

## Compilation of Changes to the CPC Scheme Between 2015.04 and 2015.05

### Presentation Details

- Entries for new symbols and headings: *Black text in italics*
- Entries for existing symbols and headings
- text insertions: *Green text in italics with yellow background*
  - text deletions: ~~Red strikethrough text with grey background~~
- Entries for deleted symbols and headings: ~~Black strikethrough text~~
- Entries arranged by project.
  - 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: MP0118 (B21)

M B21

**MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL** (casting, powder metallurgy [B22](#); shearing [B23D](#); working of metal by the action of a high concentration of electric current [B23H](#); soldering, welding, flame-cutting [B23K](#); other working of metal [B23P](#); punching sheet material in general [B26F](#); processes for changing of physical properties of metals [C21D](#), [C22F](#); electroforming [C25D 1/00](#))

#### NOTE

##### 1. This class covers:

- working of metallic materials;
- working of non-metallic materials, provided that the methods applied are similar to those used in metal-working and not provided for elsewhere.

##### 1.2. This class does not cover: ~~does not cover:~~

- combinations of operations covered by different subclasses of class [B21](#), which are covered by subclass [B23P](#);
- combinations of operations covered by any particular subclass of class [B21](#) with operations covered by other classes, e.g. with operations involving removal of material, which are also covered by subclass [B23P](#), except that if the operations covered by the other classes are subsidiary to the operations properly covered by a single subclass of [B21](#) the combination is classified in that subclass.

2. Processes of a kind covered by this class but applied to non-metallic materials are classified in this class if they are applicable to metal and cannot be classified fully in another class.

### Project: MP0118 (B21D)

M B21D

**WORKING OR PROCESSING OF SHEET METAL OR METAL TUBES, RODS OR PROFILES WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL** (~~operations of the kind involved in the manufacture of such products [B21B](#), [B21C](#); working or processing of wire [B21F](#); cutting or severing devices or machines in general [B26](#); presses in general [B30B](#)~~)

#### NOTES

1. This subclass covers cutting or perforating of sheet metal or other stock material
2. This subclass does not cover the working of metal foils in a manner analogous to the working of paper, which is covered by classes [B26](#), [B31](#)

## Project: MP0118 (B21F)

M B21F WORKING **AND/OR** PROCESSING OF **METAL** WIRE ({reducing diameter by} rolling of metal **B21B**; by drawing, auxiliary operations used in connection with metal-working without essentially removing material **B21C**; **bundling articles B65B 13/00**)

## Project: MP0118 (B21G)

M B21G MAKING NEEDLES, PINS OR NAILS **OF METAL**

## Project: MP0118 (B21J)

M B21J FORGING; HAMMERING; PRESSING **METAL**; RIVETING; FORGE FURNACES (rolling of metal **B21B**; making particular products by forging or pressing **B21K**; cladding or plating **B23K**; finishing surfaces by hammering **B23P 9/04**; compacting surfaces by blasting with particulate material **B24C 1/10**; general features of presses, presses for consolidating scrap **B30B**; **furnace in general F27**; **furnaces in general F27**)

## Project: MP0118 (B21K)

M B21K MAKING FORGED OR PRESSED **METAL** PRODUCTS, e.g. HORSE-SHOES, RIVETS, BOLTS, **OR** WHEELS (making particular articles by working sheet metal without essentially removing material **B21D**; processing wire **B21F**; making pins, needles or nails **B21G**; making particular articles by rolling **B21H**; forging machines, pressing machines, hammering machines, in general **B21J**; **making chain B21L**; **making chains B21L**; plating **B23K**)

NOTE

This subclass includes only forging, pressing, or hammering operations which are specially adapted for use in the manufacture of particular objects and which, so far as the invention is concerned, are not combined with any different metal-working operation unless the latter is a subsidiary operation performed in the same machine.

