](#) ~~to~~ [G08B 6/00](#) {(combinations of display devices with advertising [G09F](#))}**
- U G08B 21/00** **Alarms responsive to a single specified undesired or abnormal operating condition and not elsewhere provided for {(alarms on gas pipes [F17D 3/01](#))}**
- U G08B 21/02
- Alarms for ensuring the safety of persons
- U G08B 21/0202
- {Child monitoring systems using a transmitter-receiver system carried by the parent and the child}
- G08B 21/0286
- {Tampering or removal detection of the child unit from child or article;}
- U G08B 21/04
- responsive to non-activity, e.g. of elderly persons ([G08B 21/06](#) takes precedence)
- U G08B 21/0438
- {Sensor means for detecting}
- G08B 21/0484
- {Arrangements monitoring consumption of a utility or use of an appliance which consumes a utility to detect unsafe condition, e.g. metering of water, gas or electricity, use of taps, toilet flush, gas stove or electric kettle;}

**Project: N/A (G08C)**

- U G08C 2201/00** **Transmission systems of control signals via wireless link**
- U G08C 2201/40
- Remote control systems using repeaters, converters, gateways

G08C 2201/42

- • Transmitting or receiving remote control signals via a network;

**Project: N/A (G08G)****U G08G 1/00**

**Traffic control systems for road vehicles (arrangement of road signs or traffic signals [E01F 9/00](#); {automatic vehicle control [B62D](#)})**

G08G 1/01

- Detecting movement of traffic to be counted or controlled ([G08G 1/07](#) to- [G08G 1/14](#) take precedence)

**Project: N/A (G09B)****G09B 5/00**

**Electrically-operated educational appliances (working with questions and answers [G09B 7/00](#); simulators [G09B 9/00](#); advertising or displaying in general [G09F](#))**

NOTE

Group [G09B 5/08](#) takes precedence over groups [G09B 5/02](#) to- [G09B 5/06](#).

**U G09B 21/00**

**Teaching, or communicating with, the blind, deaf or mute (audible presentation of material to be studied [G09B 5/04](#); devices or methods for replacing direct visual or auditory perception by another kind of perception [A61F 9/08](#), [A61F 11/04](#); audible indication of meter readings or of colour [G01D 7/12](#); watches for blind persons [G04B 25/02](#); methods or arrangements for reading or recognising printed or written characters [G06K 9/00](#); speech analysis, speech recognition [G10L](#); sound-recording or reproducing, per se [G11B](#))**

G09B 21/001

- {Teaching or communicating with blind persons ([G09B 21/02](#) to- [G09B 21/06](#) take precedence)}

**U G09B 23/00**

**Models for scientific, medical, or mathematical purposes, e.g. full-sized devices for demonstration purposes (in the nature of toys [A63H](#))**

U G09B 23/28

- for medicine

G09B 23/30

- • Anatomical models {([G09B 23/281](#) to- [G09B 23/288](#) take precedence)}

**Project: N/A (G09F)****U G09F 3/00**

**Labels, tag tickets, or similar identification or indication means (medals or badges [A44C 3/00](#); making labels [B31D 1/02](#); sheets temporarily attached together [B42F](#); labelling [B65C](#); labels on record carriers [G11B 23/38](#), [G11B 23/40](#)); Seals; Postage or like stamps**

U G09F 3/08

- Fastening or securing by means not forming part of the material of the label itself

U G09F 3/18

- • Casings, frames or enclosures for labels

U G09F 3/20

- • • for adjustable, removable, or interchangeable labels

G09F 3/201

- • • • {Enclosures enveloping completely the labels ([G09F 3/203](#) to- [G09F 3/207](#) take precedence)}

G09F 3/202

- • • • {for labels being formed by a combination of interchangeable elements, e.g. price labels ([G09F 3/203](#) to- [G09F 3/207](#) take precedence)}

**U G09F 7/00**

**Signs, name or number plates, letters, numerals, or symbols (vehicle registration number plates [B60R 13/10](#)); Panels or boards (show-cards [G09F 1/00](#); indicating arrangements for variable information [G09F 9/00](#), [G09F 11/00](#); illuminated signs [G09F 13/00](#); boards for notices or posters [G09F 15/00](#))**

G09F 7/002

- {weather-proof panels or boards ([G09F 7/02](#) to- [G09F 7/14](#), [G09F 7/18](#) to- [G09F 7/22](#) take precedence)}

- U G09F 23/00** Advertising on or in specific articles, e.g. ashtrays, letter-boxes (on or in vehicles [G09F 21/00](#); containers, packaging-elements, or packages, with auxiliary means or provisions for displaying articles [B65D](#))
- G09F 23/0058 · {on electrical household appliances, e.g. on a dishwasher, a washing machine or a refrigerator;}

**Project: N/A (G09G)**

- U G09G 1/00** Control arrangements or circuits, of interest only in connection with cathode-ray tube indicators; {General aspects or details, e.g. selection emphasis on particular characters, dashed line or dotted line generation; Preprocessing of data}{cathode-ray oscilloscopes [G01R 13/20](#); {radar display arrangements [G01S 7/04](#); display of digital non-picture data in television systems [H04N 7/0255](#))}
- G09G 1/002 · {Intensity circuits ([G09G 1/06](#) ~~to~~ [G09G 1/28](#) take precedence)}
- G09G 1/02 · Storage circuits ([G09G 1/06](#) ~~to~~ [G09G 1/28](#) take precedence)
- U G09G 3/00** Control arrangements or circuits, of interest only in connection with visual indicators other than cathode-ray tubes (optical scanning systems in general [G02B 26/10](#))
- G09G 3/001 · {using specific devices not provided for in groups [G09G 3/02](#) ~~to~~ [G09G 3/36](#), e.g. using an intermediate record carrier such as a film slide; Projection systems; Display of non-alphanumerical information, solely or in combination with alphanumerical information, e.g. digital display on projected diapositive as background (slide projectors per se [G03B 23/00](#) = 42 HP)}

**Project: RP0316 (G09G)**

- U G09G 3/20** · for presentation of an assembly of a number of characters, e.g. a page, by composing the assembly by combination of individual elements arranged in a matrix {no fixed position being assigned to or needed to be assigned to the individual characters or partial characters}
- U G09G 3/22** · · using controlled light sources
- U G09G 3/28** · · · using luminous gas-discharge panels, e.g. plasma panels
- U G09G 3/282** · · · · using DC panels
- M G09G 3/285** · · · · · using self-scanning-~~{contains no documents, see provisionally [G09G 3/282](#), [G09G 3/29](#)}~~
- M G09G 3/288** · · · · · using AC panels
- WARNING**  
This groups is incomplete pending reclassification; see also group [G09G 3/28](#)
- U G09G 3/30** · · · using electroluminescent panels
- M G09G 3/32** · · · · semiconductive, e.g. *using light-emitting diodes [LED]*
- M G09G 3/3208** · · · · · {organic, e.g. *using organic LEDs*}*light-emitting diodes [OLED]*
- M G09G 3/3216** · · · · · · {using a passive matrix}
- M G09G 3/3225** · · · · · · {using an active matrix}
- M G09G 3/3233** · · · · · · · {with pixel circuitry controlling the ~~light-emitting element by determining the driving~~-current through the light-emitting element}
- M G09G 3/3241** · · · · · · · · {the ~~driving~~-current through the light-emitting element being set using a data current provided by the data driver, e.g. by using a two ~~transistors-transistor~~ current mirror}

- M G09G 3/325 . . . . . {the data current flowing through the driving transistor during a setting phase, e.g. by using a switch ~~to connect~~*for connecting* the driving transistor to the data driver}
- M G09G 3/3258 . . . . . {*with* pixel circuitry controlling the ~~light emitting element by determining the~~ voltage across the light ~~-~~emitting element}
- M G09G 3/3266 . . . . . {Details of drivers for scan electrodes}
- M G09G 3/3275 . . . . . {Details of drivers for data electrodes}
- M G09G 3/3283 . . . . . {*in which* the data driver ~~communicating~~*supplies a variable* data ~~to pixel by means of a current~~*current for setting the current through,* ~~i.e.or~~ the ~~data driver applies a current for setting~~ *voltage across,* the ~~pixel~~*light-emitting elements*}
- M G09G 3/3291 . . . . . {*in which* the data driver ~~communicating~~*supplies a variable* data ~~to pixel by means of a voltage~~*voltage for setting the current through,* ~~i.e.or~~ the ~~data driver applies a voltage for setting~~ *across,* the ~~pixel~~*light-emitting elements*}

**Project: N/A (G09G)**

- U G09G 3/34 . . . . . by control of light from an independent source
- U G09G 3/36 . . . . . using liquid crystals
- U G09G 3/3611 . . . . . {Control of matrices with row and column drivers}
- G09G 3/3622 . . . . . {using a passive matrix (~~G09G 3/3674 to~~ [G09G 3/3696](#) take precedence)}
- G09G 3/3648 . . . . . {using an active matrix (~~G09G 3/367 to~~ [G09G 3/3696](#) take precedence)}

**Project: MP0238 (G10C)**

- U **G10C 3/00** **Details or accessories**
- M G10C 3/26 . . . . . Pedals or pedal mechanisms for half-blow or similar ~~sound~~*means for* modifying ~~the sound~~

**Project: N/A (G10H)**

- U **G10H 2210/00** **Aspects or methods of musical processing having intrinsic musical character, i.e. involving musical theory or musical parameters or relying on musical knowledge, as applied in electrophonic musical tools or instruments (processing aspects without intrinsic musical character [G10H 2250/00](#))**
- U G10H 2210/155 . . . . . Musical effects
- U G10H 2210/161 . . . . . Note sequence effects, i.e. sensing, altering, controlling, processing or synthesising a note trigger selection or sequence, e.g. by altering trigger timing, triggered note values, adding improvisation or ornaments, also rapid repetition of the same note onset, e.g. on a piano, guitar, e.g. rasgueado, drum roll (smooth variations of amplitude, pitch or timbre within a note without distinct onsets, e.g. vibrato [G10H 2210/201](#))
- G10H 2210/181 . . . . . Gracenote, i.e. adding a different and very short ornamental note at the beginning or at the end of a melody note, e.g. appoggiatura, acciaccatura, sparsh-swar:
- U G10H 2210/395 . . . . . Special musical scales, i.e. other than the 12- interval equally tempered scale; Special input devices therefor (keyboards [G10H 2220/221](#))
- G10H 2210/411 . . . . . Railsback scale, i.e. stretched scale for piano tuning with bass keys having lower pitches and treble keys having higher pitches than foreseen by the equally tempered scale:

- U G10H 2220/00 Input/output interfacing specifically adapted for electrophonic musical tools or instruments**
- U G10H 2220/021 · Indicator, i.e. non-screen output user interfacing, e.g. visual or tactile instrument status or guidance information using lights, LEDs, seven segments displays (screen displays [G10H 2220/005](#), graphical user interfaces adapted for electrophonic musical instruments [G10H 2220/091](#); tactile key feedback [G10H 2220/311](#))
- U G10H 2220/026 · · associated with a key or other user input device, e.g. key indicator lights  
G10H 2220/041 · · · Remote key fingering indicator, i.e. fingering shown on a display separate from the instrument itself or substantially disjoint from the keys:
- U G10H 2220/091 · Graphical user interface [GUI] specifically adapted for electrophonic musical instruments, e.g. interactive musical displays, musical instrument icons or menus; Details of user interactions therewith (GUI in general [G06F 3/048](#))
- U G10H 2220/101 · · for graphical creation, edition or control of musical data or parameters  
G10H 2220/126 · · · for graphical editing of individual notes, parts or phrases represented as variable length segments on a 2D or 3D representation, e.g. graphical edition of musical collage, remix files or pianoroll representations of MIDI-like files:
- U G10H 2250/00 Aspects of algorithms or signal processing methods without intrinsic musical character, yet specifically adapted for or used in electrophonic musical processing (methods with intrinsic musical character [G10H 2210/00](#))**
- U G10H 2250/131 · Mathematical functions for musical analysis, processing, synthesis or composition (algorithms for musical processing [G10H 2250/005](#); computation of mathematical functions [G06F 17/10](#) and [G06F 7/544](#))
- U G10H 2250/215 · · Transforms, i.e. mathematical transforms into domains appropriate for musical signal processing, coding or compression  
G10H 2250/251 · · · Wavelet transform, i.e. transform with both frequency and temporal resolution, e.g. for compression of percussion sounds; Discrete Wavelet Transform [DWT]:
- U G10H 2250/541 · Details of musical waveform synthesis, i.e. audio waveshape processing from individual wavetable samples, independently of their origin or of the sound they represent (sound category-dependent sound synthesis [G10H 2250/315](#); special instruments [spint] [G10H 2230/045](#); general musical sound synthesis principles [G10H 2250/471](#))  
G10H 2250/545 · · Aliasing, i.e. preventing, eliminating or deliberately using aliasing noise, distortions or artifacts in sampled or synthesised waveforms, e.g. by band limiting, oversampling or undersampling, respectively:

**Project: N/A (G10K)**

G10K 11/00

Methods or devices for transmitting, conducting or directing sound in general; Methods or devices for protecting against, or for damping, noise or other acoustic waves in general (protective devices for the ears [A61F 11/06](#)); sound insulation for vehicles [B60R 13/08](#); sound insulation for aircraft [B64C 1/40](#); sound insulating materials, see the relevant places, e.g. [C04B 26/00](#) ~~to~~ [C04B 38/00](#); reduction of noise on permanent way [E01B 19/00](#); absorption of air-transmitted noise from road or railway traffic [E01F 8/00](#); noise insulation, absorption or reflection in buildings [E04B 1/74](#); room acoustics [E04B 1/99](#); sound insulation in floors [E04F 15/20](#); gas-flow silencers or exhaust apparatus for machines or engines in general, for internal-combustion engines [F01N](#); intake silencers for internal-combustion engines [F02M 35/00](#); suppression of undesired vibrations [F16F 7/00](#) ~~to~~ [G10K 15/00](#); preventing noise in valves [F16K 47/02](#); noise absorbers in pipes [F16L 55/02](#); arrangements for suppressing noise in direct-contact trickle coolers [F28C 1/10](#); silencers for weapons [F41](#))

G10K 11/002

· {Devices for damping, suppressing, obstructing or conducting sound in acoustic devices ([G10K 1/06](#) ~~to~~ [G10K 1/10](#) take precedence; for electro-mechanical transducers for communication [H04R 3/002](#))}

G10K 11/004

· {Mounting transducers e.g. provided with mechanical moving or orienting device (mountings specially adapted to a particular sound-producing device, see the preceding groups [G10K 1/00](#) ~~to~~ [G10K 9/00](#), e.g. [G10K 1/26](#), [G10K 1/28](#), [G10K 9/22](#); arrangements of sonic watch equipment on submarines [B63G 8/39](#); buoys [B63B 22/00](#))}

**Project: N/A (G11B)**

G11B

**INFORMATION STORAGE BASED ON RELATIVE MOVEMENT BETWEEN RECORD CARRIER AND TRANSDUCER** (producing carriers of sound records for needle playback [B29C 39/00](#)); recording measured values in a way that does not require playback through a transducer [G01D](#); photosensitive materials or processes for photographic purposes [G03C](#); electrography, electrophotography, magnetography [G03G](#); recording or playback apparatus using mechanically marked tape, e.g. punched paper tape, or using unit records, e.g. punched or magnetically marked cards, [G06K](#); transferring data from one type of record carrier to another [G06K 1/18](#); printing of data from record carriers [G06K 3/00](#); arrangements for producing a permanent visual presentation of the output data [G06K 15/00](#); arrangements or circuits for control of indicating devices using static means to present variable information [G09G](#); coding, decoding or code conversion, in general [H03M](#); circuits for coupling output of reproducer to radio receiver [H04B 1/20](#); circuits {or arrangements} specially adapted for {pictorial or} television signal recording {[H04N 1/21](#)}, [H04N 5/76](#), [H04N 9/79](#); loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers or circuits therefor [H04R](#))

NOTES

1. This subclass covers :

- recording or playback of information by relative movement between a record track and a transducer, the transducer directly producing, or being directly actuated by, modulation in the track being recorded or played-back, and the extent of modulation corresponding to the signal being recorded or played-back;
- apparatus and machines for recording or playback, and parts thereof such as heads;
- record carriers for use with such apparatus and machines;
- associated working of other apparatus with such apparatus and machines;

- {relative positioning or movement of transducers and record carriers before, during or after transducing operation, e.g. for accessing record carriers or parts thereof, or for track change, selection or acquisition or for track following or for accessing parts of tracks;}
- {driving or moving of heads or record carriers or both heads and record carriers for increasing, maintaining or decreasing the relative speed before, during or after transducing operation}

2. In this subclass, the following terms or expressions are used with the meanings indicated :

- "head" includes any means for converting sinusoidal or non-sinusoidal electric wave-forms into variations of the physical condition of at least the adjacent surface of the record carrier, or vice versa;
- "record carrier" means a body, such as a cylinder, disc, card, tape, or wire, capable of permanently holding information, which can be read-off by a sensing element movable relatively to the record carrier.

3. Documents concerning relative positioning or movement of transducers and record carriers are classified in groups [G11B 3/00](#) ~~to~~ [G11B 7/00](#) and [G11B 21/00](#) when only the transducer is controlled and in groups [G11B 15/00](#), [G11B 17/00](#) and [G11B 19/00](#) when only the record carrier is controlled. When both record carrier and head are controlled, the documents are classified in [G11B 15/1808](#), [G11B 15/1816](#), [G11B 19/00](#) and [G11B 27/002](#).

When a plurality of record carriers are controlled, the documents are classified in [G11B 15/68](#), [G11B 17/08](#), [G11B 17/22](#) and [G11B 27/002](#).

4. By "access" is meant an operation including a relative movement for positioning between record carrier and head before, during or after transducing; this operation including "seek", "select", "change", "acquire" and "follow" functions for at least a part of a track on at least one record carrier. By "programmed access" is meant a sequence of access operations the result of the sequence being to acquire a wanted sequence of parts of tracks or a wanted sequence of tracks. Relative movement between head and record carrier also covers the movement of a coupling beam such as a light beam between the head and a stationary record carrier.

5. "Movement of the head" also covers any virtual movement or any physical movement such as obtained by switching between successive transducing parts of the head or by moving the transducing zone of the head, i.e. by "scanning". If different transducing parts of the head are switchable, the number of transducing parts should be much smaller than the number of individual storage areas of the record carrier.

6. Attention is drawn to the notes of subclass [G11C](#).

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

<a href="#">G11B 5/65</a>	covered by	<a href="#">G11B 5/64</a> <del>to</del>
<a href="#">G11B 5/656</a>		
<a href="#">G11B 5/667</a>	covered by	<a href="#">G11B 5/66</a>
<a href="#">G11B 5/673</a>	covered by	<a href="#">G11B 5/66</a>
<a href="#">G11B 7/16</a>	covered by	<a href="#">G11B 7/135</a>
<a href="#">G11B 7/18</a>	covered by	<a href="#">G11B 7/135</a>
<a href="#">G11B 7/30</a>	covered by	<a href="#">G11B 7/00</a>
<a href="#">G11B 9/12</a>	- <a href="#">G11B 9/14</a>	covered by
<a href="#">G11B 9/00</a>		
<a href="#">G11B 11/24</a>	- <a href="#">G11B 11/26</a>	covered by
<a href="#">G11B 11/00</a>		
<a href="#">G11B 13/08</a>	covered by	<a href="#">G11B</a>

**G11B 5/00**      **Recording by magnetisation or demagnetisation of a record carrier; Reproducing by magnetic means; Record carriers therefor (G11B 11/00 {and G11B 13/00} take precedence)**

NOTE

Subgroups [G11B 5/02](#) to- [G11B 5/86](#) take precedence over subgroups [G11B 5/004](#) to- [G11B 5/016](#)

- U G11B 5/127      · Structure or manufacture of heads, e.g. inductive
- G11B 5/325      · · Erasing heads using permanent magnets (general details therefor [G11B 5/133](#) to- [G11B 5/255](#))
- G11B 5/33      · · Structure or manufacture of flux-sensitive heads, {i.e. for reproduction only; Combination of such heads with means for recording or erasing only} {{Single head using magnetic domains for scanning [G11B 5/4946](#); multiple head for scanning [G11B 5/4907](#) and subgroups } ; general details therefor [G11B 5/133](#) to- [G11B 5/255](#)}
- U G11B 5/48      · Disposition or mounting of heads {or head supports} relative to record carriers {(mounting of head within housing [G11B 5/105](#)); arrangements of heads, e.g. for scanning the record carrier to increase the relative speed (driving of both record carriers and head [G11B 15/18](#); guiding record carriers [G11B 15/60](#); head selecting circuits [G11B 15/12](#))}
- G11B 5/4806      · · {specially adapted for disk drive assemblies, e.g. assembly prior to operation, hard or flexible disk drives ([G11B 5/488](#) to- [G11B 5/54](#) take precedence)}
- U G11B 5/54      · · with provision for moving the head into or out of its operative position or across tracks ([G11B 5/58](#) takes precedence)
- U G11B 5/55      · · · Track change, selection or acquisition by displacement of the head
- G11B 5/5521      · · · · {across disc tracks (spiral track following [G11B 5/596](#))}

NOTE

For groups [G11B 5/5526](#) to- [G11B 5/5582](#), see provisionally [G11B 5/5521](#) and [G11B 5/596](#)

- U G11B 5/58      · · with provision for moving the head for the purpose of maintaining alignment of the head relative to the record carrier during transducing operation, e.g. to compensate for surface irregularities of the latter or for track following {(spacing means incorporated in the head structure [G11B 5/187](#), [G11B 5/255](#), [G11B 5/3106](#))}
- G11B 5/596      · · · for track following on disks {([G11B 5/5526](#), [G11B 5/5552](#), [G11B 5/5565](#), [G11B 5/5582](#) take precedence)}

NOTE

For groups [G11B 5/59605](#) to- [G11B 5/59633](#), see provisionally [G11B 5/5521](#) and [G11B 5/596](#)

- G11B 5/59605      · · · · {Circuits ([G11B 5/59627](#) to- [G11B 5/59688](#) take precedence)}

**U G11B 7/00**      **Recording or reproducing by optical means, e.g. recording using a thermal beam of optical radiation {by modifying optical properties or the physical structure}, reproducing using an optical beam at lower power {by sensing optical properties}; Record carriers therefor; (G11B 11/00, G11B 13/00 take precedence)**

- U G11B 7/08      · Disposition or mounting of heads or light sources relatively to record carriers
- U G11B 7/09      · · with provision for moving the light beam or focus plane for the purpose of maintaining alignment of the light beam relative to the record carrier during transducing operation, e.g. to compensate for surface irregularities of the latter or for track following

- U G11B 7/0908
  - • • {for focusing only ([G11B 7/0925](#), [G11B 7/094](#), [G11B 7/0941](#), [G11B 7/0943](#), [G11B 7/0945](#), [G11B 7/0946](#), [G11B 7/0948](#) take precedence)}
- G11B 7/0917
  - • • • {Focus-error methods other than those covered by [G11B 7/0909](#) ~~to-~~ [G11B 7/0916](#)}
- U G11B 7/0925
  - • • {Electromechanical actuators for lens positioning ([G11B 7/0857](#) takes precedence)}
- G11B 7/093
  - • • • {for focusing and tracking ([G11B 7/0932](#) ~~to-~~ [G11B 7/0937](#) take precedence)}

**Project: MP0221 (G11B)**

- U G11B 7/24
  - Record carriers characterised by shape, structure or physical properties, or by the selection of the material (characterised by the arrangement of information on the carrier [G11B 7/007](#))
- U G11B 7/241
  - • characterised by the selection of the material
- U G11B 7/242
  - • • of recording layers
- U G11B 7/243
  - • • • comprising inorganic materials only, e.g. ablative layers
- M G11B 7/2433
  - • • • • Metals or elements of groups [IIIA 13](#), [IVA 14](#), [VA 15](#) or [VIA 16](#) of the Periodic System, e.g. B, Si, Ge, As, Sb, Bi, Se or Te

**Project: N/A (G11B)**

- G11B 9/00** Recording or reproducing using a method not covered by one of the main groups [G11B 3/00](#) ~~to-~~ [G11B 7/00](#); Record carriers therefor ([G11B 11/00](#) takes precedence {driving or moving of heads [G11B 21/02](#)})
- G11B 11/00** Recording on or reproducing from the same record carrier wherein for these two operations the methods are covered by different main groups of groups [G11B 3/00](#) ~~to-~~ [G11B 7/00](#) or by different subgroups of group [G11B 9/00](#); Record carriers therefor {(driving or moving of heads [G11B 3/02](#), [G11B 5/48](#), [G11B 7/08](#), [G11B 21/02](#))}
- NOTES
1. Groups [G11B 11/00](#) ~~to-~~ [G11B 11/14](#) mainly cover:
    - combined systems or apparatus comprising both recording and reproducing using different methods;
    - record carriers therefor.
  2. Reading only or recording only using mechanical, magnetic, optical or other methods is covered by groups [G11B 3/00](#) ~~to-~~ [G11B 9/08](#)
- G11B 11/03
    - using recording by deforming with non-mechanical means, e.g. laser, beam of particles {([G11B 11/002](#) takes precedence; see provisional also [G11B 3/68](#) ~~to-~~ [G11B 3/72](#))}
  - G11B 15/00** Driving, starting or stopping record carriers of filamentary or web form; Driving both such record carriers and heads; Guiding such record carriers or containers therefor; Control thereof; Control of operating function (driving or guiding heads [G11B 3/00](#) ~~to-~~ [G11B 7/00](#), [G11B 21/00](#))
  - U **G11B 17/00** Guiding record carriers not specifically of filamentary or web form, or of supports therefor (guiding cards or sheets [G06K 13/00](#))
  - U G11B 17/22
    - from random access magazine of disc records
  - G11B 17/221
    - • {with movable magazine ([G11B 17/24](#) ~~to-~~ [G11B 17/28](#) take precedence)}

G11B 17/24 · · the magazine having a toroidal or part-toroidal shape

NOTE

Group [G11B 17/30](#) takes precedence over groups [G11B 17/24](#) ~~to-~~ [G11B 17/28](#).

**U G11B 20/00 Signal processing not specific to the method of recording or reproducing; Circuits therefor**

U G11B 20/10 · Digital recording or reproducing (digital computers in which at least part of the computation is effected electrically, arrangements for handling digital data [G06F](#); transmission of digital information [H04L](#))

U G11B 20/10009 · · {Improvement or modification of read or write signals}

G11B 20/10018 · · · {analog processing for digital recording or reproduction ([G11B 20/10037](#) ~~to-~~ [G11B 20/10481](#) take precedence)}

G11B 20/10527 · · {Audio or video recording; Data buffering arrangements ([G11B 20/12](#) ~~to-~~ [G11B 20/18](#) take precedence)}

**G11B 25/00 Apparatus characterised by the shape of record carrier employed but not specific to the method of recording or reproducing (individual parts of apparatus [G11B 3/00](#) ~~to-~~ [G11B 23/00](#), [G11B 33/00](#)), {e.g. dictating apparatus; Combinations of such apparatus}**

G11B 25/10 · Apparatus capable of using record carriers defined in more than one of the sub-groups [G11B 25/02](#) ~~to-~~ [G11B 25/08](#); {Adaptor devices therefor}

**U G11B 27/00 Editing; Indexing; Addressing; Timing or synchronising; Monitoring; Measuring tape travel**

G11B 27/02 · Editing, e.g. varying the order of information signals recorded on, or reproduced from, record carriers (arrangements for sorting or merging computer data on continuous record carriers [G06F 7/22](#); mixing of video signals [H04N 5/265](#))

WARNING

For groups [G11B 27/022](#) ~~to-~~ [G11B 27/038](#), see provisionally also [G11B 27/02](#), [G11B 27/029](#) and [G11B 27/036](#)

**Project: N/A (G11C)**

**G11C**

**STATIC STORES (information storage based on relative movement between record carrier and transducer [G11B](#); semiconductor devices for storage [H01L](#), e.g. [H01L 27/108](#) ~~to-~~ [H01L 27/115](#); pulse technique in general [H03K](#), e.g. electronic switches [H03K 17/00](#); {using a static store as a picture recording medium [H04N 5/907](#)})**

NOTES

1. This subclass covers devices or arrangements for storage of digital or analogue information in which no relative movement takes place between an information storage element and a transducer; which incorporate a selecting-device for writing-in or reading-out the information into or from the store
2. This subclass does not cover elements not adapted for storage and not provided with such means as referred to in Note (3) below, which elements are classified in the appropriate subclass, e.g. of [H01](#), [H03K](#).
3. In this subclass, the following terms are used with the meaning indicated:
  - "storage element" is an element which can hold at least one item of information and is provided with means for writing-in or reading-out this information;

- "memory" is a device, including storage elements, which can hold information to be extracted when desired.

**WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups:

[G11C 8/02](#) covered by [G11C 8/00](#),  
[H03K 17/00](#)  
[G11C 11/4193](#) covered by  
[G11C 11/00](#)  
[G11C 11/4195](#) covered by  
[G11C 11/00](#)  
[G11C 11/4197](#) covered by  
[G11C 11/00](#)

**G11C 11/00 Digital stores characterised by the use of particular electric or magnetic storage elements; Storage elements therefor ([G11C 14/00](#) ~~to~~ [G11C 21/00](#) take precedence)**

G11C 11/005 • {comprising combined but independently operative RAM-ROM, RAM-PROM, RAM-EPROM cells}

**NOTE**

Group [G11C 11/56](#) takes precedence over groups [G11C 11/02](#) ~~to~~ [G11C 11/54](#)

- U G11C 11/02 • using magnetic elements {(using multibit magnetic storage elements [G11C 11/5607](#); counters with magnetic elements [H03K 23/76](#); pulse generators, static switches, logic circuits with such elements [H03K 3/45](#), [H03K 17/80](#), [H03K 19/16](#); measurement of magnetic variables [G01R 33/00](#))}
- U G11C 11/06 • • using single-aperture storage elements, e.g. ring core; using multi-aperture plates in which each individual aperture forms a storage element
- G11C 11/067 • • • using elements with single aperture or magnetic loop for storage, one element per bit, and for non-destructive read-out {(contains no documents, see [G11C 11/0605](#) ~~to~~ [G11C 11/06071](#))}
- U G11C 11/21 • using electric elements
- U G11C 11/34 • • using semiconductor devices {(processes or apparatus for the manufacture or treatment of semiconductor or solid state devices [H01L 21/00](#); integrated circuit devices [H01L 27/00](#); generating electric pulses, e.g. bistable devices using semiconductor devices [H03K 3/00](#))}
- U G11C 11/40 • • • using transistors
- U G11C 11/41 • • • forming {static} cells with positive feedback, i.e. cells not needing refreshing or charge regeneration, e.g. bistable multivibrator or Schmitt trigger
- G11C 11/413 • • • • Auxiliary circuits, e.g. for addressing, decoding, driving, writing, sensing, timing, power reduction (in general [G11C 5/00](#) ~~to~~ [G11C 8/00](#))

**G11C 13/00 Digital stores characterised by the use of storage elements not covered by groups [G11C 11/00](#), [G11C 23/00](#) ~~to~~ [G11C 25/00](#)**

U **G11C 14/00 Digital stores characterised by arrangements of cells having volatile and non-volatile storage properties for back-up when the power is down {(bistable elements storing the actual state when the supply voltage fails [H03K 3/02335](#), [H03K 3/0375](#), [H03K 3/2865](#), [H03K 3/356008](#))}**

- U G11C 14/0009 • {in which the volatile element is a DRAM cell}
- G11C 14/0045 • • {and the nonvolatile element is a resistive RAM element, i.e. programmable resistors, e.g. formed of phase change or chalcogenide material.}

- U G11C 14/0054  
G11C 14/009
- {in which the volatile element is a SRAM cell}
  - · {and the nonvolatile element is a resistive RAM element, i.e. programmable resistors, e.g. formed of phase change or chalcogenide material.}
- U G11C 19/00
- Digital stores in which the information is moved stepwise, e.g. shift register (counting chains [H03K 23/00](#)){stack stores, push-down stores (linear pulse counters [H03K 23/54](#), pulse distributors [H03K 5/15](#), methods and arrangements for shifting data [G06F 5/01](#))}**
- G11C 19/14
- using magnetic elements in combination with active elements, e.g. discharge tubes, semiconductor elements {(contains no documents, see provisionally [G11C 19/02](#) ~~to~~ [G11C 19/10](#))}
- U G11C 2207/00
- Indexing scheme relating to arrangements for writing information into, or reading information out from, a digital store**
- G11C 2207/005
- Transfer gates, i.e. gates coupling the sense amplifier output to data lines, I/O lines or global bit lines.
- U G11C 2211/00
- Indexing scheme relating to digital stores characterized by the use of particular electric or magnetic storage elements; Storage elements therefor**
- U G11C 2211/401
- Indexing scheme relating to cells needing refreshing or charge regeneration, i.e. dynamic cells
- U G11C 2211/406  
G11C 2211/4067
- · Refreshing of dynamic cells
  - · · Refresh in standby or low power modes.
- U G11C 2229/00
- Indexing scheme relating to checking stores for correct operation, subsequent repair or testing stores during standby or offline operation**
- U G11C 2229/70
- Indexing scheme relating to [G11C 29/70](#), for implementation aspects of redundancy repair
- U G11C 2229/72  
G11C 2229/723
- · Location of redundancy information
  - · · Redundancy information stored in a part of the memory core to be repaired.

**Project: N/A (G12B)**

- U G12B 17/00
- Screening (insulation or other protection of buildings [E04B](#); emergency protection of apparatus in general [F16P 7/00](#); in connection with acoustic waves [G10K 11/00](#); in connection with nuclear radiation [G21F](#))**
- NOTE
- This group covers:
- the protection of instruments or other apparatus from external radiation or other influences;
  - the prevention of the emission of undesirable radiation or other influences by instruments or other apparatus.
- G12B 17/08
- from influences producing mechanical damage, e.g. caused by blast, by external objects, by person ([G12B 17/02](#) ~~to~~ [G12B 17/06](#) take precedence)

**Project: N/A (G21C)**

- U G21C 1/00
- Reactors**
- G21C 1/32
- Integral reactors, i.e. reactors wherein parts functionally associated with the reactor but not essential to the reaction, e.g. heat exchangers, are disposed inside the enclosure with the core ([G21C 1/02](#) ~~to~~ [G21C 1/30](#) take precedence)

**Project: N/A (H01B)**

- H01B**      **CABLES; CONDUCTORS; INSULATORS; SELECTION OF MATERIALS FOR THEIR CONDUCTIVE, INSULATING OR DIELECTRIC PROPERTIES (selection for magnetic properties [H01F 1/00](#); waveguides [H01P](#); installations of cables or lines [H02G](#); {printed circuits [H05K](#)})**
- NOTE  
Group [H01B 12/00](#) takes precedence over groups [H01B 5/00](#) ~~to~~ [H01B 11/00](#).
- H01B 1/00**      **Conductors or conductive bodies characterised by the conductive materials; Selection of materials as conductors (resistors [H01C](#); selection of materials for superconductivity [H01L 39/00](#))**
- NOTE  
Groups [H01B 1/14](#) ~~to~~ [H01B 1/24](#) take precedence over groups [H01B 1/02](#) ~~to~~ [H01B 1/12](#)
- U H01B 3/00**      **Insulators or insulating bodies characterised by the insulating materials; Selection of materials for their insulating or dielectric properties (selection of piezo-electric or electrostrictive materials [H01L 41/00](#))**
- U H01B 3/18**      • mainly consisting of organic substances {(organic macromolecular compounds or compositions [C08](#))}
- H01B 3/30**      • • plastics; resins; waxes
- NOTE  
Group [H01B 3/47](#) takes precedence over groups [H01B 3/32](#) ~~to~~ [H01B 3/46](#)
- U H01B 7/00**      **Insulated conductors or cables characterised by their form**
- U H01B 7/17**      • Protection against damage caused by external factors, e.g. sheaths or armouring (power cables with screens [H01B 9/02](#); communication cables with screens [H01B 11/06](#); {continuously-loaded cables [H01B 11/14](#);} installation of conduits [H02G](#))
- U H01B 7/18**      • • {Protection against damage caused} by wear, mechanical force or pressure; {Sheaths; Armouring}
- H01B 7/1805**      • • • {Protections not provided for in groups [H01B 7/182](#) ~~to~~ [H01B 7/26](#)}
- U H01B 12/00**      **Superconductive or hyperconductive conductors, cables, or transmission lines (details or devices using superconductivity or hyperconductivity characterised by the material [H01L 39/12](#))**
- H01B 12/02**      • characterised by their form
- NOTE  
Group [H01B 12/12](#) takes precedence over groups [H01B 12/04](#) ~~to~~ [H01B 12/10](#).
- U H01B 13/00**      **Apparatus or processes specially adapted for manufacturing conductors or cables**
- H01B 13/30**      • Drying; (in general [F26B](#)); Impregnating ([H01B 13/32](#) takes precedence; {impregnating of fibres [D06B 3/00](#), [D06B 5/00](#); [H01G 4/00](#), [H01G 4/06](#); drying and impregnating of wood or the like [B27K](#); impregnation of stones, basic materials therefor [C04B 20/10](#) ~~to~~ [C04B 20/12](#), [C04B 41/45](#) ~~to~~ [C04B 41/52](#)})
- U H01B 17/00**      **Insulators or insulating bodies characterised by their form (section insulators for electric traction [B60M 1/18](#); insulating rail-joints [E01B 11/54](#))**
- H01B 17/56**      • Insulating bodies (insulators [H01B 17/02](#) ~~to~~ [H01B 17/54](#))

**Project: N/A (H01C)**

- U H01C 3/00 Non-adjustable metal resistors made of wire or ribbon, e.g. coiled, woven or formed as grids**
- H01C 3/14 · the resistive element being formed in two or more coils or loops continuously wound as a spiral, helical or toroidal winding ([H01C 3/02](#) ~~to~~ [H01C 3/12](#) take precedence)
- U H01C 7/00 Non-adjustable resistors formed as one or more layers or coatings; Non-adjustable resistors made from powdered conducting material or powdered semi-conducting material with or without insulating material (consisting of loose powdered or granular material [H01C 8/00](#); {measuring deformation in a solid state using the change in resistance formed by printed-circuit technique [G01B 7/20](#); insulating materials [H01B 3/00](#); passive thin-film or thick-film semiconductor or solid state devices [H01L 27/00](#); resistors without a potential-jump or surface barrier specially adapted for integrated circuits, details thereof, multistep manufacturing processes therefor [H01L 28/20](#)}; resistors with a potential-jump barrier or surface barrier, e.g. field effect resistors [H01L 29/00](#); semiconductor devices sensitive to electro-magnetic or corpuscular radiation, e.g. photoresistors, [H01L 31/00](#); devices using superconductivity [H01L 39/00](#); devices using galvanomagnetic or similar magnetic effects, e.g. magnetic-field-controlled resistors, [H01L 43/00](#); solid state devices for rectifying, amplifying, oscillating or switching without a potential-jump barrier or surface barrier [H01L 45/00](#); bulk negative resistance effect devices [H01L 47/00](#); {ohmic resistance heating [H05B 3/00](#); printed circuits [H05K](#)})**
- H01C 7/008 · {Thermistors ([H01C 7/02](#) ~~to~~ [H01C 7/06](#) take precedence)}
- U H01C 7/04** · having negative temperature coefficient {(thermometers using resistive elements [G01K 7/16](#))}
- H01C 7/042 · · {mainly consisting of inorganic non-metallic substances ([H01C 7/041](#) takes precedence)}
- NOTE**  
In groups [H01C 7/043](#) ~~to~~ [H01C 7/049](#), in the absence of an indication to the contrary, classification is made in the last appropriate place
- H01C 7/13 · current responsive
- NOTE**  
Groups [H01C 7/02](#) ~~to~~ [H01C 7/13](#) take precedence over groups [H01C 7/18](#) ~~to~~ [H01C 7/22](#).
- U H01C 10/00 Adjustable resistors**
- H01C 10/26 · resistive element moving ([H01C 10/16](#), [H01C 10/24](#) take precedence)
- NOTE**  
Groups [H01C 10/02](#) ~~to~~ [H01C 10/26](#) take precedence over groups [H01C 10/28](#) ~~to~~ [H01C 10/50](#).

**Project: N/A (H01F)**

- U H01F 1/00 Magnets or magnetic bodies characterised by the magnetic materials therefor; Selection of materials for their magnetic properties**
- U H01F 1/01** · of inorganic materials ([H01F 1/44](#) takes precedence)
- U H01F 1/03** · · characterised by their coercivity {([H01F 1/40](#) takes precedence)}
- U H01F 1/032** · · · of hard-magnetic materials
- U H01F 1/04** · · · · Metals or alloys

- H01F 1/047
- • • • Alloys characterised by their composition
- NOTE  
In groups [H01F 1/053](#) ~~to~~ [H01F 1/059](#), an alloy is classified in the last appropriate place
- U H01F 1/12
- • • of soft-magnetic materials
- U H01F 1/14
- • • • Metals or alloys
- H01F 1/147
- • • • Alloys characterised by their composition {(treatment thereof for enhancing their electromagnetic properties [C21D 8/12](#))}
- NOTE  
In groups [H01F 1/14708](#) ~~to~~ [H01F 1/15391](#), an alloy is classified in the last appropriate place
- U H01F 10/00** **Thin magnetic films, e.g. of one-domain structure (magnetic record carriers [G11B 5/00](#); thin-film magnetic stores [G11C](#))**
- U H01F 10/08
- characterised by magnetic layers ({[H01F 10/32](#) takes precedence } ; applying thin magnetic films to substrates [H01F 41/14](#))
- U H01F 10/10
- • characterised by the composition
- U H01F 10/12
- • • being metal or alloys (intermetallic compounds [H01F 10/18](#))
- U H01F 10/14
- • • • containing iron or nickel ({[H01F 10/126](#)}, [H01F 10/13](#), [H01F 10/16](#) take precedence)
- NOTE  
In this group, alloys containing iron or nickel are classified in the last appropriate place
- H01F 10/147
- • • • {with lattice under strain, e.g. expanded by interstitial nitrogen ([H01F 10/26](#) ~~to~~ [H01F 10/30](#) take precedence)}
- U H01F 41/00** **Apparatus or processes specially adapted for manufacturing or assembling magnets, inductances or transformers; Apparatus or processes specially adapted for manufacturing materials characterised by their magnetic properties**
- H01F 41/14
- for applying magnetic films to substrates (covering metals, or materials with metals, in general [C23C](#); manufacturing record carriers [G11B 5/84](#))
- NOTE  
Group [H01F 41/30](#) takes precedence over groups [H01F 41/16](#) ~~to~~ [H01F 41/24](#), and over group [H01F 41/32](#)
- H01F 41/16
- • the magnetic material being applied in the form of particles, e.g. by serigraphy (i.e. forming thick magnetic films and precursors therefor, e.g. magnetisable pastes, inks, glass frits ([H01F 41/18](#) ~~to~~ [H01F 41/24](#) take precedence; thick magnetic films [H01F 1/0027](#))}

**Project: N/A (H01G)**

- U H01G 4/00** **Fixed capacitors; Processes of their manufacture (electrolytic capacitors [H01G 9/00](#))**
- U H01G 4/002
- Details
- U H01G 4/018
- • Dielectrics
- H01G 4/20
- • • using combinations of dielectrics from more than one of groups [H01G 4/02](#) ~~to~~ [H01G 4/06](#) ([H01G 4/12](#) takes precedence)

H01G 13/00

Apparatus specially adapted for manufacturing capacitors; Processes specially adapted for manufacturing capacitors not provided for in groups [H01G 4/00](#) ~~to~~ [H01G 11/00](#)

Project: N/A (H01H)

H01H

ELECTRIC SWITCHES; RELAYS; SELECTORS; EMERGENCY PROTECTIVE DEVICES (contact cables [H01B 7/10](#); overvoltage protection resistors, resistive arresters [H01C 7/12](#), [H01C 8/04](#); electrolytic self-interrupters [H01G 9/18](#); switching devices of the waveguide type [H01P](#); devices for interrupted current collection [H01R 39/00](#); overvoltage arresters using spark gaps [H01T 4/00](#); emergency protective circuit arrangements [H02H](#); switching by electronic means without contact-making [H03K 17/00](#))

#### NOTES

1.

Attention is drawn to the Notes following the titles of class [B81](#) an subclass [B81B](#) relating to "micro-structural devices" and micro-structural systems"

2. This subclass covers (in groups [H01H 69/00](#) ~~to~~ [H01H 87/00](#)) devices for the protection of electric lines or electric machines or apparatus in the event of undesired change from normal electric working conditions, the electrical condition serving directly as the input to the device.

3. This subclass does not cover bases, casings, or covers accomodating two or more switching devices or for accomodating a switching device as well as another electric component, e.g. bus-bar, line connector. Those bases, casings or covers are covered by group [H02B 1/26](#).

4. In this subclass, the following terms or expressions are used with the meanings indicated :

- "relay" means a switching device having contacts which are operated from electric inputs which supply, directly or indirectly, all the mechanical energy necessary to cause both the closure and the opening of the contacts;
- "driving mechanism" refers to the means by which an operating force applied to the switch is transmitted to the moving contact or contacts;
- "operating" is used in a broader sense than "actuating" which is reserved for those parts not touched by hand to effect switching;
- "acting" or "action" means a self-induced movement of parts at one stage of the switching.

These connotations apply to all parts of the verbs "to operate", "to actuate" and "to act" and to words derived therefrom, e.g. to "actuation".

5. In this subclass, details are classified as follows :

- details of an unspecified type of switching device, or disclosed as applicable to two or more kinds of switching devices designated by the terms or expressions "switches", "relays", "selector switches", and "emergency protective devices", are classified in groups [H01H 1/00](#) ~~to~~ [H01H 9/00](#);
- details of an unspecified type of switch, or disclosed as applicable to two or more types of switches as defined by groups [H01H 13/00](#) ~~to~~ [H01H 43/00](#) and sub-groups [H01H 35/02](#), [H01H 35/06](#), [H01H 35/14](#), [H01H 35/18](#), [H01H 35/24](#) and [H01H 35/42](#), all hereinafter called basic types, are classified in groups [H01H 1/00](#) ~~to~~ [H01H 9/00](#);
- details of an unspecified type of relay, or disclosed as applicable to two or more types of relays as defined by groups [H01H 51/00](#) ~~to~~ [H01H 61/00](#), hereinafter called basic types are classified in [H01H 45/00](#);
- details of an unspecified protective device, or applicable to two or more types of protective devices as defined by groups [H01H 73/00](#) ~~to~~ [H01H 83/00](#), hereinafter called basic types, are classified in [H01H 71/00](#).

- However, details only described with reference to, or clearly only applicable to, switching devices of a single basic type, are classified in the group appropriate to switching devices of that basic type, e.g. [H01H 19/02](#), [H01H 75/04](#);
- mechanical structural details of control members of switches or of keyboards such as keys, push-buttons, levers or other mechanisms for transferring the force to the activated elements are classified in this subclass, even when they are used for controlling electronic switches. However, mechanical details directly producing electronic effects are classified in group [H03K 17/94](#).

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups :

[H01H 33/575](#) covered by [H01H 33/56](#)

[H01H 33/825](#) " [H01H 33/82](#)

[H01H 33/835](#) " [H01H 33/83](#)

[H01H 33/867](#) " [H01H 33/86](#)

[H01H 33/873](#) " [H01H 33/86](#)

[H01H 33/915](#) " [H01H 33/91](#)

[H01H 33/985](#) " [H01H 33/98](#)

[H01H 33/99](#) " [H01H 33/98](#)

#### **U H01H 1/00**

#### **Contacts (liquid contacts [H01H 29/04](#))**

U H01H 1/02

- characterised by the material thereof {(containing gas-evolving material [H01H 33/765](#))}

H01H 1/021

- • Composite materials

#### NOTES

1. In this group, the following expression is used with the meaning indicated :

- "composite material" is a material made of two or more different materials, e.g. coated material, layered materials or carbon fibres in a copper base or matrix

2. Subject matter classifiable in more than one of the groups [H01H 1/023](#) ~~to~~ [H01H 1/029](#) should be classified in all relevant groups.

H01H 9/00

**Details of switching devices, not covered by groups [H01H 1/00](#) ~~to~~ [H01H 7/00](#) (casings for switchgear [H02B 1/26](#); casings for electrical apparatus in general [H05K 5/00](#))**

**U H01H 13/00**

**Switches having rectilinearly-movable operating part or parts adapted for pushing or pulling in one direction only, e.g. push-button switch (wherein the operating part is flexible [H01H 17/00](#))**

U H01H 13/02

- Details (specially adapted for rectilinearly movable switches having operating members associated with different sets of contacts, e.g. keyboards, [H01H 13/70](#))

U H01H 13/26

- • Snap-action arrangements depending upon deformation of elastic members

U H01H 13/28

- • • using compression or extension of coil springs

H01H 13/285

- • • • {having a symmetrical configuration ([H01H 13/30](#) ~~to~~ [H01H 13/34](#) take precedence)}

U H01H 13/36

- • • using flexing of blade springs

H01H 13/365

- • • • {having a symmetrical configuration ([H01H 13/38](#) ~~to~~ [H01H 13/46](#) take precedence)}

- U H01H 31/00** **Air-break switches for high tension without arc-extinguishing or arc-preventing means (in combination with high tension or heavy-current switches with arc-extinguishing or arc-preventing means [H01H 33/00](#); switching arrangements for the supply or distribution of electric power [H02B](#))**
- H01H 31/003 · {Earthing switches ([H01H 31/02](#) ~~to~~ [H01H 31/26](#) take precedence; contact made by liquid jet [H01H 29/32](#); for substations [H02B 1/16](#), [H02B 5/01](#); for withdrawable switchgear [H02B 11/28](#); for gas-insulated switchgear [H02B 13/075](#))}
- U H01H 33/00** **High-tension or heavy-current switches with arc-extinguishing or arc-preventing means**
- H01H 33/002 · {Very heavy-current switches ([H01H 33/02](#) ~~to~~ [H01H 33/98](#) take precedence)}
- U H01H 33/70** · Switches with separate means for directing, obtaining, or increasing flow of arc-extinguishing fluid
- U H01H 33/7015** · · {characterised by flow directing elements associated with contacts (electrical or mechanical properties of the contact system [H01H 1/385](#))}
- H01H 33/7061 · · · {characterised by use of special mounting means ([H01H 33/7023](#) ~~to~~ [H01H 33/7038](#) take precedence)}
- H01H 33/7069 · · · {characterised by special dielectric or insulating properties or by special electric or magnetic field control properties ([H01H 33/7023](#) ~~to~~ [H01H 33/7061](#) take precedence)}
- H01H 33/7076 · · · {characterised by the use of special materials ([H01H 33/7023](#) ~~to~~ [H01H 33/7069](#) take precedence)}
- H01H 33/7084 · · · {characterised by movable parts influencing the gas flow ([H01H 33/7023](#) ~~to~~ [H01H 33/7076](#) take precedence)}
- H01H 33/7092 · · · {characterised by several arcing chambers in series ([H01H 33/7023](#) ~~to~~ [H01H 33/7084](#) take precedence)}
- H01H 35/00** **Switches operated by change of a physical condition (operated by change of magnetic or electric field [H01H 36/00](#); thermally-actuated switches [H01H 37/00](#); time switches [H01H 43/00](#); relays [H01H 45/00](#) ~~to~~ [H01H 61/00](#); sensing elements for providing continuous conversion of a variable into mechanical displacement [G01](#))**
- NOTE
- A switching device is classified according to that physical condition which, when changed, acts as input to the device, e.g. external explosion causing pressure wave to act upon switch is classified in group [H01H 35/24](#), an explosion produced within the switch in group [H01H 37/00](#) if initiated by heat, in group [H01H 39/00](#) if initiated electrically, and in group [H01H 35/14](#) if initiated by an external blow.
- H01H 37/00** **Thermally-actuated switches (electrothermal relays operated by electrical input [H01H 61/00](#); protective switches with electrothermal release or actuation [H01H 73/00](#) ~~to~~ [H01H 83/00](#))**
- H01H 37/74 · Switches in which only the opening movement or only the closing movement of a contact is effected by heating or cooling (for the electrical protection of electric lines or electric apparatus [H01H 73/00](#) ~~to~~ [H01H 83/00](#))
- U H01H 50/00** **Details of electromagnetic relays ({[H01H 51/28](#) takes precedence;} electric circuit arrangements [H01H 47/00](#); details of electrically-operated select or switches [H01H 63/00](#); {testing of relays [G01R 31/00](#); electromagnets in general [H01F 7/06](#); relays for emergency protective circuit arrangements [H02H](#)})**

- U H01H 50/64
- Driving arrangements between movable part of magnetic circuit and contact (structurally associated with contact spring sets [H01H 50/58](#))
- H01H 50/641
- • {intermediate part performing a rectilinear movement ([H01H 50/645](#), [H01H 50/66](#) ~~to~~ [H01H 50/74](#) take precedence)}
- H01H 50/643
- • {intermediate part performing a rotating or pivoting movement ([H01H 50/645](#), [H01H 50/66](#) ~~to~~ [H01H 50/74](#) take precedence)}
- H01H 50/645
- • {intermediate part making a resilient or flexible connection ([H01H 50/66](#) ~~to~~ [H01H 50/74](#) take precedence)}
- H01H 50/647
- • {intermediate part comprising interlocking means for different contact pairs ([H01H 50/66](#) ~~to~~ [H01H 50/74](#) take precedence; for two separate relays [H01H 50/323](#); for ratchets [H01H 51/08](#))}
- H01H 50/648
- • {intermediate part being rigidly combined with armature ([H01H 50/66](#) ~~to~~ [H01H 50/74](#) take precedence)}
- U H01H 51/00**      **Electromagnetic relays (relays using the dynamo-electric effect [H01H 53/00](#))**
- H01H 51/01
- Relays in which the armature is maintained in one position by a permanent magnet and freed by energisation of a coil producing an opposing magnetic field {([H01H 51/02](#) ~~to~~ [H01H 51/26](#) take precedence)}
- H01H 71/00**      **Details of the protective switches or relays covered by groups [H01H 73/00](#) ~~to~~ [H01H 83/00](#)**
- U H01H 73/00**      **Protective overload circuit-breaking switches in which excess current opens the contacts by automatic release of mechanical energy stored by previous operation of a hand reset mechanism**
- U H01H 73/02
- Details
- H01H 73/18
- • Means for extinguishing or suppressing arc {(in general [H01H 9/30](#) ~~to~~ [H01H 9/46](#); magnet coil acting as blow-out device [H01H 71/38](#))}
- H01H 85/00**      **Protective devices in which the current flows through a part of fusible material and this current is interrupted by displacement of the fusible material when this current becomes excessive (switches actuated by melting of fusible material [H01H 37/76](#); automatic release of protective switches due to fusion of a mass [H01H 73/00](#) ~~to~~ [H01H 83/00](#); disposition or arrangement of fuses on boards [H02B 1/18](#))**
- U H01H 85/02
- Details (electrical connections in general [H01R](#))
- U H01H 85/04
- • Fuses, i.e. expendable parts of the protective device, e.g. cartridges
- U H01H 85/041
- • • characterised by the type
- H01H 85/044
- • • • General constructions or structure of low voltage fuses, i.e. below 1000 V, or of fuses where the applicable voltage is not specified ([H01H 85/046](#) ~~to~~ [H01H 85/048](#) take precedence)
- H01H 85/0445
- • • • • fast or slow type ([H01H 85/045](#) ~~to~~ [H01H 85/048](#) take precedence)
- WARNING  
Not complete, see also [H01H 85/044](#)
- U H01H 2300/00**      **Orthogonal indexing scheme relating to electric switches, relays, selectors or emergency protective devices covered by [H01H](#)**
- H01H 2300/052
- Controlling, signalling or testing correct functioning of a switch (see also [H01H 2300/056](#) ~~to~~ [H01H 2300/066](#) and [H01H 11/0062](#))

## Project: N/A (H01J)

## H01J

**ELECTRIC DISCHARGE TUBES OR DISCHARGE LAMPS (spark-gaps [H01T](#); arc lamps with consumable electrodes [H05B](#); particle accelerators [H05H](#))**

## NOTES

1. This subclass covers only devices for producing, influencing, or using a flow of electrons or ions, e.g. for controlling, indicating, or switching of electric current, counting electric pulses, producing light or other electromagnetic oscillations, such as X-rays, or for separating or analysing radiation or particles, and having a closed or substantially closed casing containing a chosen gas, vapour, or vacuum, upon the pressure and nature of which the characteristics of the device depend. Light sources using a combination (other than covered by group [H01J 61/96](#) of this subclass) of discharge and other kinds of light generation are dealt with in [H05B 35/00](#).
2. In this subclass, groups [H01J 1/00](#) ~~to~~ [H01J 7/00](#) relate only to:
  - i. details of an unspecified kind of discharge tube or lamp, or
  - ii. details mentioned in a specification as applicable to two or more kinds of tubes or lamps as defined by groups [H01J 11/00](#), [H01J 13/00](#), [H01J 15/00](#), [H01J 17/00](#), [H01J 21/00](#), [H01J 25/00](#), [H01J 27/00](#), [H01J 31/00](#), [H01J 33/00](#), [H01J 35/00](#), [H01J 37/00](#), [H01J 40/00](#), [H01J 41/00](#), [H01J 47/00](#), [H01J 49/00](#), [H01J 61/00](#), [H01J 63/00](#) or [H01J 65/00](#), hereinafter called basic kinds. A detail only described with reference to, or clearly only applicable to, tubes or lamps of a single basic kind is classified in the detail group appropriate to tubes or lamps of that basic kind, e.g. [H01J 17/04](#).
3. In this subclass, the following term is used with the meaning indicated:
  - "lamp" includes tubes emitting ultra-violet or infra-red light.
4. Attention is drawn to the definition of the expression "spark gaps" given in the Note following the title of subclass [H01T](#).
5. Apparatus or processes specially adapted for the manufacture of electric discharge tubes, discharge lamps, or parts thereof are classified in group [H01J 9/00](#).