## Project: MP0118 (B21L)

M B21L MAKING **METAL** CHAINS (making chains or chain links by casting **B22D 25/02**; chains in general **F16G**)

## Project: MP0118 (B23)

M B23 MACHINE TOOLS; METAL-WORKING NOT OTHERWISE PROVIDED FOR (punching, perforating, making articles by processing sheet metal, tubes, or profiles **B21D**; wire-working **B21F**; making pins, needles, or nails **B21G**; making chains **B21L**; grinding **B24**)

NOTES

1. This class covers:

- ~~operations not provided for in any other class~~ **working of metallic materials**;
- ~~combinations working of operations covered by different subclasses of classes B21 to B24~~ **non-metallic materials**, which combinations are covered by subclass **B23P**, with **provided that** the **exception of subsidiary operations performed methods applied are similar to those used in conjunction with main operations covered by a single subclass** **metal-working and not provided for elsewhere**;
- features, specific to machine tools, which relate to a requirement or problem of a nature which is not peculiar to a particular kind of machine tool, e.g. feeding work, which are covered by subclass **B23Q**, although the realisation of these features may differ according to the kind of machine

tool concerned. *The said subclass covers such features, in general, even if the feature or a specific function, in any particular case, is to some extent peculiar to, or is claimed only for, machine tools designed for one particular operation; only in exceptional cases are such features classified in the subclass for the machine tool concerned. Certain features of this general nature are, however, referred to subclasses relating to particular metal-working operations, especially B23B, in which case the subclasses in question are not restricted, in respect of those features, to the kind of machine tool with which they are primarily concerned.*

~~The said subclass covers such features, in general, even if the feature or a specific function, in any particular case, is to some extent peculiar to, or is claimed only for, machine tools designed for one particular operation; only in exceptional cases are such features classified in the subclass for the machine tool concerned. Certain features of this general nature are, however, referred to subclasses relating to particular metal-working operations, especially B23B, in which case the subclass in question are not restricted, in respect of those features, to the kind of machine tool with which they are primarily concerned.~~

2. In this class, the following terms or expressions are used with the meanings indicated:

- ~~"metal-working" covers the working of other materials unless the context requires otherwise;~~
- "kind of operations" and similar expressions relate to such metal-working operations as boring, drilling, milling and grinding;
- "kind of machine" means a machine designed for a particular kind of metal-working operation (e.g. a lathe);
- "form of machine" means a machine of a particular ~~king~~kind adapted or arranged for a particular way of working or for particular work, e.g. face-plate lathe, tailstock lathe, turret lathe;
- "different machines" covers different forms of machines for performing the same type of metal-working operation, e.g. vertical and horizontal boring machines.

3. If details, components, or accessories have no essential feature specific to machine tools, the more general class, e.g. [F16](#), takes precedence.

## Project: MP0118 (B23P)

M B23P

### OTHER WORKING OF METAL; COMBINED OPERATIONS; UNIVERSAL MACHINE TOOLS (arrangements for copying or controlling [B23Q](#))

#### NOTES

1. *This subclass covers:*

- combinations of work-modifying operations covered by different subclasses of classes [B21](#) - [B24](#);*
- combinations of metal-working operations with non-mechanical treatments of metal not provided for elsewhere, for example in [C21D](#), [C22C](#), [C22F](#) or [C23](#).*

~~1.2. This subclass does not cover non-mechanical operations on non-metallic materials unless such operations are specially mentioned in this subclass.~~

- non-mechanical operations on non-metallic materials unless such operations are specially mentioned in this subclass;*
- subsidiary operations performed in conjunction with main operations covered by a single subclass, e.g. assembling of parts as an essential feature of a following metal-working operation, since they are not regarded as operations per se.*

~~2. In this subclass, the following expressions are used with the meanings indicated:~~

"combined operations" excludes the assembling of parts if it is an essential feature of the next metal-working operation, since it is not regarded as an operation *per se*.  
"working of metal" and equivalent expressions include non-mechanical treatment of metal so far as it is not provided for in any other class or subclass, for example in C21D, C22C, C22F, C23. Thus, combinations of such non-mechanical treatment with other metal-working are classified in this subclass.

3. Attention is drawn to the Notes following the title of class [B23](#).

Project: MP0118 (B27B)

M B27B **SAWS *FOR WOOD OR SIMILAR MATERIAL*; COMPONENTS OR ACCESSORIES THEREFOR** (saws specially adapted for pruning or debranching [A01G 3/08](#); sawing apparatus specially adapted for felling trees [A01G 23/091](#); features not restricted to a particular type of wood saw [B23D](#), e.g. attaching saw blades [B23D 51/00](#); machine tool frames, beds, pillars or *analogous like* members, in general [B23Q 1/01](#))

Project: MP0118 (B27C)

M B27C **PLANING, DRILLING, MILLING, TURNING; OR UNIVERSAL MACHINES *FOR WOOD OR SIMILAR MATERIAL*** (machine tools in general [B23](#); working wood using abrasive, e.g. sanding, devices [B24](#); tools for these purposes [B27G](#))

Project: MP0118 (B27F)

M B27F **DOVETAILED WORK; TENONS; SLOTTING MACHINES *FOR WOOD OR SIMILAR MATERIAL*; NAILING OR STAPLING MACHINES** (*hand-held nailing or stapling tools* [B25C](#); *hand-held nailing or stapling tools* [B25C](#); manufacture of cases, *boxes, trunks or trunks boxes* from wood [B27M 3/34](#); *connections for building structures in general, e.g. dowels for use in building constructions* [E04B 1/38](#); jointing elements *in general, e.g. dowels in general*, [F16B](#){*manufacture of long strips or planks by bonding together pieces of wood, e.g. by glueing, B27M 3/0013*} {*manufacture of long strips or planks by bonding together pieces of wood, e.g. by glueing, B27M 3/0013*})

NOTE

This subclass covers also the assembling of the elements to be jointed, e.g. using adhesives, but the application of adhesives or glue to surfaces of wood to be jointed *per se* is dealt with in group [B27G 11/00](#){manufacture of specific semi-finished or finished articles [B27M 3/00](#)}

Project: MP0118 (B27H)

M B27H **BENDING *WOOD OR SIMILAR MATERIAL*; COOPERAGE; WHEEL-MAKING WHEELS FROM WOOD OR SIMILAR MATERIAL**

Project: MP0118 (B31)

U B31 **MAKING PAPER ARTICLES; WORKING PAPER** (making layered products not composed wholly of paper or cardboard [B32B](#); handling thin material, e.g. sheets, webs, [B65H](#))

NOTES

1. The word "paper" in this class is to be interpreted as covering material worked in a manner analogous to paper, e.g. plastic sheet materials, laminated materials

or metal foils. This class does not include making articles directly from paper pulp, which is covered by [D21J](#).

2. This class is to be understood as restricted to adaptations or associations of handling sheets, webs, or blank peculiar to paper-working, e.g. bag or box making, machinery. Handling sheets, webs, or blanks of wider applicability, irrespective of whether described or claimed only for paper-working machinery, is to be regarded as of a more comprehensive nature and as such classified in [B65H](#).

## Project: MP0118 (B31B)

### M B31B

**MAKING BOXES, CARTONS, ENVELOPES OR BAGS *OF PAPER OR CARDBOARD* (incising, scoring, in general [B26D 3/08](#); combined making and filling [B65B](#))**

#### NOTES

1. In this subclass, envelopes or bags are regarded as being essentially flexible containers, the final shape of which is determined by their contents.
2. In this subclass, the following expression is used with the meaning indicated:
  - "boxes or cartons" includes bags formed similarly to cartons, trays with upstanding side-walls, barrels, tubes and cups, other than articles formed by winding.
3. In this subclass, it is desirable to add the indexing codes of [B31B 2201/00](#) - **[B31B2241/00N](#)**