## U H01J 1/00

**Details of electrodes, of magnetic control means, of screens, or of the mounting or spacing thereof, common to two or more basic types of discharge tubes or lamps (details of electron-optical arrangements or of ion traps [H01J 3/00](#))**

## U H01J 1/02

- Main electrodes

## U H01J 1/30

- • Cold cathodes, e.g. field-emissive cathode

## H01J 1/312

- • • having an electric field perpendicular to the surface, e.g. tunnel-effect cathodes of Metal-Insulator-Metal [MIM] type {([H01J 1/304](#) ~~to~~ [H01J 1/308](#) take precedence)}

## H01J 1/53

- Electrodes intimately associated with a screen on or from which an image or pattern is formed, picked up, converted, or stored {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}

## H01J 1/54

- Screens on or from which an image or pattern is formed, picked up, converted, or stored; Luminescent coatings on vessels {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}

## H01J 1/56

- • acting as light valves by shutter operation, e.g. for eidophor {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}

## H01J 1/58

- • acting by discolouration, e.g. halide screen {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}

## H01J 1/60

- • Incandescent screens {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}

- H01J 1/62
  - • Luminescent screens; Selection of materials for luminescent coatings on vessels {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/63
  - • • characterised by the luminescent material (luminescent materials or compositions [C09K 11/00](#) {see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/64
  - • • characterised by the binder or adhesive for securing the luminescent material to its supports {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/66
  - • • Supports for luminescent material (vessels [H01J 5/02](#) {see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/68
  - • • with superimposed luminescent layers {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/70
  - • • with protective, conductive, or reflective layers {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/72
  - • • with luminescent material discontinuously arranged, e.g. in dots or lines {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/74
  - • • • with adjacent dots or lines of different luminescent material {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/76
  - • • provided with permanent marks or references {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- H01J 1/78
  - • Photoelectric screens; Charge-storage screens {(see provisionally also [H01J 29/08](#) ~~to~~ [H01J 29/36](#))}
- U H01J 3/00**
  - Details of electron-optical or ion-optical arrangements or of ion traps common to two or more basic types of discharge tubes or lamps**
- U H01J 3/02
  - Electron guns {(electron guns for discharge tubes with provision for introducing objects or material to be exposed to the discharge [H01J 37/06](#); for cathode ray tubes [H01J 29/48](#))}
- H01J 3/026
  - • {Eliminating deleterious effects due to thermal effects, electric or magnetic field ([H01J 3/021](#) ~~to~~ [H01J 3/025](#) take precedence)}
- H01J 3/027
  - • {Construction of the gun or parts thereof ([H01J 3/021](#) ~~to~~ [H01J 3/025](#), [H01J 3/026](#) and [H01J 3/028](#) take precedence)}
- H01J 3/028
  - • {Replacing parts of the gun; Relative adjustment ([H01J 3/021](#) ~~to~~ [H01J 3/025](#) take precedence)}
- H01J 3/06
  - two or more guns being arranged in a single vacuum space, e.g. for plural-ray tubes ([H01J 3/07](#) takes precedence {see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/07
  - Arrangements for controlling convergence of a plurality of beams {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/08
  - Arrangements for controlling intensity of ray or beam ([H01J 3/02](#), [H01J 3/04](#) take precedence {see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/10
  - Arrangements for centering ray or beam ([H01J 3/02](#), [H01J 3/04](#) take precedence {see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/12
  - Arrangements for controlling cross-section of ray or beam; Arrangements for correcting aberration of beam, e.g. due to lenses ([H01J 3/02](#), [H01J 3/04](#) take precedence {see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/14
  - Arrangements for focusing or reflecting ray or beam ([H01J 3/02](#), [H01J 3/04](#) take precedence {see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/16
  - • Mirrors {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/18
  - • Electrostatic lenses {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/20
  - • Magnetic lenses {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}

- H01J 3/22
- • • using electromagnetic means only {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/24
- • • using permanent magnets only {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/26
- Arrangements for deflecting ray or beam (circuit arrangements for producing saw-tooth pulses or other deflecting voltages or currents [H03K](#); {[H01J 29/46](#) ~~to~~ [H01J 29/84](#) and [H01J 37/147](#) take precedence })
- H01J 3/28
- • along one straight line or along two perpendicular straight lines {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/30
- • • by electric fields only {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/32
- • • by magnetic fields only {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/34
- • along a circle, spiral, or rotating radial line {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/36
- Arrangements for controlling the ray or beam after passing the main deflection system, e.g. for post-acceleration or post-concentration {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/38
- Mounting, supporting, spacing, or insulating electron-optical or ion-optical arrangements {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 3/40
- Traps for removing or diverting unwanted particles, e.g. negative ions, fringing electrons; Arrangements for velocity or mass selection {(see provisionally also [H01J 29/46](#) ~~to~~ [H01J 29/84](#))}
- H01J 17/00**
- Gas-filled discharge tubes with solid cathode ([H01J 25/00](#), [H01J 27/00](#), [H01J 31/00](#) ~~to~~ [H01J 41/00](#) {[H01J 11/00](#)} take precedence; gas or vapour discharge lamps [H01J 61/00](#); gas filled spark gaps [H01T](#); Marx converters [H02M 7/26](#); tubes for generating potential differences by charges carried in a gas stream [H02N](#))**
- U H01J 19/00**
- Details of vacuum tubes of the types covered by group [H01J 21/00](#)**
- H01J 19/66
- Means forming part of the tube for the purpose of providing electrical connection to it (construction of connectors [H01R](#) {no documents, see [H01J 5/46](#) ~~to~~ [H01J 5/62](#))}
- H01J 21/00**
- Vacuum tubes ([H01J 25/00](#), [H01J 31/00](#) ~~to~~ [H01J 37/00](#), [H01J 43/00](#) take precedence; details of vacuum tubes [H01J 19/00](#); cathode ray or electron stream lamps [H01J 63/00](#))**
- U H01J 23/00**
- Details of transit-time tubes of the types covered by group [H01J 25/00](#)**
- U H01J 23/36
- Coupling devices having distributed capacitance and inductance, structurally associated with the tube, for introducing or removing wave energy
- U H01J 23/40
- • to or from the interaction circuit
- H01J 23/42
- • • the interaction circuit being a helix or a helix-derived slow-wave structure ([H01J 23/44](#) ~~to~~ [H01J 23/48](#) take precedence)
- U H01J 29/00**
- Details of cathode-ray tubes or of electron-beam tubes of the types covered by group [H01J 31/00](#)**
- U H01J 29/46
- Arrangements of electrodes and associated parts for generating or controlling the ray or beam, e.g. electron-optical arrangement {(transit time tubes [H01J 23/00](#), [H01J 25/00](#); X-ray tubes [H01J 35/00](#); beam tubes for examining ions, e.g. electron or ion microscopes, or processing of objects or materials e.g. electron or ion beam tubes [H01J 37/04](#); electron multipliers [H01J 43/04](#); handling of radiation or particles, e.g. focusing, deviating, not otherwise provided for [G21K 1/00](#))}

- H01J 29/467
- {Control electrodes for flat display tubes, e.g. of the type covered by group [H01J 31/123](#)}
- NOTE  
[H01J 29/48](#) ~~to~~ [H01J 29/51](#) take precedence over groups [H01J 29/52](#) ~~to~~ [H01J 29/68](#).
- U H01J 31/00** **Cathode ray tubes; Electron beam tubes ([H01J 25/00](#), [H01J 35/00](#), [H01J 37/00](#) take precedence; cathode ray or electron stream lamps [H01J 63/00](#); details of cathode ray tubes or of electron beam tubes [H01J 29/00](#))**
- U H01J 31/08
- having a screen on or from which an image or pattern is formed, picked up, converted, or stored
- U H01J 31/10
- • Image or pattern display tubes, i.e. having electrical input and optical output; Flying-spot tubes for scanning purposes
- H01J 31/20
- • • for displaying images or patterns in two or more colours {(circuits for colour television [H04N 9/16](#) ~~to~~ [H04N 9/28](#))}
- U H01J 31/50
- • Image-conversion or image-amplification tubes, i.e. having optical, X-ray, or analogous input, and optical output
- H01J 31/501
- • • {with an electrostatic electron optic system ([H01J 31/52](#) ~~to~~ [H01J 31/56](#) take precedence)}
- H01J 31/503
- • • {with an electromagnetic electron-optic system ([H01J 31/52](#) ~~to~~ [H01J 31/56](#) take precedence)}
- U H01J 35/00** **X-ray tubes (X-ray lasers [H01S 4/00](#); X-ray technique in general [H05G](#), {e.g. apparatus or processes specially adapted for producing X-rays, not involving X-ray tubes, e.g. involving generation of a plasma [H05G 2/00](#))}**
- U H01J 35/02
- Details
- H01J 35/20
- • Selection of substances for gas fillings; Means for obtaining or maintaining the desired pressure within the tube, e.g. by gettering {(for gas-discharge tubes in general [H01J 7/02](#) ~~to~~ [H01J 61/76](#); evacuating, filling, gettering in general [H01J 9/38](#))}
- U H01J 37/00** **Discharge tubes with provision for introducing objects or material to be exposed to the discharge, e.g. for the purpose of examination or processing thereof ([H01J 33/00](#), [H01J 40/00](#), [H01J 41/00](#), [H01J 47/00](#), [H01J 49/00](#) take precedence; {scanning-probe techniques or apparatus [G01Q](#)}; contactless testing of electronic circuits using electron beams [G01R 31/305](#); {particle accelerators [H05H](#)})**
- U H01J 37/02
- Details
- U H01J 37/04
- • Arrangements of electrodes and associated parts for generating or controlling the discharge, e.g. electron-optical arrangement, ion-optical arrangement {(electron or ion-optical systems for localised treatment of materials [H01J 37/3007](#); discharge control means in gas filled discharge tubes [H01J 37/32009](#))}
- U H01J 37/06
- • • Electron sources; Electron guns {(electron sources in general [H01J 1/02](#), [H01J 19/02](#); electron guns in general [H01J 3/02](#))}
- H01J 37/065
- • • • Construction of guns or parts thereof ([H01J 37/067](#) ~~to~~ [H01J 37/077](#) take precedence)
- H01J 37/067
- • • • Replacing parts of guns; Mutual adjustment of electrodes ([H01J 37/073](#) ~~to~~ [H01J 37/077](#) take precedence; vacuum locks [H01J 37/18](#))
- H01J 37/07
- • • • Eliminating deleterious effects due to thermal effects or electric or magnetic fields ([H01J 37/073](#) ~~to~~ [H01J 37/077](#) take precedence)
- U H01J 37/30
- Electron-beam or ion-beam tubes for localised treatment of objects

- U H01J 37/3002      · · {Details}
- H01J 37/3007      · · · {Electron or ion-optical systems (electron or ion-optical details [H01J 37/06](#) ~~to~~ [H01J 37/153](#))}

**H01J 2237/00      Discharge tubes exposing object to beam, e.g. for analysis treatment, etching, imaging**

NOTES

1. For features of general interest which may be found in other types of discharge tubes, an indexing code corresponding to general schemes [H01J 2201/00](#) ~~to~~ [H01J 2203/00](#) is given, e.g. for cathodes, vessels, cooling means or the like
2. Same rules apply for manufacturing procedures ([H01J 2209/00](#)), unless really specific to the tube concerned.
3. The codes in this main group are grouped according to the following principle: details common to gas or plasma discharge of the above mentioned tubes: [H01J 2237/00](#) ~~to~~ [H01J 2237/2487](#)  
Imaging or analysing: [H01J 2237/25](#) ~~to~~ [H01J 2237/2857](#)  
particle beam processing: [H01J 2237/30](#) ~~to~~ [H01J 2237/31798](#)  
plasma processing: [H01J 2237/32](#) ~~to~~ [H01J 2237/339](#)

**Project: N/A (H01K)**

H01K 5/00      Lamps for general lighting ([H01K 9/00](#) ~~to~~ [H01K 13/00](#) take precedence)

H01K 7/00      Lamps for purpose other than general lighting ([H01K 9/00](#) ~~to~~ [H01K 13/00](#) take precedence)

**Project: N/A (H01L)**

H01L      **SEMICONDUCTOR DEVICES; ELECTRIC SOLID STATE DEVICES NOT OTHERWISE PROVIDED FOR (use of semiconductor devices for measuring [G01](#); resistors in general [H01C](#); magnets, inductors {in general} , transformers [H01F](#); capacitors in general [H01G](#); electrolytic devices [H01G 9/00](#); batteries, accumulators [H01M](#); waveguides, resonators or lines of the waveguide type [H01P](#); line connectors, current collectors [H01R](#); stimulated emission devices [H01S](#); electromechanical resonators [H03H](#); loudspeakers, microphones, gramophone pick-ups or like acoustic electromechanical transducers [H04R](#); electric light sources in general [H05B](#); printed circuits, hybrid circuits, casings or constructional details of electric apparatus, manufacture of assemblages of electrical components [H05K](#); use of semiconductor devices in circuits having a particular application, see the subclass for the application)**

NOTES

1. This subclass covers electric solid state devices which are not provided for in any other subclass and details thereof. This includes:
  - semiconductor devices adapted for rectifying, amplifying, oscillating or switching;
  - semiconductor devices sensitive to radiation;
  - electric solid state devices using thermoelectric, superconductive, piezo-electric, electrostrictive, magnetostrictive, galvano-magnetic or bulk negative resistance effects and integrated circuit devices.

Also covered by this subclass are photo-resistors, magnetic field dependent resistors, field effect resistors, capacitors with potential-jump barrier, resistors with potential-jump barrier or surface barrier, incoherent light emitting diodes, electromechanical solid state transducers and thin-film or thick-film circuits. Furthermore, it provides for processes and apparatus adapted for the

manufacture or treatment of such devices, except where such processes relate to single step processes for which provision exists elsewhere.

2. In this subclass:

- The expression "solid state body" refers to the body of material within which, or at the surface of which, the physical effects characteristic of the device occur. In thermoelectric devices it includes all materials in the current path.  
Regions in or on the body of the device (other than the solid state body itself), which exert an influence on the solid state body electrically, are considered to be "electrodes" whether or not an external electrical connection is made thereto. {Electrodes are often referred to as "contacts" in the literature.} An electrode may include several portions and the term includes metallic regions which exert influence on the solid state body through an insulating region, (e.g. capacitive coupling) and inductive coupling arrangements to the body. The dielectric region in a capacitive arrangement is regarded as part of the electrode. In arrangements including several portions only those portions which exert an influence on the solid state body by virtue of their shape, size or disposition or the material of which they are formed are considered to be part of the electrode. The other portions are considered to be "arrangements for conducting electric current to or from the solid state body" or "interconnections between solid state components formed in or on a common substrate", i.e. leads.
- The word "device" refers to an electric circuit element; where an electric circuit element is one of a plurality or elements formed in or on a common substrate it is referred to as a "component".
- A "complete device" is a device in its fully assembled state which may or may not require further treatment, e.g. electro-forming, before it is ready for use but which does not require the addition of further structural units.
- The word "parts" includes all structural units which are included in a complete device.
- A "container" is an enclosure forming part of the complete device and is essentially a solid construction in which the body of the device is placed, or which is formed around the body without forming an intimate layer thereon. An enclosure which consists of one or more layers formed on the body and in intimate contact therewith is referred to as an "encapsulation".
- "Integrated circuit" is a device where all components, e.g. diodes, resistors, are built up on a common substrate and form the device including interconnections between the components.

3. "Integration processes" are processes for the manufacture of at least two different components where the process is especially adapted to their integration, e.g. to take advantage of it or to reduce their manufacturing cost. Example: in a CMOS process, the same ion implant dopes the p-MOS gate and the n-MNOS source and drain.

Consequently, a process for the manufacture of a component per se is not considered as an integration process, even though that component will be part of an integrated circuit.

"Assembly" of a device is the building up of the device from its component constructional units and includes the provision of fillings in containers.

When referring to the periodic table of the elements, either the new IUPAC notation, i.e. numbering system from 1 to 18, or the previous IUPAC form may be used to indicate an element group, e.g. group IV elements according to the previous IUPAC form correspond to group 14 elements according to the new notation

#### WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups

[H01L 21/301](#) covered by [H01L 21/30](#)

H01L 21/328 covered by [H01L 29/66075](#)  
H01L 21/329 covered by [H01L 29/66083](#)  
H01L 21/33 covered by [H01L 29/66227](#)  
H01L 21/331 covered by [H01L 29/66234](#)  
H01L 21/332 covered by [H01L 29/66363](#)  
H01L 21/334 covered by [H01L 29/66075](#)  
H01L 21/335 covered by [H01L 29/66409](#)  
H01L 21/336 covered by [H01L 29/66477](#)  
H01L 21/337 covered by [H01L 29/66893](#)  
H01L 21/338 covered by [H01L 29/66848](#)  
H01L 21/339 covered by [H01L 29/66946](#)  
H01L 21/58 covered by [H01L 24/80](#)  
H01L 21/8239 covered by [H01L 27/1052](#)  
H01L 21/60 covered by [H01L 24/80](#)  
H01L 21/66 covered by [H01L 22/34](#)  
H01L 21/603 covered by [H01L 24/80](#)  
H01L 21/607 covered by [H01L 24/80](#)  
H01L 21/8242 covered by [H01L 27/10844](#)  
H01L 21/8244 covered by [H01L 27/11](#)  
H01L 21/8246 covered by [H01L 27/112](#)  
H01L 21/8247 covered by [H01L 27/11517](#)  
H01L 21/98 covered by [H01L 25/50](#)  
H01L 29/38 covered by [H01L 29/04](#) ~~to~~ [H01L 29/365](#)  
H01L 29/96 covered by [H01L 29/68](#) ~~to~~ [H01L 29/945](#)  
H01L 51/30 covered by [H01L 51/0032](#)  
H01L 51/40 covered by [H01L 51/0001](#)  
H01L 51/46 covered by [H01L 51/0032](#)  
H01L 51/48 covered by [H01L 51/0001](#)  
H01L 51/54 covered by [H01L 51/0032](#)

**H01L 21/00**

**Processes or apparatus adapted for the manufacture or treatment of semiconductor or solid state devices or of parts thereof (testing or measuring during manufacture or treatment, or reliability measurements [H01L 22/00](#); multistep manufacturing processes for passive two-terminal components without a potential-jump or surface barrier for integrated circuits [H01L 28/00](#); } processes or apparatus peculiar to the manufacture or treatment of devices provided for in groups [H01L 31/00](#) ~~to~~ [H01L 51/00](#) or of parts thereof, see these groups; single-step processes covered by other subclasses, see the relevant subclasses, e.g. [C23C](#), [C30B](#); photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general [G03F](#))**

U H01L 21/02

• Manufacture or treatment of semiconductor devices or of parts thereof

U H01L 21/02104

• • {Forming layers (deposition in general [C23C](#); crystal growth in general [C30B](#))}

**WARNING**

Groups [H01L 21/02104](#) – [H01L 21/02694](#) are incomplete pending reclassification of documents from groups [H01L 21/06](#), [H01L 21/16](#), and [H01L 21/20](#).

Groups [H01L 21/02104](#) – [H01L 21/02694](#), [H01L 21/06](#), [H01L 21/20](#), and [H01L 21/16](#) should be considered in order to perform a complete search.

U H01L 21/02107

• • • {Forming insulating materials on a substrate}

**WARNING**

Groups [H01L 21/02107](#) – [H01L 21/02326](#) are incomplete pending reclassification of documents from groups [H01L 21/312](#), [H01L 21/314](#), [H01L 21/316](#), and [H01L 21/318](#).

Groups [H01L 21/02107](#) – [H01L 21/02326](#), [H01L 21/312](#), [H01L 21/314](#), [H01L 21/316](#), and [H01L 21/318](#) should be considered in order to perform a complete search.

- U H01L 21/02225 . . . . {characterised by the process for the formation of the insulating layer}  
H01L 21/02227 . . . . {formation by a process other than a deposition process}
- NOTE  
Subject matter classified in the range of [H01L 21/0223](#) to- [H01L 21/02249](#) is additionally classified in [H01L 21/02249](#), [H01L 21/02255](#) and [H01L 21/02252](#), depending on the type of reaction
- U H01L 21/04 . . the devices having at least one potential-jump barrier or surface barrier, e.g. PN junction, depletion layer, carrier concentration layer {(multistep processes specially adapted for the manufacture of said devices [H01L 29/66007](#), [H01L 29/401](#); details of semiconductor bodies [H01L 29/02](#))}
- H01L 21/18 . . . the devices having semiconductor bodies comprising elements of the fourth group of the Periodic System or  $A_{III}B_V$  compounds with or without impurities, e.g. doping materials {([H01L 21/041](#) to- [H01L 21/0425](#), [H01L 21/045](#) to- [H01L 21/048](#) take precedence)}
- NOTE  
This group covers also processes and apparatus which, by using the appropriate technology, are clearly suitable for manufacture or treatment of devices whose bodies comprise elements of the fourth group of the Periodic System or  $A_{III}B_V$  compounds, even if the material used is not explicitly specified.
- U H01L 21/22 . . . . Diffusion of impurity materials, e.g. doping materials, electrode materials, into or out of a semiconductor body, or between semiconductor regions; {Interactions between two or more impurities; Redistribution of impurities}
- H01L 21/223 . . . . . using diffusion into or out of a solid from or into a gaseous phase {([H01L 21/221](#) to- [H01L 21/222](#) take precedence; diffusion through an applied layer [H01L 21/225](#))}
- H01L 21/225 . . . . . using diffusion into or out of a solid from or into a solid phase, e.g. a doped oxide layer {([H01L 21/221](#) to- [H01L 21/222](#) take precedence)}
- U H01L 21/2251 . . . . . {Diffusion into or out of group IV semiconductors}
- U H01L 21/2252 . . . . . {using predeposition of impurities into the semiconductor surface, e.g. from a gaseous phase}
- H01L 21/2253 . . . . . {by ion implantation}
- NOTE  
In groups [H01L 21/2254](#) to- [H01L 21/2257](#) one should consider the main compositional parts of the applied layer just before the diffusion step
- H01L 21/228 . . . . . using diffusion into or out of a solid from or into a liquid phase, e.g. alloy diffusion processes {([H01L 21/221](#) to- [H01L 21/222](#) take precedence)}
- H01L 21/28 . . . . Manufacture of electrodes on semiconductor bodies using processes or apparatus not provided for in [H01L 21/20](#) to- [H01L 21/268](#); {(etching for patterning the electrodes [H01L 21/311](#) and [H01L 21/3213](#))}
- U H01L 21/28008 . . . . . {Making conductor-insulator-semiconductor electrodes}

- U H01L 21/28017 . . . . . {the insulator being formed after the semiconductor body, the semiconductor being silicon}
- NOTE  
This group covers deposition of the insulators, including epitaxial insulators, and the conductors within the same process or chamber
- H01L 21/28026 . . . . . {characterised by the conductor ([H01L 21/28176](#) takes precedence)}
- NOTE  
When the final conductor comprises a superconductor, subject matter is not classified according to the subgroups [H01L 21/28035](#) ~~to~~ [H01L 21/28097](#). Instead, it is classified in [H01L 21/28026](#)
- H01L 21/28114 . . . . . {characterised by the sectional shape, e.g. T, inverted-T}
- NOTE  
Documents are also classified in groups [H01L 21/28035](#) ~~to~~ [H01L 21/28105](#) when the composition is also relevant
- U H01L 21/283 . . . . . Deposition of conductive or insulating materials for electrodes {conducting electric current}
- U H01L 21/285 . . . . . from a gas or vapour, e.g. condensation
- U H01L 21/28506 . . . . . {of conductive layers}
- U H01L 21/28512 . . . . . {on semiconductor bodies comprising elements of the fourth group of the Periodic System}
- H01L 21/2855 . . . . . {by physical means, e.g. sputtering, evaporation ([H01L 21/28518](#) ~~to~~ [H01L 21/28537](#) and [H01L 21/28568](#) take precedence)}
- H01L 21/28556 . . . . . {by chemical means, e.g. CVD, LPCVD, PECVD, laser CVD ([H01L 21/28518](#) ~~to~~ [H01L 21/28537](#) and [H01L 21/28568](#) take precedence)}
- H01L 21/30 . . . . . Treatment of semiconductor bodies using processes or apparatus not provided for in groups [H01L 21/20](#) ~~to~~ [H01L 21/26](#) (manufacture of electrodes thereon [H01L 21/28](#))
- H01L 21/324 . . . . . Thermal treatment for modifying the properties of semiconductor bodies, e.g. annealing, sintering ([H01L 21/20](#) ~~to~~ [H01L 21/288](#) and [H01L 21/302](#) ~~to~~ [H01L 21/322](#) take precedence)
- H01L 21/326 . . . . . Application of electric currents or fields, e.g. for electroforming ([H01L 21/20](#) ~~to~~ [H01L 21/288](#) and [H01L 21/302](#) ~~to~~ [H01L 21/324](#) take precedence)
- U H01L 21/34 . . . . . the devices having semiconductor bodies not provided for in groups {[H01L 21/0405](#), [H01L 21/0445](#)}, [H01L 21/06](#), [H01L 21/16](#) and [H01L 21/18](#) with or without impurities, e.g. doping materials
- H01L 21/44 . . . . . Manufacture of electrodes on semiconductor bodies using processes or apparatus not provided for in groups [H01L 21/38](#) ~~to~~ [H01L 21/428](#)
- U H01L 21/46 . . . . . Treatment of semiconductor bodies using processes or apparatus not provided for in groups [H01L 21/428](#) (manufacture of electrodes thereon [H01L 21/44](#))
- H01L 21/477 . . . . . Thermal treatment for modifying the properties of semiconductor bodies, e.g. annealing, sintering ([H01L 21/38](#) ~~to~~ [H01L 21/449](#) and [H01L 21/461](#) ~~to~~ [H01L 21/475](#) take precedence)
- H01L 21/479 . . . . . Application of electric currents or fields, e.g. for electroforming ([H01L 21/38](#) ~~to~~ [H01L 21/449](#) and [H01L 21/461](#) ~~to~~ [H01L 21/475](#) take precedence)

- H01L 21/48
- • Manufacture or treatment of parts, e.g. containers, prior to assembly of the devices, using processes not provided for in a single one of the subgroups [H01L 21/06](#) to- [H01L 21/326](#) ({apparatus therefor [H01L 21/67005](#); insulative sealing of leads in bases [H01L 21/50](#)}; containers, encapsulations, fillings, mountings per se [H01L 23/00](#); {marking of parts [H01L 23/544](#)})
- NOTE  
In this group, the expression "treatment" covers also the removal of leads from parts
- H01L 21/50
- • Assembly of semiconductor devices using processes or apparatus not provided for in a single one of the subgroups [H01L 21/06](#) to- [H01L 21/326](#), {e.g. sealing of a cap to a base of a container}
- NOTE  
Arrangements for connecting or disconnecting semiconductor or other solid state bodies, or methods related thereto, other than those arrangements or methods covered by the following subgroups, are covered by [H01L 24/00](#)
- H01L 21/64
- Manufacture or treatment of solid state devices other than semiconductor devices, or of parts thereof, not peculiar to a single device provided for in groups [H01L 31/00](#) to- [H01L 51/00](#)
- U H01L 21/70
- Manufacture or treatment of devices consisting of a plurality of solid state components formed in or on a common substrate or of parts thereof; Manufacture of integrated circuit devices or of parts thereof ({multistep manufacturing processes of assemblies consisting of a plurality of individual semiconductor or other solid state devices [H01L 25/00](#)}, manufacture of assemblies consisting or preformed electrical components [H05K 3/00](#), [H05K 13/00](#))
- U H01L 21/71
- • Manufacture of specific parts of devices defined in group [H01L 21/70](#) ({[H01L 21/0405](#), [H01L 21/0445](#)}, [H01L 21/28](#), [H01L 21/44](#), [H01L 21/48](#) take precedence)
- H01L 21/768
- • Applying interconnections to be used for carrying current between separate components within a device {comprising conductors and dielectrics}
- NOTE  
Groups [H01L 21/768](#) to- [H01L 21/76898](#) cover multi-step processes for manufacturing interconnections. Information peculiar to single-step processes should also be classified in the corresponding group, e.g.
  - cleaning [H01L 21/02041](#)
  - etching [H01L 21/311](#), [H01L 21/3213](#)
  - masking [H01L 21/027](#), [H01L 21/033](#), [H01L 21/31144](#), [H01L 21/32139](#)
  - planarizing [H01L 21/3105](#), [H01L 21/321](#)

H01L 21/77

  - • Manufacture or treatment of devices consisting of a plurality of solid state components or integrated circuits formed in, or on, a common substrate

NOTE  
Integration processes for the manufacture of devices of the type classified in [H01L 27/14](#) to- [H01L 27/32](#) are not classified in this group and its sub-groups. Instead, as they are peculiar to said devices, they are classified together with the devices Multistep processes for manufacturing memory structures in general using field effect technology are covered by [H01L 27/1052](#); Multistep processes for manufacturing dynamic random access memory structures are covered by [H01L 27/10844](#); Multistep processes for manufacturing static random access memory structures are covered by [H01L 27/11](#); Multistep processes for manufacturing read-only memory structures are covered by [H01L 27/112](#); Multistep processes for

manufacturing electrically programmable read-only memory structures are covered by [H01L 27/115](#)

**H01L 22/00** {Testing or measuring during manufacture or treatment; Reliability measurements, i.e. testing of parts without further processing to modify the parts as such; Structural arrangements therefor (detecting or counting or handling [H01L 21/67005](#); marks applied to semiconductor devices [H01L 23/544](#); testing methods or structures peculiar to devices provided for in groups [H01L 31/00](#) ~~to~~ [H01L 51/00](#), see these groups; investigating or analysing materials by the use of optical means [G01N 21/00](#); testing electrical properties of individual semiconductor devices [G01R 31/26](#); testing of photovoltaic systems [H02S 50/00](#)}

**H01L 23/00** Details of semiconductor or other solid state devices ([H01L 25/00](#) takes precedence; {structural arrangements for testing or measuring during manufacture or treatment, or for reliability measurements [H01L 22/00](#); arrangements for connecting or disconnecting semiconductor or solid-state bodies, or methods related thereto [H01L 24/00](#); finger print sensors [G06K 9/00006](#)})

NOTE

This group does not cover:

- details of semiconductor bodies or of electrodes of devices provided for in group [H01L 29/00](#), which details are covered by that group;
- details peculiar to devices provided for in a single main group of groups [H01L 31/00](#) ~~to~~ [H01L 51/00](#), which details are covered by those groups.

U H01L 23/16 • Fillings or auxiliary members in containers {or encapsulations}, e.g. centering rings ([H01L 23/42](#), [H01L 23/552](#) take precedence)

H01L 23/18 • • Fillings characterised by the material, its physical or chemical properties, or its arrangement within the complete device

NOTE

Group [H01L 23/26](#) takes precedence over groups [H01L 23/20](#) ~~to~~ [H01L 23/24](#)

U H01L 23/48 • Arrangements for conducting electric current to or from the solid state body in operation, e.g. leads, terminal arrangements (in general [H01R](#)); {Selection of materials therefor}

NOTE

Arrangements for connecting or disconnecting semiconductor or other solid state bodies, or methods related thereto, other than those arrangements or methods covered by the following subgroups, are covered by [H01L 24/00](#)

U H01L 23/488 • • consisting of soldered {or bonded} constructions {(bump connectors [H01L 24/01](#))}

U H01L 23/495 • • • Lead-frames {or other flat leads ([H01L 23/498](#) takes precedence; lead frame interconnections between components [H01L 23/52](#))}

H01L 23/49572 • • • {consisting of thin flexible metallic tape with or without a film carrier ([H01L 23/49503](#) ~~to~~ [H01L 23/49568](#) and [H01L 23/49575](#) ~~to~~ [H01L 23/49579](#) take precedence)}

H01L 23/50 • • for integrated circuit devices, {e.g. power bus, number of leads} ([H01L 23/482](#) ~~to~~ [H01L 23/498](#) take precedence)

**H01L 24/00** {Arrangements for connecting or disconnecting semiconductor or solid-state bodies; Methods or apparatus related thereto}

NOTES

1. This group does not cover:

- details of semiconductor bodies or of electrodes of devices provided for in group [H01L 29/00](#), which details are covered by that group;
- details peculiar to devices provided for in a single main group of groups [H01L 31/00](#) ~~to~~ [H01L 51/00](#), which details are covered by those groups.
- printed circuits, which are covered by groups [H05K 1/00](#) ~~to~~ [H05K 1/189](#);
- apparatus or manufacturing processes for printed circuits, which are covered by groups [H05K 3/00](#) ~~to~~ [H05K 3/4685](#);
- manufacture or treatment of parts, which are covered by group [H01L 21/48](#) and subgroups except [H01L 21/4885](#) ~~to~~ [H01L 21/4896](#);
- assemblies of semiconductor devices, which are covered by groups [H01L 21/50](#) ~~to~~ [H01L 21/568](#);
- applying interconnections to be used for carrying current between separate components within a device, which is covered by group [H01L 21/768](#) and subgroups;
- containers or seals, which are covered by groups [H01L 23/02](#) ~~to~~ [H01L 23/10](#);
- mountings, which are covered by groups [H01L 23/12](#) ~~to~~ [H01L 23/15](#) and subgroups;
- arrangements for cooling, heating, ventilating or temperature compensation, which are covered by groups [H01L 23/34](#) ~~to~~ [H01L 23/4735](#);
- arrangements for conducting electric current, which are covered by groups [H01L 23/48](#) ~~to~~ [H01L 23/50](#), and by groups [H01L 23/52](#) ~~to~~ [H01L 23/5389](#);
- structural electrical arrangements, which are covered by groups [H01L 24/80](#) ~~to~~ [H01L 23/66](#);
- assemblies of semiconductor or other solid state devices, which are covered by groups [H01L 25/00](#) ~~to~~ [H01L 25/18](#).

2. In this group the following indexing codes are used : [H01L 24/00](#), [H01L 2224/00](#), [H01L 2924/00](#), and subgroups thereof

- |   |                   |   |
|---|-------------------|---|
| U | H01L 24/01        | <ul style="list-style-type: none"> <li>• {Means for bonding being attached to, or being formed on, the surface to be connected, e.g. chip-to-package, die-attach, "first-level" interconnects; Manufacturing methods related thereto}</li> </ul>  |
|   | H01L 24/63        | <ul style="list-style-type: none"> <li>• - {Connectors not provided for in any of the groups <a href="#">H01L 24/10</a> <del>to</del> <a href="#">H01L 24/50</a> and subgroups; Manufacturing methods related thereto}</li> </ul>   |
| U | H01L 24/80        | <ul style="list-style-type: none"> <li>• {Methods for connecting semiconductor or other solid state bodies using means for bonding being attached to, or being formed on, the surface to be connected}</li> </ul>   |
|   | H01L 24/89        | <ul style="list-style-type: none"> <li>• - {using at least one connector not provided for in any of the groups <a href="#">H01L 24/81</a> <del>to</del> <a href="#">H01L 24/86</a>}</li> </ul>  |
|   | H01L 24/91        | <ul style="list-style-type: none"> <li>• {Methods for connecting semiconductor or solid state bodies including different methods provided for in two or more of groups <a href="#">H01L 24/80</a> <del>to</del> <a href="#">H01L 24/90</a>}</li> </ul>  |
|   | <b>H01L 25/00</b> | <p><b>Assemblies consisting of a plurality of individual semiconductor or other solid state devices {; Multistep manufacturing processes thereof} {{lead frames with assemblies of semiconductor devices thereon <a href="#">H01L 23/49575</a>; assembling semiconductor devices using processes or apparatus not provided for in a single one of the subgroups <a href="#">H01L 21/06</a> <del>to</del> <a href="#">H01L 21/326</a>, e.g. sealing of a cap to a base of a container, <a href="#">H01L 21/50</a>;} devices consisting of a plurality of solid state components formed in or on a common substrate <a href="#">H01L 27/00</a>; photovoltaic modules or arrays of photovoltaic cells <a href="#">H01L 31/042</a> {, <a href="#">H01G 9/20</a>}}</b></p> |
|   | H01L 25/03        | <ul style="list-style-type: none"> <li>• all the devices being of a type provided for in the same subgroup of groups <a href="#">H01L 27/00</a> <del>to</del> <a href="#">H01L 51/00</a>, e.g. assemblies of rectifier diodes</li> </ul>  |
| U | H01L 25/04        | <ul style="list-style-type: none"> <li>• - the devices not having separate containers</li> </ul>  |

- H01L 25/07
- • • the devices being of a type provided for in group [H01L 29/00](#)
- NOTE  
Group [H01L 25/071](#) takes precedence over groups [H01L 25/072](#) to- [H01L 25/074](#)
- H01L 25/16
- the devices being of types provided for in two or more different main groups of [H01L 27/00](#) to- [H01L 49/00](#) {and [H01L 51/00](#)}, e.g. forming hybrid circuits {(interconnections for hybrid circuits [H01L 23/5389](#))}
- H01L 25/18
- the devices being of types provided for in two or more different subgroups of the same main group of groups [H01L 27/00](#) to- [H01L 51/00](#) {(comprising devices provided for in [H01L 27/144](#) and subgroups, see [H01L 27/144](#) and subgroups)}
- H01L 27/00**
- Devices consisting of a plurality of semiconductor or other solid state components formed in or on a common substrate (processes or apparatus specially adapted for the manufacture or treatment thereof or of parts thereof [H01L 21/70](#), [H01L 31/00](#) to- [H01L 51/00](#); details thereof [H01L 23/00](#), [H01L 29/00](#) to- [H01L 51/00](#); assemblies consisting of a plurality of individual solid state devices [H01L 25/00](#); assemblies of electrical components in general [H05K](#))**
- NOTE  
In this group, in the absence of an indication to the contrary, classification is made in the last appropriate place.
- H01L 27/01
- comprising only passive thin-film or thick-film elements formed on a common insulating substrate {(passive two-terminal components without a potential-jump or surface barrier for integrated circuits, details thereof and multistep manufacturing processes therefor [H01L 28/00](#))}
- NOTE  
In groups [H01L 27/01](#) to- [H01L 27/26](#), in the absence of an indication to the contrary, classification is made in the last appropriate place.
- U H01L 27/02
- including semiconductor components specially adapted for rectifying, oscillating, amplifying or switching and having at least one potential-jump barrier or surface barrier; including integrated passive circuit elements with at least one potential-jump barrier or surface barrier
- U H01L 27/04
- • the substrate being a semiconductor body
- U H01L 27/10
- • • including a plurality of individual components in a repetitive configuration
- U H01L 27/105
- • • • including field-effect components
- NOTE  
In this group and its subgroups classification is made in any appropriate place
- H01L 27/1052
- • • • {Memory structures and multistep manufacturing processes therefor not provided for in groups [H01L 27/1055](#) to- [H01L 27/112](#)}

**H01L 29/00**

**Semiconductor devices adapted for rectifying, amplifying, oscillating or switching, or capacitors or resistors with at least one potential-jump barrier or surface barrier, e.g. PN junction depletion layer or carrier concentration layer; Details of semiconductor bodies or of electrodes thereof; {Multistep manufacturing processes therefor} ([H01L 31/00](#) - [H01L 47/00](#), [H01L 51/05](#) take precedence; processes or apparatus adapted for the manufacture or treatment thereof or of parts thereof [H01L 21/00](#); details other than of semiconductor bodies or of electrodes thereof [H01L 23/00](#); devices consisting of a plurality of solid state components formed in or on a common substrate [H01L 27/00](#); {passive two-terminal components without a potential-jump or surface barrier for integrated circuits, details thereof and multistep manufacturing processes therefor [H01L 28/00](#); } resistors in general [H01C](#); capacitors in general [H01G](#), {e.g. ceramic barrier-layer capacitors [H01G 4/1272](#)})**

NOTE

In this main group, classification is made both in groups [H01L 29/02](#) ~~to~~ [H01L 29/51](#) and in groups [H01L 29/66](#) ~~to~~ [H01L 29/94](#) if both of these sets of groups are relevant.

- U H01L 29/02      • Semiconductor bodies; {Multistep manufacturing processes therefor}
- U H01L 29/12      • • characterised by the materials of which they are formed
- H01L 29/15      • • • Structures with periodic or quasi periodic potential variation, e.g. multiple quantum wells, superlattices (such structures applied for the control of light [G02F 1/017](#), applied in semiconductor lasers [H01S 5/34](#))

NOTE

Group [H01L 29/15](#) takes precedence over groups [H01L 29/16](#) ~~to~~ [H01L 29/26](#).

- U H01L 29/40      • Electrodes; {Multistep manufacturing processes therefor}
- U H01L 29/41      • • characterised by their shape, relative sizes or dispositions
- U H01L 29/417     • • • carrying the current to be rectified, amplified or switched
- U H01L 29/41725   • • • • {Source or drain electrodes for field effect devices (with monocrystalline semiconductor on source/drain region [H01L 29/0843](#))}
- H01L 29/41758    • • • • • {for lateral devices with structured layout for source or drain region, i.e. the source or drain region having cellular, interdigitated or ring structure or being curved or angular ([H01L 29/41733](#) ~~to~~ [H01L 29/4175](#) take precedence)}

NOTE

Interdigitated structure means that at least one of the source or drain region has two or more fingers

- H01L 29/41766    • • • • • {with at least part of the source or drain electrode having contact below the semiconductor surface, e.g. the source or drain electrode formed at least partially in a groove or with inclusions of conductor inside the semiconductor ([H01L 29/41733](#) ~~to~~ [H01L 29/41758](#) take precedence)}
- U H01L 29/66      • Types of semiconductor device; {Multistep manufacturing processes therefor}
- U H01L 29/68      • • controllable by only the electric current supplied, or only the electric potential applied, to an electrode which does not carry the current to be rectified, amplified or switched
- U H01L 29/76      • • • Unipolar devices, {e.g. field effect transistors}
- U H01L 29/772     • • • • Field effect transistors
- U H01L 29/78      • • • • • with field effect produced by an insulated gate ({[H01L 29/7725](#), [H01L 29/775](#), [H01L 29/778](#) take precedence)}

- U H01L 29/786 . . . . . Thin film transistors, {i.e. transistors with a channel being at least partly a thin film (transistors having only the source or the drain region on an insulator layer [H01L 29/0653](#); thin film FinFETs [H01L 29/785](#))}
- H01L 29/78645 . . . . . {with multiple gate}
- NOTE  
In groups [H01L 29/78651](#) ~~to~~ [H01L 29/78696](#), the materials specified for the transistors are the material of the channel region
- H01L 29/78651 . . . . . {Silicon transistors ([H01L 29/78606](#) ~~to~~ [H01L 29/78645](#) take precedence)}
- U H01L 31/00** **Semiconductor devices sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength or corpuscular radiation and adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof; Details thereof ([H01L 51/42](#) takes precedence; devices consisting of a plurality of solid state components formed in, or on, a common substrate, other than combinations of radiation-sensitive components with one or more electric light sources, [H01L 27/00](#); production of heat using solar heat [F24J 2/00](#); measurement of X-radiation, gamma radiation, corpuscular radiation or cosmic radiation with semiconductor detectors [G01T 1/24](#), with resistance detectors [G01T 1/26](#); measurement of neutron radiation with semiconductor detectors [G01T 3/08](#); couplings of light guides with optoelectronic elements [G02B 6/42](#); obtaining energy from radioactive sources [G21H](#))**
- U H01L 31/0248 . characterised by their semiconductor bodies
- U H01L 31/0256 . . characterised by the material
- U H01L 31/0264 . . . Inorganic materials
- H01L 31/032 . . . . including, apart from doping materials or other impurities, only compounds not provided for in groups [H01L 31/0272](#) ~~to~~ [H01L 31/0312](#)
- H01L 31/0328 . . . . including, apart from doping materials or other impurities, semiconductor materials provided for in two or more of groups [H01L 31/0272](#) ~~to~~ [H01L 31/032](#)
- U H01L 31/04 . adapted as photovoltaic [PV] conversion devices, e.g. PV modules or single PV cells (testing thereof during manufacture {[H01L 22/00](#)}; testing thereof after manufacture [H02S 50/10](#))
- U H01L 31/06 . . characterised by at least one potential-jump barrier or surface barrier
- H01L 31/078 . . . including different types of potential barriers provided for in two or more of groups [H01L 31/062](#) ~~to~~ [H01L 31/075](#)
- H01L 49/00** **Solid state devices not provided for in groups [H01L 27/00](#) ~~to~~ [H01L 47/00](#) and [H01L 51/00](#) and not provided for in any other subclass; Processes or apparatus peculiar to the manufacture or treatment thereof or of parts thereof**
- U H01L 2224/00** **Indexing scheme for arrangements for connecting or disconnecting semiconductor or solid-state bodies and methods related thereto as covered by [H01L 24/00](#)**
- U H01L 2224/01 . Means for bonding being attached to, or being formed on, the surface to be connected, e.g. chip-to-package, die-attach, "first-level" interconnects; Manufacturing methods related thereto
- U H01L 2224/02 . . Bonding areas; Manufacturing methods related thereto
- U H01L 2224/04 . . . Structure, shape, material or disposition of the bonding areas prior to the connecting process

- U H01L 2224/05 . . . . of an individual bonding area
- U H01L 2224/05001 . . . . . Internal layers
- U H01L 2224/05099 . . . . . Material
- H01L 2224/05193 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/051](#) ~~to~~ [H01L 2224/05191](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/05194 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/051](#) ~~to~~ [H01L 2224/05191](#)
- H01L 2224/05195 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/051](#) ~~to~~ [H01L 2224/05191](#)
- U H01L 2224/05198 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/05199 . . . . . Material of the matrix
- H01L 2224/05293 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/052](#) ~~to~~ [H01L 2224/05291](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/05294 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/052](#) ~~to~~ [H01L 2224/05291](#)
- H01L 2224/05295 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/052](#) ~~to~~ [H01L 2224/05291](#)
- U H01L 2224/05298 . . . . . Fillers
- U H01L 2224/05299 . . . . . Base material
- H01L 2224/05393 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/053](#) ~~to~~ [H01L 2224/05391](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/05394 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/053](#) ~~to~~ [H01L 2224/05391](#)
- H01L 2224/05395 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/053](#) ~~to~~ [H01L 2224/05391](#)
- U H01L 2224/05399 . . . . . Coating material
- H01L 2224/05493 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/054](#) ~~to~~ [H01L 2224/05491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/05494 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/054](#) ~~to~~ [H01L 2224/05491](#)
- H01L 2224/05495 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/054](#) ~~to~~ [H01L 2224/05491](#)
- U H01L 2224/0554 . . . . . External layer
- U H01L 2224/05599 . . . . . Material
- H01L 2224/05693 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/056](#) ~~to~~ [H01L 2224/05691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/05694 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/056](#) ~~to~~ [H01L 2224/05691](#)
- H01L 2224/05695 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/056](#) ~~to~~ [H01L 2224/05691](#)

- U H01L 2224/05698 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/05699 . . . . . Material of the matrix
- H01L 2224/05793 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/057](#) ~~to~~ [H01L 2224/05791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/05794 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/057](#) ~~to~~ [H01L 2224/05791](#)
- H01L 2224/05795 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/057](#) ~~to~~ [H01L 2224/05791](#)
- U H01L 2224/05798 . . . . . Fillers
- U H01L 2224/05799 . . . . . Base material
- H01L 2224/05893 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/058](#) ~~to~~ [H01L 2224/05891](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/05894 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/058](#) ~~to~~ [H01L 2224/05891](#)
- H01L 2224/05895 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/058](#) ~~to~~ [H01L 2224/05891](#)
- U H01L 2224/05899 . . . . . Coating material
- H01L 2224/05993 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/059](#) ~~to~~ [H01L 2224/05991](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/05994 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/059](#) ~~to~~ [H01L 2224/05991](#)
- H01L 2224/05995 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/059](#) ~~to~~ [H01L 2224/05991](#)
- U H01L 2224/10 . . . . . Bump connectors; Manufacturing methods related thereto
- U H01L 2224/12 . . . . . Structure, shape, material or disposition of the bump connectors prior to the connecting process
- U H01L 2224/13 . . . . . of an individual bump connector
- U H01L 2224/13001 . . . . . Core members of the bump connector
- U H01L 2224/13099 . . . . . Material
- H01L 2224/13193 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/131](#) ~~to~~ [H01L 2224/13191](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/13194 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/131](#) ~~to~~ [H01L 2224/13191](#)
- H01L 2224/13195 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/131](#) ~~to~~ [H01L 2224/13191](#)
- U H01L 2224/13198 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/13199 . . . . . Material of the matrix

- H01L 2224/13293 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/132](#) ~~to~~ [H01L 2224/13291](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/13294 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/132](#) ~~to~~ [H01L 2224/13291](#)
- H01L 2224/13295 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/132](#) ~~to~~ [H01L 2224/13291](#)
- U H01L 2224/13298 . . . . . Fillers
- U H01L 2224/13299 . . . . . Base material
- H01L 2224/13393 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/133](#) ~~to~~ [H01L 2224/13391](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/13394 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/133](#) ~~to~~ [H01L 2224/13391](#)
- H01L 2224/13395 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/133](#) ~~to~~ [H01L 2224/13391](#)
- U H01L 2224/13399 . . . . . Coating material
- H01L 2224/13493 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/134](#) ~~to~~ [H01L 2224/13491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/13494 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/134](#) ~~to~~ [H01L 2224/13491](#)
- H01L 2224/13495 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/134](#) ~~to~~ [H01L 2224/13491](#)
- U H01L 2224/1354 . . . . . Coating
- U H01L 2224/13599 . . . . . Material
- H01L 2224/13693 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/136](#) ~~to~~ [H01L 2224/13691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/13694 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/136](#) ~~to~~ [H01L 2224/13691](#)
- H01L 2224/13695 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/136](#) ~~to~~ [H01L 2224/13691](#)
- U H01L 2224/13698 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/13699 . . . . . Material of the matrix
- H01L 2224/13793 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/137](#) ~~to~~ [H01L 2224/13791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/13794 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/137](#) ~~to~~ [H01L 2224/13791](#)
- H01L 2224/13795 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/137](#) ~~to~~ [H01L 2224/13791](#)
- U H01L 2224/13798 . . . . . Fillers
- U H01L 2224/13799 . . . . . Base material

- H01L 2224/13893 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/138](#) ~~to~~ [H01L 2224/13891](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/13894 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/138](#) ~~to~~ [H01L 2224/13891](#)
- H01L 2224/13895 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/138](#) ~~to~~ [H01L 2224/13891](#)
- U H01L 2224/13899 . . . . . Coating material
- H01L 2224/13993 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/139](#) ~~to~~ [H01L 2224/13991](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/13994 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/139](#) ~~to~~ [H01L 2224/13991](#)
- H01L 2224/13995 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/139](#) ~~to~~ [H01L 2224/13991](#)
- U H01L 2224/26 . . . . . Layer connectors, e.g. plate connectors, solder or adhesive layers; Manufacturing methods related thereto
- U H01L 2224/28 . . . . . Structure, shape, material or disposition of the layer connectors prior to the connecting process
- U H01L 2224/29 . . . . . of an individual layer connector
- U H01L 2224/29001 . . . . . Core members of the layer connector
- U H01L 2224/29099 . . . . . Material
- H01L 2224/29193 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/291](#) ~~to~~ [H01L 2224/29191](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/29194 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/291](#) ~~to~~ [H01L 2224/29191](#)
- H01L 2224/29195 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/291](#) ~~to~~ [H01L 2224/29191](#)
- U H01L 2224/29198 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/29199 . . . . . Material of the matrix
- H01L 2224/29293 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/292](#) ~~to~~ [H01L 2224/29291](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/29294 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/292](#) ~~to~~ [H01L 2224/29291](#)
- H01L 2224/29295 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/292](#) ~~to~~ [H01L 2224/29291](#)
- U H01L 2224/29298 . . . . . Fillers
- U H01L 2224/29299 . . . . . Base material
- H01L 2224/29393 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/293](#) ~~to~~ [H01L 2224/29391](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/29394 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/293](#) ~~to~~ [H01L 2224/29391](#)