#### 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="#">B31B 7/02</a> covered by <a href="#">B31B 1/02</a>	<a href="#">B31B 7/14</a> covered by <a href="#">B31B 1/14</a>
<a href="#">B31B 7/60</a> covered by <a href="#">B31B 1/60</a>	<a href="#">B31B 7/74</a> covered by <a href="#">B31B 1/74</a>
<a href="#">B31B 9/00</a> covered by <a href="#">B31B 3/00</a>	<a href="#">B31B 9/02</a> covered by <a href="#">B31B 3/02</a>
<a href="#">B31B 9/14</a> covered by <a href="#">B31B 3/14</a>	<a href="#">B31B 9/26</a> covered by <a href="#">B31B 3/26</a>
<a href="#">B31B 9/60</a> covered by <a href="#">B31B 3/60</a>	<a href="#">B31B 9/74</a> covered by <a href="#">B31B 3/74</a>
<a href="#">B31B 11/02</a> covered by <a href="#">B31B 1/02</a>	<a href="#">B31B 11/14</a> covered by <a href="#">B31B 1/14</a>
<a href="#">B31B 11/26</a> covered by <a href="#">B31B 1/26</a>	<a href="#">B31B 11/60</a> covered by <a href="#">B31B 1/60</a>
<a href="#">B31B 11/74</a> covered by <a href="#">B31B 1/74</a>	<a href="#">B31B 13/02</a> covered by <a href="#">B31B 1/02</a>
<a href="#">B31B 13/14</a> covered by <a href="#">B31B 1/14</a>	<a href="#">B31B 13/60</a> covered by <a href="#">B31B 1/60</a>
<a href="#">B31B 13/74</a> covered by <a href="#">B31B 1/74</a>	<a href="#">B31B 15/14</a> covered by <a href="#">B31B 1/14</a>
<a href="#">B31B 15/26</a> covered by <a href="#">B31B 1/26</a>	<a href="#">B31B 15/60</a> covered by <a href="#">B31B 1/60</a>
<a href="#">B31B 15/74</a> covered by <a href="#">B31B 1/74</a>	<a href="#">B31B 21/02</a> covered by <a href="#">B31B 19/02</a>
<a href="#">B31B 21/14</a> covered by <a href="#">B31B 19/14</a>	<a href="#">B31B 21/26</a> covered by <a href="#">B31B 19/26</a>
<a href="#">B31B 21/60</a> covered by <a href="#">B31B 19/60</a>	<a href="#">B31B 21/74</a> covered by <a href="#">B31B 19/74</a>
<a href="#">B31B 23/02</a> covered by <a href="#">B31B 19/02</a> , <a href="#">B31B 23/00</a>	<a href="#">B31B 23/14</a> covered by <a href="#">B31B 19/14</a> , <a href="#">B31B 23/00</a>
<a href="#">B31B 23/00</a>	<a href="#">B31B 23/26</a> covered by <a href="#">B31B 19/26</a> , <a href="#">B31B 23/60</a> covered by <a href="#">B31B 19/60</a> , <a href="#">B31B 23/00</a>
<a href="#">B31B 23/74</a> covered by <a href="#">B31B 19/74</a> , <a href="#">B31B 23/00</a>	<a href="#">B31B 25/02</a> covered by <a href="#">B31B 19/02</a> , <a href="#">B31B 25/00</a>
<a href="#">B31B 25/00</a>	<a href="#">B31B 25/14</a> covered by <a href="#">B31B 19/14</a> , <a href="#">B31B 25/26</a> covered by <a href="#">B31B 19/26</a> , <a href="#">B31B 25/00</a>
<a href="#">B31B 25/60</a> covered by <a href="#">B31B 19/60</a> , <a href="#">B31B 25/00</a>	<a href="#">B31B 25/74</a> covered by <a href="#">B31B 19/74</a> , <a href="#">B31B 25/00</a>
<a href="#">B31B 27/00</a>	<a href="#">B31B 27/02</a> covered by <a href="#">B31B 19/02</a> , <a href="#">B31B 27/14</a> covered by <a href="#">B31B 19/14</a> , <a href="#">B31B 27/00</a>
<a href="#">B31B 27/26</a> covered by <a href="#">B31B 19/26</a> , <a href="#">B31B 27/00</a>	<a href="#">B31B 27/60</a> covered by <a href="#">B31B 19/60</a> , <a href="#">B31B 27/00</a>
<a href="#">B31B 27/00</a>	<a href="#">B31B 27/74</a> covered by <a href="#">B31B 19/74</a> , <a href="#">B31B 29/02</a> covered by <a href="#">B31B 19/02</a> , <a href="#">B31B 29/00</a>
<a href="#">B31B 29/14</a> covered by <a href="#">B31B 19/14</a> , <a href="#">B31B 29/00</a>	<a href="#">B31B 29/26</a> covered by <a href="#">B31B 19/26</a> , <a href="#">B31B 29/00</a>
<a href="#">B31B 31/00</a> covered by <a href="#">B31B 29/00</a>	<a href="#">B31B 31/02</a> covered by <a href="#">B31B 19/02</a> , <a href="#">B31B 29/00</a>
<a href="#">B31B 31/02</a> covered by <a href="#">B31B 19/02</a> , <a href="#">B31B 29/00</a>	<a href="#">B31B 31/14</a> covered by <a href="#">B31B 19/14</a> , <a href="#">B31B 29/00</a>
<a href="#">B31B 29/00</a>	<a href="#">B31B 31/26</a> covered by <a href="#">B31B 19/26</a> , <a href="#">B31B 31/60</a> covered by <a href="#">B31B 29/60</a>
<a href="#">B31B 29/00</a>	<a href="#">B31B 31/74</a>