- H01L 2224/29395 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/293](#) ~~to~~ [H01L 2224/29391](#)
- U H01L 2224/29399 . . . . . Coating material
- H01L 2224/29493 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/294](#) ~~to~~ [H01L 2224/29491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/29494 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/294](#) ~~to~~ [H01L 2224/29491](#)
- H01L 2224/29495 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/294](#) ~~to~~ [H01L 2224/29491](#)
- U H01L 2224/2954 . . . . . Coating
- U H01L 2224/29599 . . . . . Material
- H01L 2224/29693 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/296](#) ~~to~~ [H01L 2224/29691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/29694 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/296](#) ~~to~~ [H01L 2224/29691](#)
- H01L 2224/29695 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/296](#) ~~to~~ [H01L 2224/29691](#)
- U H01L 2224/29698 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/29699 . . . . . Material of the matrix
- H01L 2224/29793 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/297](#) ~~to~~ [H01L 2224/29791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/29794 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/297](#) ~~to~~ [H01L 2224/29791](#)
- H01L 2224/29795 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/297](#) ~~to~~ [H01L 2224/29791](#)
- U H01L 2224/29798 . . . . . Fillers
- U H01L 2224/29799 . . . . . Base material
- H01L 2224/29893 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/298](#) ~~to~~ [H01L 2224/29891](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/29894 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/298](#) ~~to~~ [H01L 2224/29891](#)
- H01L 2224/29895 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/298](#) ~~to~~ [H01L 2224/29891](#)
- U H01L 2224/29899 . . . . . Coating material
- H01L 2224/29993 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/299](#) ~~to~~ [H01L 2224/29991](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/29994 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/299](#) ~~to~~ [H01L 2224/29991](#)
- H01L 2224/29995 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/299](#) ~~to~~ [H01L 2224/29991](#)

- U H01L 2224/34      . . Strap connectors, e.g. copper straps for grounding power devices; Manufacturing methods related thereto
- U H01L 2224/36      . . . Structure, shape, material or disposition of the strap connectors prior to the connecting process
- U H01L 2224/37      . . . . of an individual strap connector
- U H01L 2224/37001    . . . . . Core members of the connector
- U H01L 2224/37099    . . . . . Material
- H01L 2224/37193    . . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/371](#) ~~to~~ [H01L 2224/37191](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/37194    . . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/371](#) ~~to~~ [H01L 2224/37191](#)
- H01L 2224/37195    . . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/371](#) ~~to~~ [H01L 2224/37191](#)
- U H01L 2224/37198    . . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/37199    . . . . . . . Material of the matrix
- H01L 2224/37293    . . . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/372](#) ~~to~~ [H01L 2224/37291](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/37294    . . . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/372](#) ~~to~~ [H01L 2224/37291](#)
- H01L 2224/37295    . . . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/372](#) ~~to~~ [H01L 2224/37291](#)
- U H01L 2224/37298    . . . . . . . Fillers
- U H01L 2224/37299    . . . . . . . Base material
- H01L 2224/37393    . . . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/373](#) ~~to~~ [H01L 2224/37391](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/37394    . . . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/373](#) ~~to~~ [H01L 2224/37391](#)
- H01L 2224/37395    . . . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/373](#) ~~to~~ [H01L 2224/37391](#)
- U H01L 2224/37399    . . . . . . . Coating material
- H01L 2224/37493    . . . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/374](#) ~~to~~ [H01L 2224/37491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/37494    . . . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/374](#) ~~to~~ [H01L 2224/37491](#)
- H01L 2224/37495    . . . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/374](#) ~~to~~ [H01L 2224/37491](#)
- U H01L 2224/3754    . . . . . Coating
- U H01L 2224/37599    . . . . . Material
- H01L 2224/37693    . . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/376](#) ~~to~~ [H01L 2224/37691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond

- H01L 2224/37694 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/376](#) ~~to~~ [H01L 2224/37691](#)
- H01L 2224/37695 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/376](#) ~~to~~ [H01L 2224/37691](#)
- U H01L 2224/37698 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/37699 . . . . . Material of the matrix
- H01L 2224/37793 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/377](#) ~~to~~ [H01L 2224/37791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/37794 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/377](#) ~~to~~ [H01L 2224/37791](#)
- H01L 2224/37795 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/377](#) ~~to~~ [H01L 2224/37791](#)
- U H01L 2224/37798 . . . . . Fillers
- U H01L 2224/37799 . . . . . Base material
- H01L 2224/37893 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/378](#) ~~to~~ [H01L 2224/37891](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/37894 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/378](#) ~~to~~ [H01L 2224/37891](#)
- H01L 2224/37895 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/378](#) ~~to~~ [H01L 2224/37891](#)
- U H01L 2224/37899 . . . . . Coating material
- H01L 2224/37993 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/379](#) ~~to~~ [H01L 2224/37991](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/37994 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/379](#) ~~to~~ [H01L 2224/37991](#)
- H01L 2224/37995 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/379](#) ~~to~~ [H01L 2224/37991](#)
- U H01L 2224/42 . . . . . Wire connectors; Manufacturing methods related thereto
- U H01L 2224/44 . . . . . Structure, shape, material or disposition of the wire connectors prior to the connecting process
- U H01L 2224/45 . . . . . of an individual wire connector
- U H01L 2224/45001 . . . . . Core members of the connector
- U H01L 2224/45099 . . . . . Material
- H01L 2224/45193 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/451](#) ~~to~~ [H01L 2224/45191](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/45194 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/451](#) ~~to~~ [H01L 2224/45191](#)
- H01L 2224/45195 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/451](#) ~~to~~ [H01L 2224/45191](#)
- U H01L 2224/45198 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams

- U H01L 2224/45199 . . . . . Material of the matrix
- H01L 2224/45293 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/452](#) ~~to~~ [H01L 2224/45291](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/45294 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/452](#) ~~to~~ [H01L 2224/45291](#)
- H01L 2224/45295 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/452](#) ~~to~~ [H01L 2224/45291](#)
- U H01L 2224/45298 . . . . . Fillers
- U H01L 2224/45299 . . . . . Base material
- H01L 2224/45393 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/453](#) ~~to~~ [H01L 2224/45391](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/45394 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/453](#) ~~to~~ [H01L 2224/45391](#)
- H01L 2224/45395 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/453](#) ~~to~~ [H01L 2224/45391](#)
- U H01L 2224/45399 . . . . . Coating material
- H01L 2224/45493 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/454](#) ~~to~~ [H01L 2224/45491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/45494 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/454](#) ~~to~~ [H01L 2224/45491](#)
- H01L 2224/45495 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/454](#) ~~to~~ [H01L 2224/45491](#)
- U H01L 2224/4554 . . . . . Coating
- U H01L 2224/45599 . . . . . Material
- H01L 2224/45693 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/456](#) ~~to~~ [H01L 2224/45691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/45694 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/456](#) ~~to~~ [H01L 2224/45691](#)
- H01L 2224/45695 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/456](#) ~~to~~ [H01L 2224/45691](#)
- U H01L 2224/45698 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/45699 . . . . . Material of the matrix
- H01L 2224/45793 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/457](#) ~~to~~ [H01L 2224/45791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/45794 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/457](#) ~~to~~ [H01L 2224/45791](#)
- H01L 2224/45795 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/457](#) ~~to~~ [H01L 2224/45791](#)
- U H01L 2224/45798 . . . . . Fillers
- U H01L 2224/45799 . . . . . Base material

- H01L 2224/45893 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/458](#) ~~to~~ [H01L 2224/45891](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/45894 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/458](#) ~~to~~ [H01L 2224/45891](#)
- H01L 2224/45895 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/458](#) ~~to~~ [H01L 2224/45891](#)
- U H01L 2224/45899 . . . . . Coating material
- H01L 2224/45993 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/459](#) ~~to~~ [H01L 2224/45991](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/45994 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/459](#) ~~to~~ [H01L 2224/45991](#)
- H01L 2224/45995 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/459](#) ~~to~~ [H01L 2224/45991](#)
- U H01L 2224/47 . . . Structure, shape, material or disposition of the wire connectors after the connecting process
- U H01L 2224/48 . . . . of an individual wire connector
- U H01L 2224/485 . . . . . Material
- U H01L 2224/48505 . . . . . at the bonding interface
- U H01L 2224/48599 . . . . . Principal constituent of the connecting portion of the wire connector being Gold (Au)
- H01L 2224/48693 . . . . . with a principal constituent of the bonding area being a solid not provided for in groups [H01L 2224/486](#) ~~to~~ [H01L 2224/4869](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/48694 . . . . . with a principal constituent of the bonding area being a liquid not provided for in groups [H01L 2224/486](#) ~~to~~ [H01L 2224/4869](#)
- U H01L 2224/48699 . . . . . Principal constituent of the connecting portion of the wire connector being Aluminium (Al)
- H01L 2224/48793 . . . . . with a principal constituent of the bonding area being a solid not provided for in groups [H01L 2224/487](#) ~~to~~ [H01L 2224/4879](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/48794 . . . . . with a principal constituent of the bonding area being a liquid not provided for in groups [H01L 2224/487](#) ~~to~~ [H01L 2224/4879](#)
- U H01L 2224/48799 . . . . . Principal constituent of the connecting portion of the wire connector being Copper (Cu)
- H01L 2224/48893 . . . . . with a principal constituent of the bonding area being a solid not provided for in groups [H01L 2224/488](#) ~~to~~ [H01L 2224/4889](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/48894 . . . . . with a principal constituent of the bonding area being a liquid not provided for in groups [H01L 2224/488](#) ~~to~~ [H01L 2224/4889](#)
- H01L 2224/63 . . . Connectors not provided for in any of the groups [H01L 2224/10](#) ~~to~~ [H01L 2224/50](#) and subgroups; Manufacturing methods related thereto
- U H01L 2224/80 . . . Methods for connecting semiconductor or other solid state bodies using means for bonding being attached to, or being formed on, the surface to be connected

- U H01L 2224/80001 . . . by connecting a bonding area directly to another bonding area, i.e. connectorless bonding, e.g. bumpless bonding
- U H01L 2224/80009 . . . Pre-treatment of the bonding area
- U H01L 2224/8001 . . . . Cleaning the bonding area, e.g. oxide removal step, desmearing
- H01L 2224/80019 . . . . . Combinations of two or more cleaning methods provided for in at least two different groups from [H01L 2224/8001](#) to- [H01L 2224/80014](#)
- U H01L 2224/8038 . . . Bonding interfaces outside the semiconductor or solid-state body
- U H01L 2224/80399 . . . . Material
- H01L 2224/80493 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/804](#) to- [H01L 2224/80491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/80494 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/804](#) to- [H01L 2224/80491](#)
- H01L 2224/80495 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/804](#) to- [H01L 2224/80491](#)
- U H01L 2224/80498 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/80499 . . . . . Material of the matrix
- H01L 2224/80593 . . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/805](#) to- [H01L 2224/80591](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/80594 . . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/805](#) to- [H01L 2224/80591](#)
- H01L 2224/80595 . . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/805](#) to- [H01L 2224/80591](#)
- U H01L 2224/80598 . . . . . . Fillers
- U H01L 2224/80599 . . . . . . Base material
- H01L 2224/80693 . . . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/806](#) to- [H01L 2224/80691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/80694 . . . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/806](#) to- [H01L 2224/80691](#)
- H01L 2224/80695 . . . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/806](#) to- [H01L 2224/80691](#)
- U H01L 2224/80699 . . . . . . . Coating material
- H01L 2224/80793 . . . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/807](#) to- [H01L 2224/80791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/80794 . . . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/807](#) to- [H01L 2224/80791](#)
- H01L 2224/80795 . . . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/807](#) to- [H01L 2224/80791](#)
- U H01L 2224/808 . . . Bonding techniques
- U H01L 2224/8085 . . . . using a polymer adhesive, e.g. an adhesive based on silicone, epoxy, polyimide, polyester

- H01L 2224/80885 . . . . Combinations of two or more hardening methods provided for in at least two different groups from [H01L 2224/80855](#) ~~to~~ [H01L 2224/8088](#), e.g. for hybrid thermoplastic-thermosetting adhesives
- H01L 2224/80905 . . . Combinations of bonding methods provided for in at least two different groups from [H01L 2224/808](#) ~~to~~ [H01L 2224/80904](#)
- U H01L 2224/80909 . . . Post-treatment of the bonding area
- U H01L 2224/8091 . . . . Cleaning, e.g. oxide removal step, desmearing
- H01L 2224/80919 . . . . Combinations of two or more cleaning methods provided for in at least two different groups from [H01L 2224/8091](#) ~~to~~ [H01L 2224/80914](#)
- U H01L 2224/81 . . . using a bump connector
- U H01L 2224/81009 . . . Pre-treatment of the bump connector or the bonding area
- U H01L 2224/8101 . . . . Cleaning the bump connector, e.g. oxide removal step, desmearing
- H01L 2224/81019 . . . . Combinations of two or more cleaning methods provided for in at least two different groups from [H01L 2224/8101](#) ~~to~~ [H01L 2224/81014](#)
- U H01L 2224/8138 . . . Bonding interfaces outside the semiconductor or solid-state body
- U H01L 2224/81399 . . . . Material
- H01L 2224/81493 . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/814](#) ~~to~~ [H01L 2224/81491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/81494 . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/814](#) ~~to~~ [H01L 2224/81491](#)
- H01L 2224/81495 . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/814](#) ~~to~~ [H01L 2224/81491](#)
- U H01L 2224/81498 . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/81499 . . . . . Material of the matrix
- H01L 2224/81593 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/815](#) ~~to~~ [H01L 2224/81591](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/81594 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/815](#) ~~to~~ [H01L 2224/81591](#)
- H01L 2224/81595 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/815](#) ~~to~~ [H01L 2224/81591](#)
- U H01L 2224/81598 . . . . . Fillers
- U H01L 2224/81599 . . . . . Base material
- H01L 2224/81693 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/816](#) ~~to~~ [H01L 2224/81691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/81694 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/816](#) ~~to~~ [H01L 2224/81691](#)
- H01L 2224/81695 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/816](#) ~~to~~ [H01L 2224/81691](#)
- U H01L 2224/81699 . . . . . Coating material
- H01L 2224/81793 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/817](#) ~~to~~ [H01L 2224/81791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond

- H01L 2224/81794 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/817](#) ~~to~~ [H01L 2224/81791](#)
- H01L 2224/81795 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/817](#) ~~to~~ [H01L 2224/81791](#)
- U H01L 2224/818 . . . Bonding techniques
- U H01L 2224/8185 . . . . using a polymer adhesive, e.g. an adhesive based on silicone, epoxy, polyimide, polyester
- H01L 2224/81885 . . . . . Combinations of two or more hardening methods provided for in at least two different groups from [H01L 2224/81855](#) ~~to~~ [H01L 2224/8188](#), e.g. for hybrid thermoplastic-thermosetting adhesives
- H01L 2224/81905 . . . Combinations of bonding methods provided for in at least two different groups from [H01L 2224/818](#) ~~to~~ [H01L 2224/81904](#)
- U H01L 2224/81909 . . . Post-treatment of the bump connector or bonding area
- U H01L 2224/8191 . . . . Cleaning, e.g. oxide removal step, desmearing
- H01L 2224/81919 . . . . . Combinations of two or more cleaning methods provided for in at least two different groups from [H01L 2224/8191](#) ~~to~~ [H01L 2224/81914](#)
- U H01L 2224/82 . . . by forming build-up interconnects at chip-level, e.g. for high density interconnects [HDI]
- U H01L 2224/828 . . . Bonding techniques
- U H01L 2224/8285 . . . . using a polymer adhesive, e.g. an adhesive based on silicone, epoxy, polyimide, polyester
- H01L 2224/82885 . . . . . Combinations of two or more hardening methods provided for in at least two different groups from [H01L 2224/82855](#) ~~to~~ [H01L 2224/8288](#), e.g. for hybrid thermoplastic-thermosetting adhesives
- H01L 2224/82899 . . . . . Combinations of bonding methods provided for in at least two different groups from [H01L 2224/828](#) ~~to~~ [H01L 2224/82897](#)
- U H01L 2224/83 . . . using a layer connector
- U H01L 2224/83009 . . . Pre-treatment of the layer connector or the bonding area
- U H01L 2224/8301 . . . . Cleaning the layer connector, e.g. oxide removal step, desmearing
- H01L 2224/83019 . . . . . Combinations of two or more cleaning methods provided for in at least two different groups from [H01L 2224/8301](#) ~~to~~ [H01L 2224/83014](#)
- U H01L 2224/8338 . . . Bonding interfaces outside the semiconductor or solid-state body
- U H01L 2224/83399 . . . . Material
- H01L 2224/83493 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/834](#) ~~to~~ [H01L 2224/83491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/83494 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/834](#) ~~to~~ [H01L 2224/83491](#)
- H01L 2224/83495 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/834](#) ~~to~~ [H01L 2224/83491](#)
- U H01L 2224/83498 . . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/83499 . . . . . Material of the matrix
- H01L 2224/83593 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/835](#) ~~to~~ [H01L 2224/83591](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/83594 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/835](#) ~~to~~ [H01L 2224/83591](#)

	H01L 2224/83595	. . . . . with a principal constituent of the material being a gas not provided for in groups <a href="#">H01L 2224/835</a> <del>to</del> <a href="#">H01L 2224/83591</a>
U	H01L 2224/83598	. . . . . Fillers
U	H01L 2224/83599	. . . . . Base material
	H01L 2224/83693	. . . . . with a principal constituent of the material being a solid not provided for in groups <a href="#">H01L 2224/836</a> <del>to</del> <a href="#">H01L 2224/83691</a> , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
	H01L 2224/83694	. . . . . with a principal constituent of the material being a liquid not provided for in groups <a href="#">H01L 2224/836</a> <del>to</del> <a href="#">H01L 2224/83691</a>
	H01L 2224/83695	. . . . . with a principal constituent of the material being a gas not provided for in groups <a href="#">H01L 2224/836</a> <del>to</del> <a href="#">H01L 2224/83691</a>
U	H01L 2224/83699	. . . . . Coating material
	H01L 2224/83793	. . . . . with a principal constituent of the material being a solid not provided for in groups <a href="#">H01L 2224/837</a> <del>to</del> <a href="#">H01L 2224/83791</a> , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
	H01L 2224/83794	. . . . . with a principal constituent of the material being a liquid not provided for in groups <a href="#">H01L 2224/837</a> <del>to</del> <a href="#">H01L 2224/83791</a>
	H01L 2224/83795	. . . . . with a principal constituent of the material being a gas not provided for in groups <a href="#">H01L 2224/837</a> <del>to</del> <a href="#">H01L 2224/83791</a>
U	H01L 2224/838	. . . Bonding techniques
U	H01L 2224/8385	. . . using a polymer adhesive, e.g. an adhesive based on silicone, epoxy, polyimide, polyester
	H01L 2224/83885	. . . . Combinations of two or more hardening methods provided for in at least two different groups from <a href="#">H01L 2224/83855</a> <del>to</del> <a href="#">H01L 2224/8388</a> , e.g. for hybrid thermoplastic-thermosetting adhesives
	H01L 2224/83905	. . . Combinations of bonding methods provided for in at least two different groups from <a href="#">H01L 2224/838</a> <del>to</del> <a href="#">H01L 2224/83904</a>
U	H01L 2224/83909	. . . Post-treatment of the layer connector or bonding area
U	H01L 2224/8391	. . . . Cleaning, e.g. oxide removal step, desmearing
	H01L 2224/83919	. . . . Combinations of two or more cleaning methods provided for in at least two different groups from <a href="#">H01L 2224/8391</a> <del>to</del> <a href="#">H01L 2224/83914</a>
U	H01L 2224/84	. . using a strap connector
U	H01L 2224/84009	. . . Pre-treatment of the connector and/or the bonding area
U	H01L 2224/8401	. . . . Cleaning, e.g. oxide removal step, desmearing
	H01L 2224/84019	. . . . Combinations of two or more cleaning methods provided for in at least two different groups from <a href="#">H01L 2224/8401</a> <del>to</del> <a href="#">H01L 2224/84014</a>
U	H01L 2224/8438	. . . Bonding interfaces outside the semiconductor or solid-state body
U	H01L 2224/84399	. . . . Material
	H01L 2224/84493	. . . . with a principal constituent of the material being a solid not provided for in groups <a href="#">H01L 2224/844</a> <del>to</del> <a href="#">H01L 2224/84491</a> , e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
	H01L 2224/84494	. . . . with a principal constituent of the material being a liquid not provided for in groups <a href="#">H01L 2224/844</a> <del>to</del> <a href="#">H01L 2224/84491</a>
	H01L 2224/84495	. . . . with a principal constituent of the material being a gas not provided for in groups <a href="#">H01L 2224/844</a> <del>to</del> <a href="#">H01L 2224/84491</a>
U	H01L 2224/84498	. . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams

- U H01L 2224/84499 . . . . . Material of the matrix
- H01L 2224/84593 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/845](#) ~~to~~ [H01L 2224/84591](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/84594 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/845](#) ~~to~~ [H01L 2224/84591](#)
- H01L 2224/84595 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/845](#) ~~to~~ [H01L 2224/84591](#)
- U H01L 2224/84598 . . . . . Fillers
- U H01L 2224/84599 . . . . . Base material
- H01L 2224/84693 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/846](#) ~~to~~ [H01L 2224/84691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/84694 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/846](#) ~~to~~ [H01L 2224/84691](#)
- H01L 2224/84695 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/846](#) ~~to~~ [H01L 2224/84691](#)
- U H01L 2224/84699 . . . . . Coating material
- H01L 2224/84793 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/847](#) ~~to~~ [H01L 2224/84791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/84794 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/847](#) ~~to~~ [H01L 2224/84791](#)
- H01L 2224/84795 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/847](#) ~~to~~ [H01L 2224/84791](#)
- U H01L 2224/848 . . . Bonding techniques
- U H01L 2224/8485 . . . . using a polymer adhesive, e.g. an adhesive based on silicone, epoxy, polyimide, polyester
- H01L 2224/84885 . . . . . Combinations of two or more hardening methods provided for in at least two different groups from [H01L 2224/84855](#) ~~to~~ [H01L 2224/8488](#), e.g. for hybrid thermoplastic-thermosetting adhesives
- H01L 2224/84899 . . . . . Combinations of bonding methods provided for in at least two different groups from [H01L 2224/848](#) ~~to~~ [H01L 2224/84898](#)
- U H01L 2224/84909 . . . Post-treatment of the connector or bonding area
- U H01L 2224/8491 . . . . Cleaning, e.g. oxide removal step, desmearing
- H01L 2224/84919 . . . . . Combinations of two or more cleaning methods provided for in at least two different groups from [H01L 2224/8491](#) ~~to~~ [H01L 2224/84914](#)
- U H01L 2224/85 . . . using a wire connector
- U H01L 2224/85009 . . . Pre-treatment of the connector or the bonding area
- U H01L 2224/8501 . . . . Cleaning, e.g. oxide removal step, desmearing
- H01L 2224/85019 . . . . . Combinations of two or more cleaning methods provided for in at least two different groups from [H01L 2224/8501](#) ~~to~~ [H01L 2224/85014](#)
- U H01L 2224/8538 . . . Bonding interfaces outside the semiconductor or solid-state body
- U H01L 2224/85399 . . . . Material
- H01L 2224/85493 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/854](#) ~~to~~ [H01L 2224/85491](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond

- H01L 2224/85494 . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/854](#) ~~to~~ [H01L 2224/85491](#)
- H01L 2224/85495 . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/854](#) ~~to~~ [H01L 2224/85491](#)
- U H01L 2224/85498 . . . . with a principal constituent of the material being a combination of two or more materials in the form of a matrix with a filler, i.e. being a hybrid material, e.g. segmented structures, foams
- U H01L 2224/85499 . . . . . Material of the matrix
- H01L 2224/85593 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/855](#) ~~to~~ [H01L 2224/85591](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/85594 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/855](#) ~~to~~ [H01L 2224/85591](#)
- H01L 2224/85595 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/855](#) ~~to~~ [H01L 2224/85591](#)
- U H01L 2224/85598 . . . . . Fillers
- U H01L 2224/85599 . . . . . Base material
- H01L 2224/85693 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/856](#) ~~to~~ [H01L 2224/85691](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/85694 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/856](#) ~~to~~ [H01L 2224/85691](#)
- H01L 2224/85695 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/856](#) ~~to~~ [H01L 2224/85691](#)
- U H01L 2224/85699 . . . . . Coating material
- H01L 2224/85793 . . . . . with a principal constituent of the material being a solid not provided for in groups [H01L 2224/857](#) ~~to~~ [H01L 2224/85791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- H01L 2224/85794 . . . . . with a principal constituent of the material being a liquid not provided for in groups [H01L 2224/857](#) ~~to~~ [H01L 2224/85791](#)
- H01L 2224/85795 . . . . . with a principal constituent of the material being a gas not provided for in groups [H01L 2224/857](#) ~~to~~ [H01L 2224/85791](#)
- U H01L 2224/858 . . . Bonding techniques
- U H01L 2224/8585 . . . . using a polymer adhesive, e.g. an adhesive based on silicone, epoxy, polyimide, polyester
- H01L 2224/85885 . . . . . Combinations of two or more hardening methods provided for in at least two different groups from [H01L 2224/85855](#) ~~to~~ [H01L 2224/8588](#), e.g. for hybrid thermoplastic-thermosetting adhesives
- H01L 2224/85899 . . . . . Combinations of bonding methods provided for in at least two different groups from [H01L 2224/858](#) ~~to~~ [H01L 2224/85898](#)
- U H01L 2224/85909 . . . Post-treatment of the connector or wire bonding area
- U H01L 2224/8591 . . . . Cleaning, e.g. oxide removal step, desmearing
- H01L 2224/85919 . . . . . Combinations of two or more cleaning methods provided for in at least two different groups from [H01L 2224/8591](#) ~~to~~ [H01L 2224/85914](#)
- U H01L 2224/86 . . . using tape automated bonding [TAB]
- U H01L 2224/868 . . . Bonding techniques
- U H01L 2224/8685 . . . . using a polymer adhesive, e.g. an adhesive based on silicone, epoxy, polyimide, polyester

- H01L 2224/86885 . . . . Combinations of two or more hardening methods provided for in at least two different groups selected from [H01L 2224/86855](#) ~~to~~ [H01L 2224/8688](#), e.g. hybrid thermoplastic-thermosetting adhesives
- H01L 2224/86899 . . . . Combinations of bonding methods provided for in at least two different groups from [H01L 2224/868](#) ~~to~~ [H01L 2224/86897](#)
- H01L 2224/89 . . . . using at least one connector not provided for in any of the groups [H01L 2224/81](#) ~~to~~ [H01L 2224/86](#)
- H01L 2224/91 . . . . Methods for connecting semiconductor or solid state bodies including different methods provided for in two or more of groups [H01L 2224/80](#) ~~to~~ [H01L 2224/90](#)
- U H01L 2225/00** **Details relating to assemblies covered by the group [H01L 25/00](#) but not provided for in its subgroups**
- H01L 2225/03 . . . . All the devices being of a type provided for in the same subgroup of groups [H01L 27/00](#) ~~to~~ [H01L 51/00](#)
- U H01L 2924/00** **Indexing scheme for arrangements or methods for connecting or disconnecting semiconductor or solid-state bodies as covered by [H01L 24/00](#)**
- H01L 2924/0001 . . . . Technical content checked by a classifier
- NOTE  
Codes [H01L 2924/0001](#) ~~to~~ [H01L 2924/0002](#) are used to describe the status of reclassification; they do not relate to technical features as such
- U H01L 2924/013 . . . . Alloys
- U H01L 2924/0132 . . . . Binary Alloys
- U H01L 2924/01322 . . . . Eutectic Alloys i.e. obtained by a liquid transforming into two solid phases
- H01L 2924/01323 . . . . Hypoeutectic alloys i.e with compositions lying to the left of the eutectic point:
- H01L 2924/01324 . . . . Hypereutectic alloys i.e with compositions lying to the right of the eutectic point:
- U H01L 2924/042 . . . . Borides composed of metals from groups of the periodic table
- H01L 2924/0449 . . . . being a combination of two or more materials provided in the groups [H01L 2924/0421](#) ~~to~~ [H01L 2924/0446](#)
- U H01L 2924/045 . . . . Carbides composed of metals from groups of the periodic table
- H01L 2924/0469 . . . . being a combination of two or more materials provided in the groups [H01L 2924/0451](#) ~~to~~ [H01L 2924/0466](#)
- U H01L 2924/047 . . . . Silicides composed of metals from groups of the periodic table
- H01L 2924/0489 . . . . being a combination of two or more materials provided in the groups [H01L 2924/0471](#) ~~to~~ [H01L 2924/0486](#)
- U H01L 2924/049 . . . . Nitrides composed of metals from groups of the periodic table
- H01L 2924/0509 . . . . being a combination of two or more materials provided in the groups [H01L 2924/0491](#) ~~to~~ [H01L 2924/0506](#)
- U H01L 2924/051 . . . . Phosphides composed of metals from groups of the periodic table
- H01L 2924/0529 . . . . being a combination of two or more materials provided in the groups [H01L 2924/0511](#) ~~to~~ [H01L 2924/0526](#)
- U H01L 2924/053 . . . . Oxides composed of metals from groups of the periodic table
- H01L 2924/0549 . . . . being a combination of two or more materials provided in the groups [H01L 2924/0531](#) ~~to~~ [H01L 2924/0546](#)
- U H01L 2924/055 . . . . Chalcogenides other than oxygen i.e.sulfides, selenides and tellurides composed of metals from groups of the periodic table