covered by [B31B 29/74](#)      B31B 33/00 covered by [B31B 29/00](#)  
[B31B 33/02](#) covered by [B31B 19/02](#), [B31B 29/00](#)      B31B 33/14 covered  
by [B31B 19/14](#), [B31B 29/00](#)      B31B 33/26 covered by [B31B 19/26](#),  
[B31B 29/00](#)      B31B 33/60 covered by [B31B 29/60](#)      B31B 33/74  
covered by [B31B 29/74](#)      B31B 35/00 covered by [B31B 29/00](#)  
[B31B 35/02](#) covered by [B31B 19/02](#), [B31B 29/00](#)      B31B 35/14 covered  
by [B31B 19/14](#), [B31B 29/00](#)      B31B 35/26 covered by [B31B 19/26](#),  
[B31B 29/00](#)      B31B 35/60 covered by [B31B 29/60](#)      B31B 35/74  
covered by [B31B 29/74](#)      B31B 37/02 covered by [B31B 19/02](#),  
[B31B 37/00](#)      B31B 37/14 covered by [B31B 19/14](#), [B31B 37/00](#)  
[B31B 37/26](#) covered by [B31B 19/26](#), [B31B 37/00](#)      B31B 37/60 covered  
by [B31B 19/60](#), [B31B 37/00](#)      B31B 37/74 covered by [B31B 19/74](#),  
[B31B 37/00](#)      B31B 39/02 covered by [B31B 19/02](#), [B31B 39/00](#)  
[B31B 39/14](#) covered by [B31B 19/14](#), [B31B 39/00](#)      B31B 39/26 covered  
by [B31B 19/26](#), [B31B 39/00](#)      B31B 39/60 covered by [B31B 19/60](#),  
[B31B 39/00](#)      B31B 41/02 covered by [B31B 19/02](#), [B31B 41/00](#)  
[B31B 41/14](#) covered by [B31B 19/14](#), [B31B 41/00](#)      B31B 41/26 covered  
by [B31B 19/26](#), [B31B 41/00](#)      B31B 41/60 covered by [B31B 19/60](#),  
[B31B 41/00](#)      B31B 41/74 covered by [B31B 19/74](#), [B31B 41/00](#)

Project: MP0118 (B31C)

- M B31C      **MAKING WOUND ARTICLES, e.g. WOUND TUBES, *OF PAPER OR CARDBOARD*** (characteristics relating to the working of plastics [B29](#); *shaping of plastics or substances in a plastic state* [B29C](#))
- NOTE  
The term "winding" in this subclass means forming two or more complete convolutions.
- M B31C 1/00      Forming **paper** tubes or pipes *of paper or cardboard* by feeding at right angles to the winding mandrel centre line
- M B31C 3/00      Forming **paper** tubes or pipes *of paper or cardboard* by feeding obliquely to the winding mandrel centre line
- M B31C 5/00      Forming **paper** tubes or pipes *of paper or cardboard* without mandrels
- M B31C 7/00      Forming conical *articles of paper articles or cardboard* by winding (winding blanks [B31B](#))
- M B31C 11/00      **Paper-Machinery** for winding *machinery paper or cardboard* combined with other machinery

Project: MP0118 (B31D)

- M B31D      **MAKING *OTHER ARTICLES OF PAPER ARTICLES OR CARDBOARD NOT PROVIDED FOR IN SUBCLASSES B31B OR B31C*** (manufacture by dry processes of articles made from particles or fibres consisting of wood or other lignocellulosic *or like organic* material [B27N](#); making layered products not composed wholly of paper or cardboard [B32B](#); making cardboard or paper [D21F](#), [D21H](#); making articles *form from cellulosic fibrous suspensions, e.g.* wood pulp [D21J](#))

NOTE

This subclass covers the making, otherwise than by winding, of articles other than boxes, cartons, envelopes, bags, and tubes from paper, other than from paper pulp.

**Project: MP0118 (B31F)**

- M B31F 7/00 Processes for working paper **or cardboard** not otherwise provided for  
 M B31F 7/02 · Breaking the coating on paper **or cardboard**

**Project: MP0118 (B60B)**

- M B60B VEHICLE WHEELS (**making wheels or wheel parts by rolling B21H 1/00, by forging, hammering or pressing B21K 1/28**); CASTORS; AXLES **FOR WHEELS OR CASTORS**; INCREASING WHEEL ADHESION

NOTE

Attention is drawn to the Explanatory Note following the class title ([B60](#))

**Project: MP0118 (B60K)**

- M B60K ARRANGEMENT OR MOUNTING OF PROPULSION UNITS OR OF TRANSMISSIONS IN VEHICLES; ARRANGEMENT OR MOUNTING OF PLURAL DIVERSE PRIME-MOVERS **IN VEHICLES**; AUXILIARY DRIVES **FOR VEHICLES**; INSTRUMENTATION OR DASHBOARDS FOR VEHICLES; ARRANGEMENTS IN CONNECTION WITH COOLING, AIR INTAKE, GAS EXHAUST, OR FUEL SUPPLY, OF PROPULSION UNITS, IN VEHICLES

NOTES

1. In this subclass, the following terms or expressions are used with the meanings indicated:

- "conjoint control of drive units" includes such control for vehicles or of general applicability;
- "auxiliary drives" means drives of auxiliary or external machines or devices from the propulsion unit, transmission, or other parts of the vehicle, and includes the control of such drives;
- "transmission" means all propulsion parts linking propulsion units, e.g. engines, to ultimate propulsive elements, e.g. wheels;
- "drive unit" means propulsion unit conjoint with transmission, a "drive unit" can additionally include the ultimate driven unit;
- "sub-unit" means, e.g. propulsion unit, clutch, gearing or brake system;
- "hybrid vehicle" means vehicles with plural diverse prime-movers for mutual or common propulsion

2. Attention is drawn to the Note following the title of class [B60](#)

**Project: MP0118 (B61F)**

- M B61F RAIL VEHICLE SUSPENSIONS, e.g. UNDERFRAMES, BOGIES, **OR** ARRANGEMENTS OF WHEEL AXLES; RAIL VEHICLES FOR USE ON TRACKS OF DIFFERENT WIDTH; PREVENTING DERAILING **OF RAIL VEHICLES**; **WHEEL GUARDS**; **WHEEL GUARDS**, OBSTRUCTION REMOVERS, OR THE LIKE **FOR RAIL VEHICLES** (for vehicles in general [B60](#); axles; **or** wheels [B60B](#); **tyres B60C**; **vehicle tyres B60C**)

**Project: MP0118 (B64D)**

- M B64D EQUIPMENT FOR FITTING IN OR TO AIRCRAFT; FLYING SUITS; PARACHUTES; ARRANGEMENTS OR MOUNTING OF **POWERPLANTS** **POWER PLANTS** OR PROPULSION TRANSMISSIONS **IN AIRCRAFT**

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="#">B64D 15/18</a>	covered by	<a href="#">B64D 15/16</a>	<a href="#">B64D 25/102</a>
covered by	<a href="#">B64D 25/10</a>	<a href="#">B64D 25/105</a>	covered by
<a href="#">B64D 25/10</a>	<a href="#">B64D 25/108</a>	covered by	<a href="#">B64D 25/10</a>
<a href="#">B64D 25/11</a>	covered by	<a href="#">B64D 25/10</a>	<a href="#">B64D 25/112</a>
covered by	<a href="#">B64D 25/10</a>	<a href="#">B64D 25/115</a>	covered by
<a href="#">B64D 25/10</a>	<a href="#">B64D 25/118</a>	covered by	<a href="#">B64D 25/10</a>

**Project: MP0118 (B64F)**

**M B64F**

**GROUND OR AIRCRAFT-CARRIER-DECK INSTALLATIONS *SPECIALLY ADAPTED FOR USE IN CONNECTION WITH AIRCRAFT; DESIGNING, MANUFACTURING, ASSEMBLING, CLEANING, MAINTAINING OR REPAIRING AIRCRAFT, NOT OTHERWISE PROVIDED FOR***

NOTES

1. In this subclass, the term "installation" embraces equipment, including mobile equipment, peculiar to use in connection with aircraft and not fitted thereto
2. The term "ground installations" in this subclass embraces waterborne installations

**Project: Project-Y02W (Y02W)**

**N Y02W**

**CLIMATE CHANGE MITIGATION TECHNOLOGIES RELATED TO WASTEWATER TREATMENT OR WASTE MANAGEMENT**

**N Y02W 10/00**

**Technologies for wastewater treatment (fuel from waste [Y02E 50/30](#); methane from waste for energy generation [Y02E 50/34](#))**