- H01L 2924/0569
  - • being a combination of two or more materials provided in the groups [H01L 2924/0551](#) to- [H01L 2924/0566](#)
- U H01L 2924/057
  - Halides composed of metals from groups of the periodic table
- H01L 2924/0589
  - • being a combination of two or more materials provided in the groups [H01L 2924/0571](#) to- [H01L 2924/0586](#)
- H01L 2924/059
  - Being combinations of any of the materials from the groups [H01L 2924/042](#) to- [H01L 2924/0584](#) e.g. oxynitrides
- H01L 2924/095
  - with a principal constituent of the material being a combination of two or more materials provided in the groups [H01L 2924/013](#) to- [H01L 2924/0715](#)
- U H01L 2924/10
  - Details of semiconductor or other solid state devices to be connected
- U H01L 2924/11
  - • Device type
- U H01L 2924/13
  - • • Discrete devices, e.g. 3 terminal devices
- U H01L 2924/1301
  - • • • Thyristor
- H01L 2924/13026
  - • • • • MCT - MOSFET Controlled Thyristor - It contains two additional FET structures for on/off control.
- H01L 2924/13032
  - • • • • SiTh - Static Induction Thyristor, or FCTh - Field Controlled Thyristor - containing a gate structure that can shut down anode current flow.
- U H01L 2924/1304
  - • • • Transistor
- U H01L 2924/1306
  - • • • • Field-effect transistor [FET]
- H01L 2924/13067
  - • • • • FinFET, source/drain region shapes fins on the silicon surface.
- U H01L 2924/15
  - Details of package parts other than the semiconductor or other solid state devices to be connected
- U H01L 2924/151
  - • Die mounting substrate
- U H01L 2924/156
  - • • Material
- H01L 2924/15793
  - • • • with a principal constituent of the material being a solid not provided for in groups [H01L 2924/157](#) to- [H01L 2924/15791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- U H01L 2924/161
  - • Cap
- U H01L 2924/1615
  - • • Shape
- U H01L 2924/16152
  - • • • Cap comprising a cavity for hosting the device, e.g. U-shaped cap
- U H01L 2924/1617
  - • • • • Cavity coating
- U H01L 2924/16171
  - • • • • • Material
- H01L 2924/16178
  - • • • • • with a principal constituent of the material being a solid not provided for in groups [H01L 2924/157](#) to- [H01L 2924/15791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- U H01L 2924/163
  - • • Connection portion e.g. seal
- U H01L 2924/164
  - • • • Material
- H01L 2924/16593
  - • • • • with a principal constituent of the material being a solid not provided for in groups [H01L 2924/157](#) to- [H01L 2924/15791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- U H01L 2924/166
  - • • Material
- H01L 2924/16793
  - • • • with a principal constituent of the material being a solid not provided for in groups [H01L 2924/167](#) to- [H01L 2924/16791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond
- U H01L 2924/171
  - • Frame
- U H01L 2924/176
  - • • Material

H01L 2924/17793

- • • with a principal constituent of the material being a solid not provided for in groups [H01L 2924/177](#) ~~to~~ [H01L 2924/17791](#), e.g. allotropes of carbon, fullerene, graphite, carbon-nanotubes, diamond

**Project: N/A (H01M)****U H01M 2/00****Constructional details or processes of manufacture of the non-active parts**

U H01M 2/02

- Cases, jackets or wrappings (working of plastics or substances in plastic state [B29](#))

U H01M 2/0202

- • {for small-sized cells or batteries, e.g. miniature battery or power cells, batteries or cells for portable equipment ([H01M 2/025](#) takes precedence)}

H01M 2002/0205

- • • {Cases with a shape not covered by groups [H01M 2/0207](#) ~~to~~ [H01M 2/0235](#)}

**Project: N/A (H01P)****U H01P 1/00****Auxiliary devices (coupling devices of the waveguide type [H01P 5/00](#))**

H01P 1/32

- Non-reciprocal transmission devices ([H01P 1/02](#) ~~to~~ [H01P 1/30](#) take precedence)

**Project: N/A (H01Q)****U H01Q 1/00****Details of, or arrangements associated with, aerials (arrangements for varying orientation of directional pattern [H01Q 3/00](#))****NOTES**

1. This group covers only:
  - structural details or features of aerials not dependent on electric operation;
  - structural details or features applicable to more than one type of aerial or aerial element.
2. Structural details or features described with reference to, or clearly applicable only to, aerials or aerial elements of a particular type are classified in the group appropriate to that type.

H01Q 1/44

- using equipment having another main function to serve additionally as an aerial; {Means for giving an aerial anaesthetic aspect} ([H01Q 1/28](#) ~~to~~ [H01Q 1/34](#) take precedence)

**Project: N/A (H01R)****U H01R 4/00****Electrically-conductive connections between two or more conductive members in direct contact and means for effecting or maintaining such contact (details of disengageable contacts of two-part coupling devices [H01R 13/00](#); two-part coupling devices [H01R 12/70](#), [H01R 24/00](#) - [H01R 33/00](#); flexible or turnable line connectors [H01R 35/00](#); non rotary current collectors [H01R 41/00](#))**

U H01R 4/02

- Soldered or welded connections {([H01R 4/625](#), [H01R 4/723](#), [H01R 12/59](#) take precedence)}

H01R 4/029

- • {Welded connections ([H01R 4/021](#) ~~to~~ [H01R 4/028](#) take precedence)}

**U H01R 13/00****Details of coupling devices of the kinds covered by groups [H01R 12/70](#) or [H01R 24/00](#)-[H01R 33/00](#) {(electro-optical connectors [G02B 6/24](#))}**

U H01R 13/66

- Structural association with built-in electrical component (Coupling devices having concentrically or coaxially-arranged contacts [H01R 24/38](#)-[H01R 24/56](#))

U H01R 13/665

- • {with built-in electronic circuit ([H01R 13/70](#), [H01R 13/719](#) take precedence)}

- H01R 13/6658
- • • {on printed circuit board ([H01R 13/6666](#) ~~to~~ [H01R 13/6691](#) take precedence)}

WARNING

This group is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group is being continuously reclassified to [H01R 13/6466](#) and [H01R 13/6469](#)

H01R 24/00

**Two-part coupling devices, or either of their cooperating parts, characterised by their overall structure (specially adapted for printed circuits, flat or ribbon cables, or like structures [H01R 12/00](#); specially adapted for supporting apparatus [H01R 33/00](#))**

NOTE

In this group, it is desirable to add the indexing codes of groups [H01R 2101/00](#) ~~to~~ [H01R 2107/00](#)

WARNING

This group and its subgroups are not complete pending reclassification; see also groups [H01R 2201/16](#), [H01R 2201/16](#) and their respective subgroups, and [H01R 23/00](#), [H01R 23/26](#), [H01R 23/27](#)

U H01R 43/00

**Apparatus or processes specially adapted for manufacturing, assembling, maintaining, or repairing of line connectors or current connectors or for joining electric conductors (of trolley lines [B60M 1/28](#); joining cables [H02G 1/14](#))**

H01R 43/28

- for wire processing before connecting to contact members ([H01R 43/02](#) ~~to~~ [H01R 43/26](#) take precedence)

**Project: N/A (H01S)**

U H01S 3/00

**Lasers, i.e. devices for generation, amplification, modulation, demodulation, or frequency-changing, using stimulated emission, of infra-red, visible, or ultra-violet waves ({stimulated Brillouin or Raman effects [H01S 3/30](#)} ; semiconductor lasers [H01S 5/00](#))**

H01S 3/0007

- {Applications not otherwise provided for (working metals or other materials by laser beam [B23K 26/00](#); using photons to produce a reactive propulsive thrust [F03H 3/00](#); optical recording of measured values in general [G01D 15/14](#); optics in general [G02B](#); holographic processes or apparatus [G03H](#); optical marking or sensing of data record carriers [G06K 7/10](#) ~~to~~ [G06K 7/14](#), [G06K 15/12](#); injection heating of plasma by laser [H05H 1/22](#); acceleration of neutral particles by electromagnetic wave pressure [H05H 3/04](#))}

U H01S 3/09

- Processes or apparatus for excitation, e.g. pumping

U H01S 3/091

- • using optical pumping

H01S 3/094

- • • by coherent light

NOTE

Groups [H01S 3/094003](#) ~~to~~ [H01S 3/094088](#) take precedence over groups [H01S 3/0941](#) ~~to~~ [H01S 3/0947](#)

H01S 3/10

- Controlling the intensity, frequency, phase, polarisation or direction of the emitted radiation, e.g. switching, gating, modulating or demodulating (mode locking {[H01S 3/1106](#)}; controlling of light beams, frequency-changing, non-linear optics, optical logic elements, in general [G02F](#))

NOTE

Group [H01S 3/10007](#) takes precedence over groups [H01S 3/102](#) ~~to~~ [H01S 3/104](#)

- H01S 3/13
- Stabilisation of laser output parameters, e.g. frequency, amplitude

NOTE

Group [H01S 3/1301](#) takes precedence over groups [H01S 3/131](#) ~~to~~ [H01S 3/134](#)

- H01S 3/23
- Arrangements of two or more lasers not provided for in groups [H01S 3/02](#) ~~to~~ [H01S 3/22](#), e.g. tandem arrangements of separate active media

**U H01S 5/00 Semiconductor lasers {(superluminescent diodes [H01L 33/0045](#))}**

- H01S 5/40
- Arrangement of two or more semiconductor lasers, not provided for in groups [H01S 5/02](#) ~~to~~ [H01S 5/30](#) ([H01S 5/50](#) takes precedence)

- H01S 5/50
- Amplifier structures not provided for in groups [H01S 5/02](#) ~~to~~ [H01S 5/30](#) (as repeaters in transmission systems [H04B 10/291](#))

**Project: N/A (H01T)**

- H01T 14/00
- Spark gaps not provided for in groups [H01T 2/00](#) ~~to~~ [H01T 13/00](#) (devices providing for corona discharge [H01T 19/00](#))**

**Project: N/A (H02B)****U H02B 1/00 Frameworks, boards, panels, desks, casings; Details of substations or switching arrangements**

- H02B 1/24
- Circuit arrangements for boards or switchyards (devices for displaying diagrams [H02B 15/00](#); service supply [H02J 11/00](#))

NOTE

In groups [H02B 1/26](#) ~~to~~ [H02B 1/56](#), in the absence of an indication to the contrary, an invention is classified in the last appropriate place.

**Project: N/A (H02J)**

- H02J 15/00
- Systems for storing electric energy (mechanical systems therefor [F01](#) ~~to~~ [F04](#); in chemical form [H01M](#))**

**Project: N/A (H02K)****U H02K 7/00 Arrangements for handling mechanical energy structurally associated with the machine, e.g. structural association with mechanical driving motor or auxiliary dynamo-electric machine**

- H02K 7/10
- Structural association with clutches, brakes, gears, pulleys, mechanical starters

NOTE

Group [H02K 7/12](#) takes precedence over groups [H02K 7/102](#) ~~to~~ [H02K 7/118](#)

**U H02K 16/00 Machines with more than one rotor or stator {(machines for transmitting mechanical power from a driving shaft to a driven shaft and comprising structurally interrelated motor and generator parts [H02K 51/00](#); permanent magnet machines with multiple rotors or stators relatively rotated for vectorially combining the excitation fields or the armature voltages [H02K 21/029](#))}**

- H02K 16/04
- Machines with one rotor and stators

NOTE

Group [H02K 16/00](#) takes precedence over groups [H02K 17/00](#) ~~to~~ [H02K 53/00](#).

- U H02K 21/00** Synchronous motors having permanent magnet; Synchronous generators having permanent magnet (stator cores with permanent magnets [H02K 1/17](#); rotor cores with permanent magnets [H02K 1/27](#))
- U H02K 21/12  
H02K 21/125
- with stationary armature and rotating magnet
  - {having an annular armature coil ([H02K 21/14](#) ~~to~~ [H02K 21/24](#) take precedence)}
- H02K 57/00** Dynamo-electric machines not provided for in groups [H02K 17/00](#) ~~to~~ [H02K 55/00](#)

**Project: N/A (H02M)**

- U H02M 7/00** Conversion of ac power input into dc power output; Conversion of dc power input into ac power output
- U H02M 7/42  
U H02M 7/44  
U H02M 7/48
- Conversion of dc power input into ac power output without possibility of reversal
  - · by static converters
  - · · using discharge tubes with control electrode or semiconductor devices with control electrode
- U H02M 7/505
- · · · using devices of a thyratron or thyristor type requiring extinguishing means {([H02M 7/4807](#), [H02M 7/483](#), [H02M 7/493](#) and [H02M 7/4826](#) take precedence)}
- U H02M 7/515  
H02M 7/525
- · · · · using semiconductor devices only
  - · · · · · with automatic control of output waveform or frequency ([H02M 7/517](#) ~~to~~ [H02M 7/523](#) take precedence)
- U H02M 7/53
- · · · using devices of a triode or transistor type requiring continuous application of a control signal {([H02M 7/4807](#), [H02M 7/493](#) and [H02M 7/4826](#) take precedence)}
- U H02M 7/537  
H02M 7/539
- · · · · using semiconductor devices only, e.g. single switched pulse inverters
  - · · · · · with automatic control of output wave form or frequency ([H02M 7/5375](#) ~~to~~ [H02M 7/5387](#) take precedence)

**Project: N/A (H02N)**

- U H02N 1/00** Electrostatic generators or motors using a solid moving electrostatic charge carrier
- U H02N 1/06  
U H02N 1/10  
H02N 1/12
- Influence generators
  - · with non-conductive charge carrier
  - · · in the form of a ~~conveyer~~[conveyor](#) belt, e.g. van de Graaff machine
- U H02N 2/00** Electric machines in general using piezo-electric effect, electrostriction or magnetostriction (generating mechanical vibrations in general [B06B](#); piezo-electric, electrostrictive or magnetostrictive devices in general [H01L 41/00](#))
- WARNING  
This group is not complete pending reorganisation; see provisionally also [H01L 41/00](#)
- H02N 2/0005
- {producing non-specific motion; Details common to machines covered by [H02N 2/02](#) ~~to~~ [H02N 2/16](#)}

## H02N 15/00

Holding or levitation devices using magnetic attraction or repulsion, not otherwise provided for (electric or magnetic devices for holding work on machine tools [B23Q 3/15](#); {monorail vehicle propulsion or suspension [B60L 13/00](#)}; sliding or levitation devices for railway systems [B61B 13/08](#); material handling devices associated with ~~conveyers~~[conveyors](#) incorporating devices with electrostatic or magnetic grippers [B65G 47/92](#); separating thin or filamentary articles from piles using magnetic force [B65H 3/16](#); delivering thin or filamentary articles from magnetic holders by air blast or suction [B65H 29/24](#); bearings using magnetic or electric supporting means [F16C 32/04](#); relieving bearing loads using magnetic means [F16C 39/06](#); magnets [H01F 7/00](#); dynamo-electric clutches or brakes [H02K 49/00](#); {electric furnaces with simultaneous levitation and heating [H05B 6/32](#)})

## Project: N/A (H02P)

## U H02P 1/00

Arrangements for starting electric motors or dynamo-electric converters (starting of synchronous motors with electronic commutators except reluctance motors, [H02P 6/20](#), [H02P 6/22](#); starting dynamo-electric motors rotating step by step [H02P 8/04](#); vector control [H02P 21/00](#))

## U H02P 1/16

- for starting dynamo-electric motors or dynamo-electric converters

## H02P 1/24

- • for starting an individual ac commutator motor (starting of ac/dc commutator motors [H02P 1/18](#))

NOTE

Group [H02P 1/029](#) takes precedence over groups [H02P 1/26](#) ~~to~~ [H02P 1/54](#)

## U H02P 8/00

Arrangements for controlling dynamo-electric motors of the kind having motors rotating step by step (vector control [H02P 21/00](#))

## H02P 8/02

- specially adapted for single-phase or bi-pole stepper motors, e.g. watch-motors, clock-motors

NOTE

Groups [H02P 8/005](#) and [H02P 8/02](#) take precedence over groups [H02P 8/04](#) ~~to~~ [H02P 8/42](#)

## U H02P 9/00

Arrangements for controlling electric generators for the purpose of obtaining a desired output (Ward-Leonard arrangements [H02P 7/34](#); vector control [H02P 21/00](#); feeding a network by two or more generators [H02J](#); for charging batteries [H02J 7/14](#))

## H02P 9/48

- Arrangements for obtaining a constant output value at varying speed of the generator, e.g. on vehicle ([H02P 9/04](#) ~~to~~ [H02P 9/46](#) take precedence)

## U H02P 25/00

Arrangements or methods for the control of AC motors characterised by the kind of AC motor or by structural details

NOTE

When classifying in this group, subject matter also relating to groups [H02P 21/00](#), [H02P 23/00](#) or [H02P 27/00](#) is further classified in those groups whenever appropriate.

## U H02P 25/16

- characterised by the circuit arrangement or by the kind of wiring

## U H02P 25/18

- • with arrangements for switching the windings, e.g. with mechanical switches or relays

## H02P 25/184

- • • {wherein the motor speed is changed by switching from a delta to a star, e.g. wye, connection of its windings, or vice versa.}

**H02P 31/00** Arrangements for regulating or controlling electric motors not provided for in groups [H02P 1/00](#) to- [H02P 5/00](#), [H02P 7/00](#) or [H02P 21/00](#) to- [H02P 29/00](#)

### Project: RP0298 (H02S)

**U H02S 10/00** PV power plants; Combinations of PV energy systems with other systems for the generation of electric power

#### WARNING

Groups [H02S 10/10](#) - [H02S 10/40](#) are incomplete pending reclassification of documents from group [H02S 10/00](#).

Until reclassification is complete, groups [H02S 10/00](#) should be considered in order to perform a complete search.

**U H02S 10/10** · including a supplementary source of electric power, e.g. hybrid diesel-PV energy systems (combinations with gas-turbine plants [F02C 6/00](#))

**E H02S 10/12** · · Hybrid wind-PV energy systems

#### WARNING

*Group [H02S 10/12](#) is incomplete pending reclassification of documents from groups [F03D 9/00](#), [F03D 9/001](#), [F03D 9/002](#), [F03D 9/003](#), [F03D 9/005](#), [F03D 9/006](#), [F03D 9/007](#), [F03D 9/008](#), [F03D 9/10](#), [F03D 9/11](#), [F03D 9/13](#), [F03D 9/14](#), [F03D 9/16](#) and [F03D 9/17](#).*

*All groups listed in this Warning should be considered in order to perform a complete search.*

### Project: MP0160 (H02S)

**U H02S 40/00** Components or accessories in combination with PV modules, not provided for in groups [H02S 10/00](#) - [H02S 30/00](#)

#### WARNING

Groups [H02S 40/10](#) - [H02S 40/44](#) are incomplete pending reclassification of documents from groups [H02S 40/00](#), [F24J 2/00](#), [H01L 31/0232](#), [H01L 31/05](#) - [H01L 31/055](#).

Until reclassification is complete, groups [H02S 40/00](#), [F24J 2/00](#), [H01L 31/0232](#) and [H01L 31/05](#) - [H01L 31/055](#) should be considered in order to perform a complete search.

**U H02S 40/30** · Electrical components

**U H02S 40/34** · · comprising specially adapted electrical connection means to be structurally associated with the PV module, e.g. junction boxes

**M H02S 40/345** · · {with cooling means associated with the electrical connection means, e.g. cooling means associated with or applied to the junction box (cooling means for PV cells [H01L 31/052](#), for PV modules [H02S 40/42](#))}

### Project: N/A (H03B)

**U H03B 5/00** Generation of oscillations using amplifier with regenerative feedback from output to input ([H03B 9/00](#), [H03B 15/00](#) take precedence)

**U H03B 5/08** · with frequency-determining element comprising lumped inductance and capacitance

- H03B 5/12
- • active element in amplifier being semiconductor device ([H03B 5/14](#) takes precedence)
- WARNING  
Subgroups [H03B 5/1203](#) ~~to~~ [H03B 5/1296](#) are incomplete pending reclassification; see also the other subgroups of [H03B 5/12](#)
- U H03B 5/30
- with frequency-determining element being electromechanical resonator
- U H03B 5/32
- • being a piezo-electric resonator (selection of piezo-electric material [H01L 41/00](#))
- U H03B 5/36
- • • active element in amplifier being semiconductor device ({[H03B 5/323](#), [H03B 5/326](#)}, [H03B 5/38](#) take precedence)
- H03B 5/362
- • • {the amplifier being a single transistor ([H03B 5/364](#) ~~to~~ [H03B 5/368](#) take precedence)}
- U H03B 9/00**
- Generation of oscillations using transit-time effects {(construction of tube and circuit arrangements not adapted to a particular application [H01J](#); construction of the semiconductor devices [H01L](#))}**
- U H03B 9/12
- using solid state devices, e.g. Gunn-effect devices
- U H03B 9/14
- • and elements comprising distributed inductance and capacitance
- H03B 9/145
- • • {the frequency being determined by a cavity resonator, e.g. a hollow waveguide cavity or a coaxial cavity ([H03B 9/141](#) ~~to~~ [H03B 9/143](#), [H03B 9/147](#), [H03B 9/148](#) take precedence)}
- H03B 9/147
- • • {the frequency being determined by a stripline resonator ([H03B 9/141](#) ~~to~~ [H03B 9/143](#), [H03B 9/148](#) take precedence)}
- H03B 9/148
- • • {the frequency being determined by a dielectric resonator ([H03B 9/141](#) ~~to~~ [H03B 9/143](#) take precedence)}
- H03B 28/00**
- Generation of oscillations by methods not covered by groups [H03B 5/00](#) ~~to~~ [H03B 27/00](#), including modification of the waveform to produce sinusoidal oscillations (analogue function generators for performing computing operations [G06G 7/26](#); use of transformers for conversion of waveform in ac-ac converters [H02M 5/18](#))**

**Project: N/A (H03C)**

H03C

**MODULATION (measuring, testing [G01R](#); masers, lasers [H01S](#); modulators specially adapted for use in the amplifiers [H03F 3/38](#); modulating pulses [H03K 7/00](#); so-called modulators capable only of a switching between predetermined states of amplitude, frequency or phase [H03K 17/00](#), [H04L](#); coding, decoding or code conversion, in general [H03M](#); synchronous modulators specially adapted for colour television [H04N 9/65](#))**

NOTES

1. This subclass covers only modulation, keying, or interruption of sinusoidal oscillations or electromagnetic waves, the modulating signal having any desired waveform.

2. In this subclass, circuits usable both as modulator and demodulator are classified in the group dealing with the type of modulator involved.

WARNING

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following CPC groups :

[H03C 1/38](#) ~~to~~ [H03C 1/44](#) covered by [H03C 1/36](#)

- U H03C 1/00**
- Amplitude modulation ([H03C 5/00](#), [H03C 7/00](#) take precedence)**

- H03C 1/08 · by means of variable impedance element ([H03C 1/28](#) to- [H03C 1/34](#), [H03C 1/46](#) to- [H03C 1/52](#), [H03C 1/62](#) take precedence)
- H03C 1/16 · by means of discharge device having at least three electrodes ([H03C 1/28](#) to- [H03C 1/34](#), [H03C 1/50](#), [H03C 1/52](#), [H03C 1/62](#) take precedence)
- H03C 1/50 · by converting angle modulation to amplitude modulation ([H03C 1/28](#) to- [H03C 1/34](#), [H03C 1/46](#), [H03C 1/48](#) take precedence)
- H03C 1/52 · Modulators in which carrier or one side-band are wholly or partially suppressed ([H03C 1/28](#) to- [H03C 1/34](#), [H03C 1/46](#), [H03C 1/48](#) take precedence)
- H03C 1/62 · Modulators in which amplitude of carrier component in output is dependent upon strength of modulating signal, e.g. no carrier output when no modulating signal is present ([H03C 1/28](#) to- [H03C 1/34](#), [H03C 1/46](#), [H03C 1/48](#) take precedence)

**U H03C 3/00**  
H03C 3/10

**Angle modulation ([H03C 5/00](#), [H03C 7/00](#) take precedence)**

- by means of variable impedance ([H03C 3/30](#) to- [H03C 3/38](#) take precedence)

**Project: N/A (H03D)**

**U H03D 1/00**

**Demodulation of amplitude-modulated oscillations ([H03D 5/00](#), [H03D 9/00](#), [H03D 11/00](#) take precedence)**

- U H03D 1/22 · Homodyne or synchrodyne circuits {(receiver circuits [H04B 1/30](#))}
- H03D 1/229 · · {using at least a two emitter-coupled differential pair of transistors ([H03D 1/2209](#) to- [H03D 1/2281](#) take precedence)}

**U H03D 3/00**

**Demodulation of angle-, {frequency- or phase-} modulated oscillations ([H03D 5/00](#), [H03D 9/00](#), [H03D 11/00](#) take precedence)**

- H03D 3/02 · by detecting phase difference between two signals obtained from input signal ([H03D 3/28](#) to- [H03D 3/32](#) take precedence; {muting in frequency-modulation receivers [H03G 3/28](#)}; limiting arrangements [H03G 11/00](#))
- H03D 3/26 · by means of sloping amplitude/frequency characteristic of tuned or reactive circuit ([H03D 3/28](#) to- [H03D 3/32](#) takes precedence)

**U H03D 7/00**

**Transference of modulation from one carrier to another, e.g. frequency-changing ([H03D 9/00](#), [H03D 11/00](#) take precedence; dielectric amplifiers, magnetic amplifiers, parametric amplifiers used as a frequency-changers [H03F](#))**

- H03D 7/02 · by means of diodes ([H03D 7/14](#) to- [H03D 7/22](#) take precedence)
- H03D 7/06 · by means of discharge tubes having more than two electrodes ([H03D 7/14](#) to- [H03D 7/22](#) take precedence)
- H03D 7/12 · by means of semiconductor devices having more than two electrodes ([H03D 7/14](#) to- [H03D 7/22](#) take precedence)
- U H03D 7/14 · Balanced arrangements
- H03D 7/1425 · · {with transistors}

**WARNING**

Subgroups [H03D 7/1433](#) to- [H03D 7/1491](#) are incomplete pending reclassification; see also this group and its other subgroups

**Project: N/A (H03F)**

**U H03F 1/00**

**Details of amplifiers with only discharge tubes, only semiconductor devices or only unspecified devices as amplifying elements**

- U H03F 1/08
- Modification of amplifiers to reduce detrimental influences of internal impedances of amplifying elements (wide-band amplifiers with inter-stage coupling networks incorporating these impedances [H03F 1/42](#); eliminating transit-time effects in vacuum tubes [H01J 21/34](#))
- H03F 1/083
- H03F 1/34
- {in transistor amplifiers ([H03F 1/10](#) to- [H03F 1/22](#) take precedence)}
  - Negative-feedback-circuit arrangements with or without positive feedback ([H03F 1/02](#) to- [H03F 1/30](#), [H03F 1/38](#) to- [H03F 1/50](#), [H03F 3/50](#) take precedence; {for rejection of common mode signals [H03F 3/45479](#)})
- U H03F 3/00** **Amplifiers with only discharge tubes or only semiconductor devices as amplifying elements**
- H03F 3/005
- {using switched capacitors, e.g. dynamic amplifiers; using switched capacitors as resistors in differential amplifiers ([H03F 3/45](#) takes precedence)}
- NOTE  
Groups [H03F 3/20](#) to- [H03F 3/72](#) take precedence over groups [H03F 3/02](#) to- [H03F 3/195](#)
- WARNING  
Not complete, see also [H03F 1/02](#), [H03F 3/70](#), [H03F 3/72](#)
- H03F 3/20
- Power amplifiers, e.g. Class B amplifiers, Class C amplifiers ([H03F 3/26](#) to- [H03F 3/30](#) take precedence)
- U H03F 3/21
- · with semiconductor devices only {([H03F 3/245](#) takes precedence)}
- U H03F 3/217
- · · Class D power amplifiers; Switching amplifiers
- H03F 3/2171
- · · · {with field-effect devices ([H03F 3/2173](#) to- [H03F 3/2178](#) take precedence)}
- H03F 21/00** **{Amplifiers not covered by groups [H03F 3/00](#) to- [H03F 19/00](#) (dynamo-electric amplifiers [H02K](#))}**
- U H03F 2203/00** **Indexing scheme relating to amplifiers with only discharge tubes or only semiconductor devices as amplifying elements covered by [H03F 3/00](#)**
- U H03F 2203/45
- Indexing scheme relating to differential amplifiers
- H03F 2203/45534
- · the FBC comprising multiple switches and being coupled between the LC and the IC;
- H03F 2203/45536
- · the FBC comprising a switch and being coupled between the LC and the IC;

**Project: N/A (H03H)**

- H03H 2/00** **Networks using elements or techniques not provided for in groups [H03H 3/00](#) to- [H03H 21/00](#)**
- U H03H 7/00** **Multiple-port networks comprising only passive electrical elements as network components (receiver input circuits [H04B 1/18](#); networks simulating a length of communication cable [H04B 3/40](#))**
- U H03H 7/01
- Frequency selective two-port networks
- H03H 7/17
- {Structural details of sub-circuits of frequency selective networks}
- WARNING  
not complete, pending reorganisation, see provisionally also [H03H 7/0107](#), [H03H 7/0123](#) to- [H03H 7/07](#), [H03H 7/09](#) to- [H03H 7/13](#) and [H03H 7/42](#)
- H03H 7/1741
- · · {Comprising typical LC combinations, irrespective of presence and location of additional resistors (when resistors are present, also classify in [H03H 7/06](#) to- [H03H 7/07](#))}
- U H03H 7/42
- Balance/unbalance networks

H03H 7/425	<ul style="list-style-type: none"> <li>• • {Balance-balance networks}</li> </ul> <p><u>WARNING</u> not complete, pending reorganisation, see provisionally also <a href="#">H03H 1/00</a> <del>to-</del> <a href="#">H03H 1/0007</a>, <a href="#">H03H 7/0107</a>, <a href="#">H03H 7/0123</a> <del>to-</del> <a href="#">H03H 7/07</a>, <a href="#">H03H 7/09</a> <del>to-</del> <a href="#">H03H 7/13</a>, <a href="#">H03H 7/42</a> and <a href="#">H03H 7/422</a></p>
H03H 7/427	<ul style="list-style-type: none"> <li>• • • {Common-mode filters (<a href="#">H02J 3/01</a> and <a href="#">H02M 1/126</a> takes precedence)}</li> </ul> <p><u>WARNING</u> not complete, pending reorganisation, see provisionally also <a href="#">H03H 1/00</a> <del>to-</del> <a href="#">H03H 1/0007</a>, <a href="#">H03H 7/0107</a>, <a href="#">H03H 7/0123</a> <del>to-</del> <a href="#">H03H 7/07</a>, <a href="#">H03H 7/09</a> <del>to-</del> <a href="#">H03H 7/13</a> and <a href="#">H03H 7/42</a></p>
<b>U H03H 11/00</b>	<b>Networks using active elements</b>
U H03H 11/02	• Multiple-port networks
U H03H 11/04	• • Frequency selective two-port networks
U H03H 11/0422	• • • {using transconductance amplifiers, e.g. gmC filters}
H03H 11/0427	• • • • {Filters using a single transconductance amplifier; Filters derived from a single transconductor filter, e.g. by element substitution, cascading, parallel connection ( <a href="#">H03H 11/0433</a> <del>to-</del> <a href="#">H03H 11/0472</a> take precedence)}
U H03H 11/12	• • • using amplifiers with feedback ({ <a href="#">H03H 11/0422</a> }, <a href="#">H03H 11/08</a> , <a href="#">H03H 11/10</a> take precedence)
U H03H 11/1217	• • • • {using a plurality of operational amplifiers ( <a href="#">H03H 11/1204</a> takes precedence; parallel-T filters <a href="#">H03H 11/1295</a> )}
H03H 11/1221	• • • • • {Theory; Synthesis ( <a href="#">H03H 11/1226</a> <del>to-</del> <a href="#">H03H 11/1252</a> take precedence)}
U H03H 11/1243	• • • • • {Simulation of ladder networks}
H03H 11/1247	• • • • • • {Leapfrog structures}
	<u>WARNING</u> Not complete, pending reorganisation, see provisionally also <a href="#">H03H 11/1217</a> <del>to-</del> <a href="#">H03H 11/1252</a>
U H03H 11/1252	• • • • • • {Two integrator-loop-filters}
H03H 11/1256	• • • • • • • {Tow-Thomas biquad}
	<u>WARNING</u> Not complete, pending reorganisation, see provisionally also <a href="#">H03H 11/1217</a> <del>to-</del> <a href="#">H03H 11/1252</a>
U H03H 11/126	• • • • • {using a single operational amplifier ( <a href="#">H03H 11/1204</a> takes precedence; parallel-T filters <a href="#">H03H 11/1295</a> )}
H03H 11/1265	• • • • • • {Synthesis ( <a href="#">H03H 11/1269</a> <del>to-</del> <a href="#">H03H 11/1282</a> take precedence)}
H03H 11/1286	• • • • • • • {Sallen-Key biquad}
	<u>WARNING</u> Not complete, pending reorganisation, see provisionally also <a href="#">H03H 11/126</a> <del>to-</del> <a href="#">H03H 11/1282</a>
U H03H 11/46	• One-port networks
U H03H 11/48	• • simulating reactances

- H03H 11/481      . . . {Simulating capacitances}  
WARNING  
 Not complete, pending reorganisation, see provisionally also [H03H 11/48](#)  
~~to~~ [H03H 11/52](#)
- H03H 11/483      . . . {Simulating capacitance multipliers}  
WARNING  
 Not complete, pending reorganisation, see provisionally also [H03H 11/48](#)  
~~to~~ [H03H 11/52](#)
- H03H 11/485      . . . {Simulating inductances using operational amplifiers}  
WARNING  
 Not complete, pending reorganisation, see provisionally also [H03H 11/48](#)  
~~to~~ [H03H 11/52](#)
- H03H 11/486      . . . {Simulating inductances using transconductance amplifiers}  
WARNING  
 Not complete, pending reorganisation, see provisionally also [H03H 11/48](#)  
~~to~~ [H03H 11/52](#)
- H03H 11/488      . . . {Simulating inductances using current conveyors}  
WARNING  
 Not complete, pending reorganisation, see provisionally also [H03H 11/48](#)  
~~to~~ [H03H 11/52](#)
- H03H 11/53      . . {simulating resistances; simulating resistance multipliers}  
WARNING  
 Not complete, pending reorganisation, see provisionally also [H03H 11/48](#) ~~to~~  
[H03H 11/52](#)
- U H03H 17/00      Networks using digital techniques**
- U H03H 17/02      . Frequency selective networks {(digital computers for complex mathematical  
 operations [G06F 17/10](#))}
- H03H 17/0283      . . {Filters characterised by the filter structure ([H03H 17/0202](#), [H03H 17/0219](#) ~~to~~-  
[H03H 17/0248](#) take precedence)}
- U H03H 21/00      Adaptive networks**
- U H03H 21/0012      . {Digital adaptive filters}
- H03H 21/002      . . {Filters with a particular frequency response ([H03H 21/0014](#) ~~to~~-  
[H03H 21/0018](#) take precedence)}

**Project: N/A (H03J)**

- U H03J 1/00      Details of adjusting, driving, indicating, or mechanical control  
 arrangements for resonant circuits in general (machine elements in general  
[F16](#); coupling of knobs to shafts [F16D](#))**
- U H03J 1/06      . Driving or adjusting arrangements; combined with other driving or adjusting  
 arrangements, e.g. of gain control
- H03J 1/066      . . {Constructional details regarding potentiometric setting of voltage or current  
 variable reactances}
- NOTE  
 Groups [H03J 1/14](#), [H03J 1/16](#) take precedence over groups [H03J 1/08](#) ~~to~~-  
[H03J 1/12](#).

**Project: N/A (H03K)**

- U H03K 3/00** **Circuits for generating electric pulses; Monostable, bistable or multistable circuits ([H03K 4/00](#) takes precedence; for digital computers [G06F 1/025](#), {[G06F 1/04](#)})**
- H03K 3/02
- Generators characterised by the type of circuit or by the means used for producing pulses ([H03K 3/64](#) ~~to~~ [H03K 3/84](#) take precedence)
- U H03K 4/00** **Generating pulses having essentially a finite slope or stepped portions (generation of supply voltages from deflection waveforms [H04N 3/18](#))**
- U H03K 4/06
- having triangular shape
- U H03K 4/08
- • having sawtooth shape
- H03K 4/48
- • • using as active elements semiconductor devices ([H03K 4/787](#) ~~to~~ [H03K 4/84](#) take precedence)
- U H03K 5/00** **Manipulating pulses not covered by one of the other main groups in this subclass (circuits with regenerative action [H03K 3/00](#), [H03K 4/00](#); by the use of non-linear magnetic or dielectric devices [H03K 3/45](#))**
- NOTE
- In this group, the input signals are of the pulse type.
- H03K 5/00006
- {Changing the frequency (modulating pulses [H03K 7/00](#); frequency dividers [H03K 21/00](#) ~~to~~ [H03K 29/00](#); additive or subtractive mixing of two pulse rates into one [G06F 7/605](#); pulse rate dividers [G06F 7/68](#))}
- U H03K 17/00** **Electronic switching or gating, i.e. not by contact-making or -braking (selection of the stylus or auxiliary electrode in electric printing [B41J 2/405](#); sample-and-hold arrangements [G11C 27/02](#); switching or interrupting devices in waveguides [H01P](#); gated amplifiers [H03F 3/72](#); switching arrangements for exchange systems using static devices [H04Q 3/52](#))**
- H03K 17/51
- characterised by the components used ([H03K 17/04](#) ~~to~~ [H03K 17/30](#), [H03K 17/94](#) take precedence)
- U H03K 17/56
- • using semiconductor devices (using diodes [H03K 17/74](#))
- U H03K 17/60
- • • using bipolar transistors
- U H03K 17/62
- • • • Switching arrangements with several input- or output-terminals (code converters [H03M 5/00](#), [H03M 7/00](#))
- H03K 17/6207
- • • • • {without selecting means ([H03K 17/6242](#) ~~to~~ [H03K 17/6285](#) take precedence)}
- H03K 17/6221
- • • • • {combined with selecting means ([H03K 17/6242](#) ~~to~~ [H03K 17/6285](#) take precedence)}
- U H03K 19/00** **Logic circuits, i.e. having at least two inputs acting on one output; Inverting circuits {(inverting circuits used as delay elements [H03K 5/13](#))}**
- H03K 19/02
- using specified components ({[H03K 19/0005](#) ~~to~~ [H03K 19/0021](#)}, [H03K 19/003](#) ~~to~~ [H03K 19/0175](#) take precedence)
- H03K 19/20
- characterised by logic function, e.g. AND, OR, NOR, NOT circuits ([H03K 19/003](#) ~~to~~ [H03K 19/01](#) take precedence)
- U H03K 23/00** **Pulse counters comprising counting chains; Frequency dividers comprising counting chains ([H03K 29/00](#) takes precedence)**
- H03K 23/001
- {using elements not covered by groups [H03K 23/002](#) and [H03K 23/74](#) ~~to~~ [H03K 23/84](#)}
- H03K 23/40
- Gating or clocking signals applied to all stages, i.e. synchronous counters {([H03K 23/74](#) ~~to~~ [H03K 23/84](#) take precedence)}

- H03K 23/50
  - • using bi-stable regenerative trigger circuits ([H03K 23/42](#) ~~to~~ [H03K 23/48](#) take precedence)
- H03K 23/58
  - Gating or clocking signals not applied to all stages, i.e. asynchronous counters ([H03K 23/74](#) ~~to~~ [H03K 23/84](#) take precedence)
- H03K 23/64
  - with a base or radix other than a power of two ([H03K 23/40](#) ~~to~~ [H03K 23/62](#) take precedence)
- H03K 23/86
  - reversible ([H03K 23/40](#) ~~to~~ [H03K 23/84](#) take precedence)
- U H03K 2217/00**
  - Indexing scheme related to electronic switching or gating, i.e. not by contact-making or -breaking covered by [H03K 17/00](#)**
- U H03K 2217/94
  - characterised by the way in which the control signal is generated
- U H03K 2217/94084
  - • Transmission of parameters among sensors or between sensor and remote station
- H03K 2217/94094
  - • • Wired transmission, e.g. via bus connection or similar;
- U H03K 2217/941
  - • using an optical detector
- H03K 2217/94116
  - • • increasing reliability, fail-safe;

**Project: N/A (H03L)**

- U H03L 7/00**
  - Automatic control of frequency or phase; Synchronisation (tuning of resonant circuits in general [H03J](#); synchronising in digital communication systems, see the relevant groups in class [H04](#))**
- U H03L 7/06
  - using a reference signal applied to a frequency- or phase-locked loop
- U H03L 7/08
  - • Details of the phase-locked loop
- U H03L 7/085
  - • • concerning mainly the frequency- or phase-detection arrangement including the filtering or amplification of its output signal ([H03L 7/10](#) takes precedence; frequency or phase detection comparison in general [H03D 3/00](#), [H03D 13/00](#))
- H03L 7/093
  - • • • using special filtering or amplification characteristics in the loop ([H03L 7/087](#) ~~to~~ [H03L 7/091](#) take precedence)
- U H03L 7/16
  - • Indirect frequency synthesis, i.e. generating a desired one of a number of predetermined frequencies using a frequency- or phase-locked loop
- U H03L 7/18
  - • • using a frequency divider or counter in the loop ([H03L 7/20](#), [H03L 7/22](#) take precedence)
- U H03L 7/183
  - • • • a time difference being used for locking the loop, the counter counting between fixed numbers or the frequency divider dividing by a fixed number {([H03L 7/1806](#) takes precedence)}
- H03L 7/185
  - • • • • using a mixer in the loop ([H03L 7/187](#) ~~to~~ [H03L 7/195](#) take precedence)
- H03L 7/187
  - • • • • using means for coarse tuning the voltage controlled oscillator of the loop ([H03L 7/191](#) ~~to~~ [H03L 7/195](#) take precedence)
- H03L 7/193
  - • • • • the frequency divider/counter comprising a commutable pre-divider, e.g. a two modulus divider (pulse counters/frequency dividers [H03K 21/00](#) ~~to~~ [H03K 29/00](#))
- H03L 7/195
  - • • • • in which the counter of the loop counts between two different non zero numbers, e.g. for generating an offset frequency ([H03L 7/193](#) takes precedence; pulse counters for predetermined counting [H03K 21/00](#) ~~to~~ [H03K 29/00](#))

**Project: N/A (H03M)**

- U H03M 1/00**
  - Analogue/digital conversion; Digital/analogue conversion (conversion of analogue values to or from differential modulation [H03M 3/00](#))**

H03M 1/12 · Analogue/digital converters ({[H03M 1/001](#) ~~to~~ [H03M 1/004](#) as well as }  
[H03M 1/02](#) ~~to~~ [H03M 1/10](#) take precedence)

H03M 1/66 · Digital/analogue converters ({[H03M 1/001](#) ~~to~~ [H03M 1/004](#) as well as }  
[H03M 1/02](#) ~~to~~ [H03M 1/10](#) take precedence)

### **H03M 5/00 Conversion of the form of the representation of individual digits**

#### NOTE

In groups [H03M 5/02](#) ~~to~~ [H03M 5/22](#), in the absence of an indication to the contrary, an invention is classified in the last appropriate place.

**U H03M 7/00 Conversion of a code where information is represented by a given sequence or number of digits to a code where the same information {or similar information or a subset of information} is represented by a different sequence or number of digits**

U H03M 7/001 · {characterised by the elements used}

H03M 7/008 · · {using opto-electronic devices}

#### NOTE

In groups [H03M 7/02](#) ~~to~~ [H03M 7/50](#), in the absence of an indication to the contrary, an invention is classified in the last appropriate place.

**H03M 13/00 Coding, decoding or code conversion, for error detection or error correction; Coding theory basic assumptions; Coding bounds; Error probability evaluation methods; Channel models; Simulation or testing of codes (error detection or error correction for analogue/digital, digital/analogue or code conversion [H03M 1/00](#) ~~to~~ [H03M 11/00](#); specially adapted for digital computers [G06F 11/08](#), for information storage based on relative movement between record carrier and transducer [G11B](#), e.g. [G11B 20/18](#), for static stores [G11C](#); {use of error detection or error correction in transmission systems [H04L 1/004](#), in television systems [H04N 7/0357](#)})**

H03M 13/37 · Decoding methods or techniques, not specific to the particular type of coding provided for in groups [H03M 13/03](#) ~~to~~ [H03M 13/35](#)

H03M 13/47 · Error detection, forward error correction or error protection, not provided for in groups [H03M 13/01](#) ~~to~~ [H03M 13/37](#)

### **Project: N/A (H04B)**

**H04B 1/00 Details of transmission systems, not covered by a single one of groups [H04B 3/00](#) ~~to~~ [H04B 13/00](#); Details of transmission systems not characterised by the medium used for transmission (tuning resonant circuits [H03J](#))**

#### NOTE

In this group, group [H04B 1/0003](#) takes precedence over groups [H04B 1/005](#) ~~to~~ [H04B 1/76](#)

**U H04B 7/00 Radio transmission systems, i.e. using radiation field ([H04B 10/00](#), [H04B 15/00](#) take precedence)**

U H04B 7/14 · Relay systems (interrogator-responder radar systems [G01S 13/74](#); {CATV [community antenna television] systems [H04H 20/78](#); adapted for television [H04N 7/20](#)})

U H04B 7/15 · · Active relay systems

U H04B 7/185 · · · Space-based or airborne stations; {Stations for satellite systems} ([H04B 7/204](#) takes precedence)

- H04B 7/1851 . . . {Systems using a satellite or space-based relay ([H04B 7/18508](#), [H04B 7/18521](#) take precedence; providing specific services [H04B 7/18523](#) ~~to~~ [H04B 7/18576](#))}
- U H04B 7/24 . for communication between two or more posts (for selecting [H04W](#); {wireless communication networks [H04W](#)})
- U H04B 7/26 . . at least one of which is mobile
- H04B 7/2612 . . . {Arrangements for wireless medium access control, e.g. by allocating physical layer transmission capacity ([H04B 7/2615](#) ~~to~~ [H04B 7/2643](#) take precedence; provision for broadband connection [H04Q 11/0478](#))}
- H04B 10/00** **Transmission systems employing electromagnetic waves other than radio-waves, e.g. infrared, visible or ultraviolet light, or employing corpuscular radiation, e.g. quantum communication**
- NOTE  
Groups [H04B 10/03](#), [H04B 10/07](#), [H04B 10/11](#), [H04B 10/25](#), [H04B 10/27](#), [H04B 10/29](#) and [H04B 10/40](#) ~~to~~ [H04B 10/90](#), and their subgroups are based on IPC2013.01
- H04B 13/00** **Transmission systems characterised by the medium used for transmission, not provided for in groups [H04B 3/00](#) ~~to~~ [H04B 11/00](#)**
- H04B 2201/00** **Indexing scheme relating to details of transmission systems not covered by a single group of [H04B 3/00](#) ~~to~~ [H04B 13/00](#)**

**Project: N/A (H04J)**

- U **H04J 1/00** **Frequency-division multiplex systems ([H04J 14/00](#) takes precedence)**
- U H04J 1/02 . Details
- H04J 1/12 . . Arrangements for reducing cross-talk between channels {(in line transmission systems [H04B 3/32](#); in cables or lines [H04B 3/26](#) ~~to~~ [H04B 3/30](#))}
- H04J 1/20 . in which at least one carrier is angle-modulated ([H04J 1/02](#) takes precedence; FM without multiplex [H04B 1/00](#), [H04B 14/006](#), [H04B 15/00](#); PSK [H04L 5/12](#); impulse-modulation without multiplex [H04B 14/02](#); time-division multiplexing for data transmission [H04L 5/22](#); telemetry [G08C 15/06](#) ~~to~~ [G08C 15/12](#); telephony [H04Q 11/00](#), [H04Q 11/04](#), [H04Q 11/0407](#))}
- U **H04J 3/00** **Time-division multiplex systems ([H04J 14/00](#) takes precedence; relay systems [H04B 7/14](#); selecting techniques [H04Q](#))**
- U H04J 3/02 . Details (electronic switching or gating [H03K 17/00](#))
- H04J 3/04 . . Distributors combined with modulators or demodulators {(pulse distributors in general [H03K 5/15](#); pulse counters [H03K 21/00](#) ~~to~~ [H03K 29/06](#); for telegraphy [H04L 5/22](#), [H04L 13/00](#) ~~to~~ [H04L 23/00](#), [H04L 25/45](#); for telephony [H04Q 11/04](#))}

**Project: MP0158 (H04J)**

- U H04J 3/06 . . Synchronising arrangements {(for television systems [H04N 5/04](#); bit-synchronisation [H04L 7/00](#))}
- U H04J 3/062 . . . {Synchronisation of signals having the same nominal but fluctuating bit rates, e.g. using buffers (pulse-stuffing [H04J 3/07](#); asynchronous-synchronous conversion [H04L 5/24](#); speed conversion [H04L 25/05](#); speed conversion in computers [G06F 5/06](#))}

- M H04J 3/0632 . . . . {Synchronisation of packets and cells, e.g. transmission of voice via a packet network, circuit emulation service [CES] (*queuing arrangements in packet switching elements H04L 49/90; synchronising systems for the synchronous transmission of a pulse code modulated video signal with one or more other pulse code modulated signals H04N 7/56*)}
- U H04J 3/0635 . . . {Clock or time synchronisation in a network (timer in protocols [H04L 69/28](#))}
- U H04J 3/0638 . . . . {Clock or time synchronisation among nodes; Internode synchronisation (synchronization for ring networks [H04L 12/422](#); data switching networks with synchronous transmission [H04L 12/43](#))}
- U H04J 3/0658 . . . . . {Clock or time synchronisation among packet nodes}
- U H04J 3/0661 . . . . . {using timestamps}
- M H04J 3/0667 . . . . . {Bidirectional timestamps, e.g. NTP or PTP for compensation of clock drift and for compensation of propagation delays (*monitoring or testing of delay in data switching networks H04L 12/2657* *arrangements for monitoring round trip delays in packet switching networks H04L 43/0864*)}

**Project: N/A (H04L)**

- U H04L 1/00** Arrangements for detecting or preventing errors in the information received (correcting synchronisation [H04L 7/00](#); {for digital computers [G06F 11/00](#)}; arrangements in the transmission path [H04B](#))
- H04L 1/22 . using redundant apparatus to increase reliability {(see [G06F 11/08](#) ~~to~~- [G06F 11/20](#))}
- U H04L 5/00** Arrangements affording multiple use of the transmission path (multiplex communication in general [H04J](#); {orthogonal multiplex systems [H04J 11/00](#)})
- U H04L 5/22 . using time-division multiplexing {(in general [H04J 3/00](#))}
- U H04L 5/24 . . with start-stop synchronous converters
- H04L 5/245 . . . {with a number of discharge tubes or semiconductor elements which successively connect the different channels to the transmission channels (see: [H04L 13/00](#) ~~to~~- [H04L 23/00](#), [H03K 5/15](#), [H03K 17/62](#), [H04J 3/047](#))}
- U H04L 7/00** Arrangements for synchronising receiver with transmitter {(synchronisation of electronic time-pieces [G04G 7/00](#); synchronisation of generators of electric oscillations or pulses [H03L](#); synchronising in TV system [H04N 5/04](#); regeneration of clock signals for television systems [H04N 7/0352](#))}
- U H04L 7/04 . Speed or phase control by synchronisation signals {([H04L 7/0075](#) takes precedence)}
- H04L 7/10 . . Arrangements for initial synchronisation
- NOTE  
In group [H04L 9/00](#) ~~to~~- [H04L 9/32](#), in the absence of an indication to the contrary, an invention is classified in the last appropriate place.
- H04L 23/00** Apparatus or local circuits for systems other than those covered by groups [H04L 15/00](#) ~~to~~- [H04L 21/00](#)
- U H04L 27/00** Modulated-carrier systems {(code shift keying in combination with frequency multiplexing [H04L 5/06](#); simultaneous bidirectional transmission of ac signals [H04L 5/143](#); code shift keying [H04L 23/02](#); polarisation shift keying [H04B 14/008](#); transmission of data during the active part of a television frame [H04N 7/025](#))}
- U H04L 27/18 . Phase-modulated carrier systems, i.e. using phase-shift keying ([H04L 27/32](#) takes precedence){includes continuous phase systems}