N Y02W 10/10

• Biological treatment of water, waste water, or sewage

N Y02W 10/12

• • Anaerobic processes with biogas recycling, capture or flaring

N Y02W 10/15

• • Aerobic processes

N Y02W 10/18

• • Constructed wetlands

N Y02W 10/20

• Sludge processing

N Y02W 10/23

• • Anaerobic processes with biogas recycling, capture or flaring

N Y02W 10/27

• • Aerobic processes

N Y02W 10/30

• Wastewater or sewage treatment systems with climate change mitigation effect characterised by the origin of the energy

N Y02W 10/33

• • using wind energy

N Y02W 10/37

• • using solar energy

N Y02W 10/40

• Valorisation of by-products of wastewater, sewage or sludge processing

N Y02W 10/45

• • Obtention of bio-polymers

**N Y02W 30/00**

**Technologies for solid waste management (heat utilisation in combustion or incineration of waste [Y02E 20/12](#); fuel from waste [Y02E 50/30](#); methane from waste for energy generation [Y02E 50/34](#))**

N Y02W 30/10

• Related to waste collection, transportation, transfer or storage e.g. segregated refuse collecting, electric or hybrid propulsion

N Y02W 30/20

• Related to waste processing or separation (separation techniques [Y02W 30/522](#); separating plastic from other materials [Y02W 30/622](#); removing refrigerant [Y02W 30/825](#))

N Y02W 30/30

• Landfill technologies aiming to mitigate methane emissions

N Y02W 30/32

• • Sealing or covering

N Y02W 30/35

• • Landfill gas capture

N Y02W 30/38

• • Landfill gas flaring

- N Y02W 30/40      · *Bio-organic fraction processing; Production of fertilisers from the organic fraction of waste or refuse*
- N Y02W 30/43      · *Aerobic fermentation, e.g. composting*
- N Y02W 30/47      · *Anaerobic fermentation, e.g. methanation combined with capture, recycling or flaring*
- N Y02W 30/50      · *Reuse, recycling or recovery technologies*
- N Y02W 30/52      · *Dismantling or mechanical processing of waste for the recovery of materials during separation, disassembly, pre-processing or upgrading*
- N Y02W 30/521     · *Crushing or shredding*
- N Y02W 30/522     · *Separation techniques*
- N Y02W 30/523     · *Sieving or screening*
- N Y02W 30/524     · *based on density or gravimetry*
- N Y02W 30/525     · *using wind or air currents*
- N Y02W 30/526     · *Magnetic separation*
- N Y02W 30/527     · *Electrostatic separation*
- N Y02W 30/528     · *inducing eddy-currents*
- N Y02W 30/54      · *Metal recycling*
- N Y02W 30/541     · *Manufacture of articles from waste metal particles*
- N Y02W 30/542     · *Recovery or treatment of by-products during pig-iron manufacturing (use of waste of metallurgical processes as filler for mortars or concrete [Y02W 30/94](#))*
- N Y02W 30/543     · *Treatment of liquid slag*
- N Y02W 30/56      · *Disassembly of vehicles for recovery of salvageable parts*
- N Y02W 30/58      · *Construction or demolition [C&D] waste*
- N Y02W 30/60      · *Glass recycling*
- N Y02W 30/61      · *Glass containers reutilization*
- N Y02W 30/62      · *Plastics recycling*
- N Y02W 30/622     · *Separating plastics from other materials*
- N Y02W 30/625     · *Disintegrating plastics*
- N Y02W 30/628     · *Plastic containers reutilization*
- N Y02W 30/64      · *Paper recycling*
- N Y02W 30/642     · *Dry methods for dividing waste paper into small particles*
- N Y02W 30/644     · *by cutting actions*
- N Y02W 30/646     · *Wet methods for dividing waste paper into small particles*
- N Y02W 30/648     · *Recovery of cellulose by working-up waste paper*
- N Y02W 30/66      · *Disintegrating fibre-containing textile articles to obtain fibres for re-use*
- N Y02W 30/663     · *Opening, unravelling or teasing ropes or like fibrous strands to obtain fibres for re-use*
- N Y02W 30/667     · *Opening rags to obtain fibres for re-use*
- N Y02W 30/68      · *Rubber waste recycling*
- N Y02W 30/683     · *Utilisation of recycled rubber in footwear*
- N Y02W 30/687     · *Utilisation of recycled tires for hydraulic engineering*
- N Y02W 30/70      · *Recovery of polymers other than plastics or rubbers*
- N Y02W 30/701     · *without chemical reactions*
- N Y02W 30/702     · *by chemically breaking down the molecular chains of polymers or breaking of crosslinks, e.g. devulcanisation*