- U H04L 27/22      · · Demodulator circuits (in general [H03D](#) {[H03K 9/04](#)}); Receiver circuits
- U H04L 27/233      · · · using non-coherent demodulation
- H04L 27/2338      · · · · {using sampling ([H04L 27/2331](#) ~~to~~ [H04L 27/2335](#) take precedence)}
- H04L 29/00**      **Arrangements, apparatus, circuits or systems, not covered by a single one of groups [H04L 1/00](#) ~~to~~ [H04L 27/00](#) (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units [G06F 13/00](#) ){contains provisionally no documents}**
- U H04L 29/02      · Communication control (in satellite networks [H04B 7/185](#)); Communication processing ([H04L 29/12](#), [H04L 29/14](#) take precedence){contains provisionally no documents}
- U H04L 29/06      · · characterised by a protocol
- U H04L 29/08      · · · Transmission control procedure, e.g. data link level control procedure
- U H04L 29/08081      · · · · {Protocols for network applications (message switching systems [H04L 12/58](#); protocols for multimedia communication [H04L 29/06027](#); protocols for telewriting [H04L 29/06034](#))}
- H04L 29/08702      · · · · · {involving intermediate processing or storage in the network, e.g. proxy (billing provisions [H04L 12/14](#); network management provisions [H04L 12/24](#); monitoring provisions [H04L 12/2602](#); multimedia network architectures; gateways and control entities [H04L 29/0621](#); multimedia handling; encoding and conversion [H04L 29/06476](#); security provisions [H04L 29/06551](#); addressing provisions [H04L 29/12009](#))}
- WARNING  
The subgroups [H04L 29/08711](#), [H04L 29/08738](#) ~~to~~ [H04L 29/08783](#), and [H04L 29/08801](#) ~~to~~ [H04L 29/08855](#) are not complete pending reorganisation. See also [H04L 29/0872](#), [H04L 29/08729](#) and [H04L 29/08792](#) )
- H04L 29/0872      · · · · · m {Arrangements for brokering (protocols for client-server architecture [H04L 29/06047](#); negotiation of communication capabilities [H04L 29/06537](#); e-commerce [G06Q 30/00](#))}
- WARNING  
This group is no longer used for the classification of new documents as from December 1, 2009. The backlog of this group is being continuously reclassified to the subgroups [H04L 29/08711](#) ~~to~~ [H04L 29/08909](#)
- H04L 29/08729      · · · · · {Arrangements for intermediate storage, e.g. caching (browsing optimisation of access to content [G06F 17/30902](#))}
- WARNING  
This group is no longer used for the classification of new documents as from December 1, 2009. The backlog of this group is being continuously reclassified to the subgroups [H04L 29/08711](#) ~~to~~ [H04L 29/08909](#)
- H04L 29/08792      · · · · · {Arrangements for data reduction and/or adaptation (protocols for data compression [H04L 29/0604](#); optimising the visualization of content [G06F 17/30905](#); digital video signal compression [H04N 19/00](#))}
- WARNING  
This group is no longer used for the classification of new documents as from December 1, 2009. The backlog of this group is being

continuously reclassified to the subgroups [H04L 29/08711](#) to-  
[H04L 29/08909](#)

## Project: MP0151 (H04L)

### M H04L 61/00 {Network arrangements or network protocols for addressing or naming}

#### NOTE

This group ~~does not cover~~ *does not cover*:

- *Aspects relating to switching or routing which are classified in [H04L 45/00](#) or [H04L 49/00](#), respectively.*
- *Aspects relating to configuration management of data networks or network elements in general which are classified in [H04L 41/08](#).*
- *Aspects of addressing in telephony which are classified in [H04M 7/00](#).*
- ~~Aspects relating to switching or routing which are classified in [H04L 12/56](#). Aspects relating to configuration management of data networks or network elements in general which are classified in [H04L 12/2424](#). Aspects of addressing in telephony which are classified in [H04M 7/00](#). Aspects of addressing within devices, e.g. process or memory, which are classified in [G06F 13/42](#) or [G06F 12/00](#).~~

- U H04L 61/15 • {Directories; Name-to-address mapping (telephone directories in user terminals [H04M 1/27](#))}
- U H04L 61/1505 • {involving standard directories or standard directory access protocols}
- M H04L 61/1529 • • {using voice over internet protocol [VoIP] directories, e.g. session initiation protocol [SIP] registrar or H.323 gatekeeper (~~SIP for real-time communications~~ [H04L 65/1006](#) *real-time signaling or sessions protocols [H04L 65/1003](#)*)}
- M H04L 61/1564 • • {Directories for electronic mail or instant messaging (~~message switching systems per se~~ [H04L 12/58](#) *arrangements for user-to-user messaging in packet-switching networks [H04L 51/00](#)*)}
- M H04L 61/20 • {Address allocation (configuration management of network or network elements ~~[H04L 12/2424](#)~~ [H04L 41/08](#))}
- M H04L 61/25 • {mapping of addresses of the same type; address translation (~~arrangements for maintenance or administration involving network analysis~~ [H04L 12/2414](#))}
- U H04L 61/2503 • {Internet protocol [IP] address translation}
- M H04L 61/2592 • • • {involving tunnelling *tunneling* or encapsulation (~~protecting information from access by third parties~~ [H04L 63/04](#) *providing a confidential data exchange among entities communicating through data packet networks [H04L 63/04](#)*)}
- U H04L 61/30 • {Arrangements for managing names, e.g. use of aliases or nicknames (retrieval from the Internet by using information identifiers, e.g. uniform resource locators [URLs] [G06F 17/30876](#); name-to-address mapping [H04L 61/15](#))}
- U H04L 61/306 • {Name types}
- M H04L 61/307 • • • {E-mail addresses (~~message switching systems~~ [H04L 12/58](#) *arrangements for user-to-user messaging in packet-switching networks [H04L 51/00](#)*)}
- U H04L 61/60 • {Details}
- U H04L 61/6018 • {Address types}
- M H04L 61/6027 • • • {Control area network [CAN] identifiers (~~vehicle networks~~ [B60R 16/0315](#) *electric circuits specially adapted for vehicles for transmission of signals between vehicle parts and subsystems [B60R 16/023](#)*)}

**Project: N/A (H04L)**

- U H04L 2201/00**      **Algorithms used for the adjustment of time-domain equalizers**  
 H04L 2201/08      · Algorithms not covered by groups [H04L 2201/02](#) to- [H04L 2201/06](#)

**Project: N/A (H04M)**

- U H04M 1/00**      **Substation equipment, e.g. for use by subscribers; Analogous equipment at exchanges (prepayment telephone coin boxes [H04M 17/00](#); current supply arrangements [H04M 19/00](#); {telephone sets particularly adapted for data transmission [H04M 11/066](#); network interface devices [H04Q 1/028](#)})**

- U H04M 1/02**      · Constructional features of telephone sets  
 H04M 1/0202      · · {Portable telephone sets, e.g. cordless phones, mobile phones or bar type handsets (constructional features of telephone transmitters or receivers, e.g. of speakers or microphones [H04M 1/03](#); mounting of the dialing module [H04M 1/23](#); with protection against RF exposure [H04B 1/3838](#))}

**WARNING**

Groups [H04M 1/0249](#) to- [H04M 1/0285](#) are not complete pending a reorganisation. See also group [H04M 1/0202](#)

- U H04M 1/26**      · Devices for signalling identity of wanted subscriber (constructional features [H04M 1/23](#))
- U H04M 1/27**      · · Devices whereby a plurality of signals may be stored simultaneously {(devices disposed in the exchange [H04M 3/424](#), [H04M 3/44](#))}
- U H04M 1/274**      · · · with provision for storing more than one subscriber number at a time, e.g. using toothed disc
- U H04M 1/2745**      · · · · using static electronic memories, i.e. memories whose operation does not require relative movement between storage means and a transducer, e.g. chip; {(Fax machines [H04N 1/32037](#))}
- H04M 1/274591      · · · · · {Implemented by means of discrete electronic components, i.e. neither programmable nor micro-processor controlled ([H04M 1/274516](#) to- [H04M 1/274583](#) take precedence)}

- U H04M 3/00**      **Automatic or semi-automatic exchanges {(constructional details of telephone exchanges [H04Q 1/02](#))}**

- U H04M 3/42**      · Systems providing special services or facilities to subscribers  
 H04M 3/42127      · · {Systems providing several special services or facilities from groups [H04M 3/42008](#) to- [H04M 3/58](#)}

- U H04M 17/00**      **Prepayment {of wireline communication systems, wireless communication systems or} telephone systems (using a coded card to authorise calls from a telephone set [H04M 1/675](#))**

- U H04M 17/30**      · {using a code}  
 H04M 17/307      · · {Code type e.g. alphanumeric code, bar code-}

**Project: N/A (H04N)**

- U H04N 1/00**      **Scanning, transmission or reproduction of documents or the like, e.g. facsimile transmission; Details thereof {(recording arrangements for measuring instruments [G01D](#); sensing record carriers [G06K 7/00](#); character or pattern recognition [G06K 9/00](#); mosaic printer telegraph systems [H04L 21/00](#))}**

- U H04N 1/00002**      · {Diagnosis, testing or measuring; Detecting, analysing or monitoring not otherwise provided for (error detection, error correction or monitoring in digital computers or digital computer components [G06F 11/00](#))}

- U H04N 1/00026      • • {Methods therefor}
- H04N 1/00042      • • • {Monitoring, i.e. observation ([H04N 1/00029](#) ~~to~~ [H04N 1/00039](#) take precedence)}
- U H04N 1/00127      • {Connection or combination of a still picture apparatus with another apparatus, e.g. for storage, processing or transmission of still picture signals or of information associated with a still picture}
- U H04N 1/00132      • • {in a digital photofinishing system, i.e. a system where digital photographic images undergo typical photofinishing processing, e.g. printing ordering}
- H04N 1/00167      • • • {Processing or editing ([H04N 1/00196](#) ~~to~~ [H04N 1/00201](#) take precedence)}
- U H04N 1/32         • Circuits or arrangements for control or supervision between transmitter and receiver {or between image input and image output device ([H04N 1/38](#), [H04N 1/387](#) take precedence)}
- U H04N 1/32037      • • {Automation of particular transmitter jobs, e.g. multi-address calling, auto-dialing}
- H04N 1/32048      • • • {Auto-dialling or Auto-calling ([H04N 1/32053](#) ~~to~~ [H04N 1/32074](#) take precedence)}
- U H04N 1/41         • Bandwidth or redundancy reduction (by scanning [H04N 1/17](#); {[H04N 19/00](#) takes precedence; for data acquisition [G06F 17/40](#); coding for image data processing in general [G06T 9/00](#); data compression in general [H03M 7/30](#)})
- U H04N 1/411        • • for the transmission {or storage} or reproduction of two-tone pictures, e.g. black and white pictures
- U H04N 1/413        • • • Systems or arrangements allowing the picture to be reproduced without loss or modification of picture-information
- H04N 1/419         • • • • in which encoding of the length of a succession of picture-elements of the same value along a scanning line is the only encoding step {([H04N 1/4135](#) ~~to~~ [H04N 1/417](#) take precedence)}
- U H04N 1/46         • Colour picture communication systems {(colorimetry [G01J 3/46](#))}
- U H04N 1/64         • • Systems for the transmission or the storage of the colour picture signal; Details therefor, e.g. coding or decoding means therefor {([H04N 19/00](#) takes precedence)}
- H04N 1/648         • • • {Transmitting or storing the primary (additive or subtractive) colour signals; Compression thereof ([H04N 1/642](#) ~~to~~ [H04N 1/646](#) take precedence)}

**H04N 5/00**

**Details of television systems (scanning details or combination thereof with generation of supply voltages [H04N 3/00](#); specially adapted for colour television [H04N 9/00](#); {servers specially adapted for the distribution of content [H04N 21/20](#); client devices specially adapted for the reception of or interaction with content [H04N 21/40](#)})**

NOTE

Groups [H04N 5/341](#) ~~to~~ [H04N 5/378](#) are based on IPC2012.01

- U H04N 5/30         • Transforming light or analogous information into electric information ([H04N 5/222](#) takes precedence; scanning details [H04N 3/00](#); light transforming elements [H01J](#), [H01L](#))
- H04N 5/335         • • using solid-state image sensors [SSIS] ([H04N 5/32](#), [H04N 5/33](#) take precedence)

NOTE

In this group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place  
Groups [H04N 5/341](#) ~~to~~ [H04N 5/378](#) are based on IPC2012.01

- U H04N 5/76
- Television signal recording (diagnosis, testing or measuring for television signal recorders [H04N 17/06](#); recording in connection with measuring [G01D](#); information storage {in which the television signal is not involved, driving, starting, stopping, head switching, editing, indexing} in general [G11](#), e.g. [G11B](#))
- H04N 5/907
- • using static stores, e.g. storage tubes, semiconductor memories ([H04N 5/91](#) takes precedence; based on relative movement between record carrier and transducer [H04N 5/78](#) ~~to~~ [H04N 5/903](#))
- U H04N 7/00** **Television systems (details [H04N 3/00](#), [H04N 5/00](#); methods or arrangements, for coding, decoding, compressing or decompressing digital video signals [H04N 19/00](#); selective content distribution [H04N 21/00](#))**
- H04N 7/002
- {Special television systems not provided for by [H04N 7/007](#) ~~to~~ [H04N 7/18](#) (still pictures via a television channel [H04N 1/00098](#))}
- U H04N 9/00** **Details of colour television systems**
- U H04N 9/64
- Circuits for processing colour signals ([H04N 9/77](#) takes precedence)
- H04N 9/74
- • for obtaining special effects ([H04N 9/65](#) ~~to~~ [H04N 9/73](#) take precedence)
- U H04N 2201/00** **Indexing scheme relating to scanning, transmission or reproduction of documents or the like, and to details thereof**
- U H04N 2201/0008
- Connection or combination of a still picture apparatus with another apparatus (not used)
- H04N 2201/001
- • Sharing resources, e.g. processing power or memory, with a connected apparatus or enhancing the capability of the still picture apparatus
- NOTE  
Subgroups [H04N 2201/001](#) ~~to~~ [H04N 2201/0075](#) are for use with subgroups [H04N 1/00127](#) ~~to~~ [H04N 1/00347](#)
- H04N 2201/0077
- Types of the still picture apparatus
- NOTE  
Subgroups [H04N 2201/0077](#) ~~to~~ [H04N 2201/0094](#) are for use with [H04N 1/00](#) and subgroups
- H04N 2201/0081
- • Image reader ([H04N 2201/0091](#) ~~to~~ [H04N 2201/0094](#) take precedence)
- H04N 2201/0082
- • Image hardcopy reproducer ([H04N 2201/0091](#) ~~to~~ [H04N 2201/0094](#) take precedence)
- U H04N 2201/024
- deleted
- H04N 2201/02402
- • Arrangements for positioning heads, e.g. with respect to other elements of the apparatus
- NOTE  
Subgroups [H04N 2201/02402](#) ~~to~~ [H04N 2201/02404](#) and [H04N 2201/02487](#) ~~to~~ [H04N 2201/02497](#) are for use with subgroups [H04N 1/024](#) ~~to~~ [H04N 1/0318](#)
- H04N 2201/02497
- • Additional elements, e.g. sheet guide plates, light shields ([H04N 2201/02489](#) ~~to~~ [H04N 2201/02495](#) take precedence)
- U H04N 2201/04
- Scanning arrangements (not used)
- H04N 2201/0402
- • Arrangements not specific to a particular one of the scanning methods covered by groups [H04N 1/04](#) ~~to~~ [H04N 1/207](#) (not used)
- H04N 2201/0404
- • • Scanning transparent media, e.g. photographic film
- NOTE  
Subgroups [H04N 2201/0404](#) ~~to~~ [H04N 2201/0468](#) are for use with subgroups [H04N 1/04](#) ~~to~~ [H04N 1/207](#)

- H04N 2201/0422
- • • Media holders, covers, supports, backgrounds; Arrangements to facilitate placing of the medium ([H04N 2201/0406](#) ~~to~~ [H04N 2201/0412](#), [H04N 2201/0434](#) take precedence)
- U H04N 2201/21
- Intermediate information storage (not used)
- H04N 2201/212
- • Selecting different recording or reproducing modes, e.g. high or low resolution, field or frame
- NOTE  
Subgroups [H04N 2201/212](#) ~~to~~ [H04N 2201/218](#) are for use with subgroups [H04N 1/21](#) ~~to~~ [H04N 1/2195](#)
- U H04N 2201/32
- Circuits or arrangements for control or supervision between transmitter and receiver or between image input and image output device (not used)
- U H04N 2201/3201
- • Display, printing, storage or transmission of additional information, e.g. ID code, date and time or title
- H04N 2201/3202
- • • of communication or activity log or report
- NOTE  
Subgroups [H04N 2201/3202](#) ~~to~~ [H04N 2201/3284](#) are for use with subgroups [H04N 1/32101](#) ~~to~~ [H04N 1/32352](#)
- U H04N 2201/3285
- • using picture signal storage, e.g. at transmitter (not used)
- H04N 2201/3287
- • • Storage of at least one complete document page or image frame
- NOTE  
Subgroups [H04N 2201/3287](#) ~~to~~ [H04N 2201/3298](#) are for use with subgroups [H04N 1/32358](#) ~~to~~ [H04N 1/32491](#)
- U H04N 2201/333
- • Mode signalling or mode changing; Handshaking therefor (not used)
- H04N 2201/33307
- • • of a particular mode
- NOTE  
Subgroups [H04N 2201/33307](#) ~~to~~ [H04N 2201/33392](#) are for use with subgroups [H04N 1/333](#) ~~to~~ [H04N 1/33392](#)

**Project: N/A (H04Q)**

H04Q 3/00

Selecting arrangements ([H04Q 5/00](#) ~~to~~ [H04Q 11/00](#) take precedence)**Project: N/A (H04R)**

U H04R 1/00

**Details of transducers, {loudspeakers or microphones}**

U H04R 1/10

- Earpieces; Attachments therefor; {Earphones; Monophonic headphones ([H04R 1/28](#) takes precedence; stereophonic headphones [H04R 5/033](#))}

NOTES

1. This group covers details of headphones, both of monophonic and stereophonic type.
2. When classifying in this group or in its subgroups, aspects relating to stereophonic headphones are to be classified in [H04R 5/033](#) as well

H04R 1/1091

- • {Details not provided for in groups [H04R 1/1008](#) ~~to~~ [H04R 1/1083](#)}

H04R 23/00

**Transducers other than those covered by groups [H04R 9/00](#) ~~to~~ [H04R 21/00](#) ({diaphragms for transducers of the distributed-mode type [H04R 7/045](#))}**

**H04R 25/00**

Deaf-aid sets {providing an auditory perception; Electric tinnitus maskers providing an auditory perception} (constructions of transducers per se [H04R 9/00](#) ~~to~~ [H04R 23/00](#); {non-electric hearing aids [A61F 11/008](#); replacing direct auditory perception by another kind of perception [A61F 11/04](#); electrical stimulation of auditory nerves to promote the auditory function [A61N 1/36032](#)}; structural combination with spectacle frames [G02C 11/06](#); processing of speech signals [G10L 21/00](#))

NOTE

Classification should be directed to groups [H04R 25/02](#), [H04R 25/04](#) or [H04R 25/50](#) and its subgroups, if and only if the technical subject in consideration cannot be classified elsewhere under the main group [H04R 25/00](#)

**Project: N/A (H04T)****H04T 2001/00****Standards for wireless communication networks**NOTE

The indexing codes of this scheme are to be used mainly with classification in CPC subgroups [H04W](#).

In order to keep the structure adopted by the standardisation bodies considered, a matrix type of scheme is used as indicated below:

- [H04T 2001/101](#) ~~to~~ [H04T 2001/113](#) codes are used for information relating to the physical aspects, e.g. radio resources, core network resources...
- [H04T 2001/201](#) ~~to~~ [H04T 2001/231](#) codes are used for information relating to functional aspects, e.g. physical layer, traffic/transport...

For complete indexing it is mandatory to allocate at least one and preferably only one combination of **H04T2001/100** and **H04T2001/200** codes to a document.

Searching in this scheme is done by combining the above indicated codes, i.e. **H04T2001/100** and **H04T2001/200**

**H04T 2029/00****Standards related to data transmission protocols not covered by any of the codes [H04T 2001/00](#) ~~to~~ [H04T 2012/00](#)****H04T 2029/06**

- Internet Standards

NOTE

The indexing codes of this scheme are to be used mainly with classification in subgroups [H04L 29/06](#) ~~to~~ [H04L 29/06544](#). In this scheme [H04T 2029/06](#) codes are mapped whenever possible or appropriate to the corresponding entries and have the same meaning

**Project: N/A (H04W)****U H04W 36/00****Hand-off or reselection arrangements**NOTE

In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout [H04W](#)

**U H04W 36/16  
H04W 36/165**

- Performing reselection for specific purposes
- {for improving the overall network performance ([H04W 36/18](#) ~~to~~ [H04W 36/22](#) take precedence)}

**U H04W 84/00****Network topologies**NOTE

In this group, local priority rules supersede the first-place priority rule (FPPR) applying throughout [H04W](#)

- U H04W 84/02 · Hierarchical pre-organized networks, e.g. paging networks, cellular networks, WLAN [Wireless Local Area Network] or WLL [Wireless Local Loop]
- U H04W 84/10 · · Small scale networks; Flat hierarchical networks
- H04W 84/105 · · · {PBS [Private Base Station] network ([H04W 84/12](#) ~~to~~ [H04W 84/16](#) take precedence)}

**Project: N/A (H05B)**

**H05B 11/00** Heating by combined application of processes covered by two or more of groups [H05B 3/00](#) ~~to~~ [H05B 7/00](#) ([H05B 7/20](#) takes precedence)

**H05B 33/00** Electroluminescent light sources (discharge lamps [H01J 61/00](#) ~~to~~ [H01J 65/00](#); semi-conductor devices with at least one particular jump barrier or surface barrier adapted for light emission [H01L 27/15](#), [H01L 33/00](#); organic light emitting devices [H01L 27/32](#), [H01L 51/50](#); lasers [H01S 3/00](#), [H01S 5/00](#); compositions per se, see the relevant subclasses; {luminescent scales or hands [G01D 13/20](#), [G01D 13/28](#); luminescent dials [G09F 13/20](#); conductive layers on isolated substrate [H01B 1/00](#); solid state image amplifiers [H01L 31/14](#); electronic gates with electroluminescent elements [H03K 17/78](#); pulse generation with electroluminescent elements [H03K 3/00](#)})

**H05B 41/00** Circuit arrangements or apparatus for igniting or operating discharge lamps {(circuit elements structurally associated with discharge lamps [H01J 7/44](#), [H01J 19/78](#); discharge lamps per se [H01J 61/00](#) ~~to~~ [H01J 65/00](#); arc lamps with consumable electrodes [H05B 31/00](#); transformers or chokes for supplying discharge lamps [H01F 38/08](#)})

**Project: N/A (H05G)**

- U **H05G 1/00** X-ray apparatus involving X-ray tubes; circuits therefor
- U H05G 1/08 · Electrical details
- H05G 1/10 · · Power supply arrangements for feeding the X-ray tube {(supply circuits with converters in general [H02M](#); supply circuits for emitters and amplifiers [H04B 1/16](#) ~~to~~ [H04B 1/1623](#)})

**Project: N/A (H05H)**

- U **H05H 1/00** **Generating plasma; Handling plasma**
- U H05H 1/0006 · {Investigating plasma, e.g. degree of ionisation (electron temperature)}
- U H05H 1/0012 · · {by using radiation}
- H05H 1/0025 · · · {by using photoelectric means ([H05H 1/0031](#) ~~to~~ [H05H 1/0043](#) take precedence)}
- U **H05H 7/00** **Details of devices of the types covered by groups [H05H 9/00](#), [H05H 11/00](#), [H05H 13/00](#)**
- H05H 7/22 · Details of linear accelerators, e.g. drift tubes ([H05H 7/02](#) ~~to~~ [H05H 7/20](#) take precedence)

**Project: N/A (H05K)**

- U **H05K 1/00** **Printed circuits (assemblies of a plurality of individual semiconductor or solid state devices [H01L 25/00](#); devices consisting of a plurality of solid state components formed in or on a common substrate, e.g. integrated circuits, thin-film or thick-film circuits, [H01L 27/00](#))**
- U H05K 1/02 · Details

- H05K 1/0296
  - · {Conductive pattern lay-out details not covered by sub groups [H05K 1/02](#) ~~to~~ [H05K 1/0295](#) ([H05K 1/11](#) takes precedence; lay-out adapted to mounted component configuration [H05K 1/18](#))}
- U H05K 1/09
  - · Use of materials for the metallic pattern {or other conductive pattern (materials for conductors [H01B 1/00](#))}
- H05K 1/092
  - · · {Dispersed materials, e.g. conductive pastes or inks (Conductive material dispersed in non-conductive material in general [H01B 1/14](#) ~~to~~ [H01B 1/24](#); Conductive inks in general [C09D 11/52](#))}
- U **H05K 3/00**

**Apparatus or processes for manufacturing printed circuits (photomechanical production of textured or patterned surfaces, materials or originals therefor, apparatus specially adapted therefor, in general [G03F](#); involving the manufacture of semiconductor devices [H01L](#))**
- H05K 3/0073
  - {Masks not provided for in groups [H05K 3/02](#) ~~to~~ [H05K 3/46](#), e.g. for photomechanical production of patterned surfaces}
- H05K 3/0085
  - {Apparatus for treatments of printed circuits with liquids not provided for in groups [H05K 3/02](#) ~~to~~ [H05K 3/46](#); ~~conveyers~~[conveyors](#) and holding means therefor (apparatus specially adapted for manufacturing assemblages of electric components, e.g. printed circuit boards, [H05K 13/00](#))}
- U H05K 3/02
  - in which the conductive material is applied to the surface of the insulating support and is thereafter removed from such areas of the surface which are not intended for current conducting or shielding
- U H05K 3/06
  - · the conductive material being removed chemically or electrolytically, e.g. by photo-etch process {(Non-mechanical removal of metallic material from surfaces [C23F](#); semi-additive methods [H05K 3/108](#))}
- H05K 3/067
  - · · {Etchants (in general [C23F 1/10](#) ~~to~~ [C23F 1/46](#))}

**Project: N/A (Y02E)**

- U **Y02E 40/00**

**Technologies for an efficient electrical power generation, transmission or distribution**
- Y02E 40/40
  - Arrangements for reducing harmonics ([Y02E 40/10](#) ~~to~~ [Y02E 40/30](#) take precedence)

**Project: N/A (Y02P)**

- U **Y02P 90/00**

**Enabling technologies with a potential contribution to greenhouse gas [GHG] emissions mitigation**
- U Y02P 90/02
  - Total factory control, e.g. smart factories, flexible manufacturing systems [FMS] or integrated manufacturing systems [IMS]
- U Y02P 90/08
  - · characterised by the cooperation between machine tools, manipulators or work piece supply systems
- Y02P 90/083
  - · · Manipulators cooperating with ~~conveyers~~[conveyors](#)

**Project: N/A (Y02T)**

- U **Y02T 10/00**

**Road transport of goods or passengers**
- U Y02T 10/80
  - Technologies aiming to reduce green house gasses emissions common to all road transportation technologies
- Y02T 10/86
  - · Optimisation of rolling resistance.

**Project: N/A (Y10T)**

- U **Y10T 29/00**

**Metal working**
- U Y10T 29/53
  - Means to assemble or disassemble

- U Y10T 29/53313
  - • Means to interrelatedly feed plural work parts from plural sources without manual intervention
- Y10T 29/53374
  - • • including turret-type **conveyerconveyor**
- Y10T 29/53378
  - • • including converging **conveyersconveyors**
- U Y10T 29/534
  - • Multiple station assembly or disassembly apparatus
- Y10T 29/53404
  - • • including turret-type **conveyerconveyor**
- Y10T 29/53409
  - • • including converging **conveyersconveyors**
- Y10T 29/53413
  - • • • and primary central **conveyerconveyor**
- Y10T 29/53539
  - • including work **conveyerconveyor**
- U Y10T 83/00**
  - Cutting**
- U Y10T 83/647
  - With means to convey work relative to tool station
- Y10T 83/654
  - • With work-constraining means on work **conveyerconveyor** [i.e., "work-carrier"]
- U Y10T 156/00**
  - Adhesive bonding and miscellaneous chemical manufacture**
- U Y10T 156/17
  - Surface bonding means and/or assemblymeans with work feeding or handling means
- U Y10T 156/1702
  - • For plural parts or plural areas of single part
- U Y10T 156/1744
  - • • Means bringing discrete articles into assembled relationship
- U Y10T 156/1768
  - • • • Means simultaneously conveying plural articles from a single source and serially presenting them to an assembly station
- Y10T 156/1771
  - • • • • Turret or rotary drum-type **conveyerconveyor**
- U Y10T 225/00**
  - Severing by tearing or breaking**
- U Y10T 225/30
  - Breaking or tearing apparatus
- Y10T 225/336
  - • **ConveyerConveyor** diverter for moving work