- N Y02W 30/703 . . . . by dry-heat treatment only
- N Y02W 30/704 . . . . by treatment with steam or water
- N Y02W 30/705 . . . . by treatment with inorganic material
- N Y02W 30/706 . . . . by treatment with organic material
- N Y02W 30/72 . . Recovery of luminescent materials
- N Y02W 30/74 . . Recovery of fats, fatty oils, fatty acids or other fatty substances, e.g. lanolin or waxes
- N Y02W 30/76 . . Recovery of tanning agents from leather
- N Y02W 30/78 . . Recycling of wood or furniture waste (production of fertilisers from the organic fraction of waste or refuse [Y02W 30/40](#))
- N Y02W 30/80 . . Packaging reuse or recycling (bio-packaging [Y02W 90/10](#))
- N Y02W 30/801 . . . Technologies specific to multilayer packaging
- N Y02W 30/802 . . . Packaging eco-design or eco-conception
- N Y02W 30/803 . . . . Packaging containers made of recycled materials
- N Y02W 30/804 . . . . . the recycled material being paper
- N Y02W 30/805 . . . . Packaging containers especially suited for or with means facilitating recycling
- N Y02W 30/806 . . . . . Packaging containers consisting of two or more parts made of the same material
- N Y02W 30/807 . . . . Packaging containers especially suited for or with means facilitating reusability
- N Y02W 30/82 . . Recycling of waste of electrical or electronic equipment [WEEE]
- N Y02W 30/821 . . . Recovery of metals from electric or electronic cables or wires scrap (metal recycling [Y02W 30/54](#))
- N Y02W 30/822 . . . Recovery of materials from electronic scrap, e.g. printed circuit board scrap
- N Y02W 30/823 . . . Technologies specific to particular WEEE categories
- N Y02W 30/824 . . . . Refrigerators
- N Y02W 30/825 . . . . . Removing refrigerant
- N Y02W 30/826 . . . . Information technology [IT] or telecommunication equipment
- N Y02W 30/827 . . . . Consumers equipment or photovoltaic panels
- N Y02W 30/828 . . . . Lighting equipment or discharge tubes
- N Y02W 30/829 . . . . . Lighting devices made of waste or recyclable material
- N Y02W 30/84 . . Recycling of batteries
- N Y02W 30/86 . . Recycling of fuel cells
- N Y02W 30/88 . . Nuclear fuel reprocessing
- N Y02W 30/881 . . . Apparatus or processes for dismantling nuclear fuel, e.g. before reprocessing
- N Y02W 30/882 . . . Reprocessing of irradiated solid fuel
- N Y02W 30/883 . . . . Aqueous processes, e.g. based on organic extraction means or regeneration thereof
- N Y02W 30/884 . . . . Non-aqueous processes
- N Y02W 30/90 . . Reuse, recycling or recovery technologies cross-cutting to different types of waste
- N Y02W 30/91 . . . Use of waste materials as fillers for mortars or concrete
- N Y02W 30/92 . . . . Combustion residues, e.g. purification products of smoke, fumes or exhaust gases
- N Y02W 30/93 . . . . from quarries, mining or the like

- N Y02W 30/94 . . . . from metallurgical processes
- N Y02W 30/95 . . . . from building or ceramic industry
- N Y02W 30/96 . . . . organic e.g. rubber, polystyrene
- N Y02W 30/97 . . . . . Vegetable refuse, e.g. rice husks, maize-ear refuse; cellulosic materials, e.g. paper
- N Y02W 90/00 *Enabling technologies or technologies with a potential or indirect contribution to greenhouse gas [GHG] emissions mitigation***
- N Y02W 90/10 . Bio-packaging
- N Y02W 90/11 . . Packing containers made from renewable resources
- N Y02W 90/12 . . . Packing containers made of bio-plastics
- N Y02W 90/13 . . . Biodegradable packaging containers
- N Y02W 90/14 . . . . Compostable packaging containers
- N Y02W 90/20 . Computer systems or methods specially adapted for waste reduction or recycling of materials or goods

**Project: RP0006 (A61J)**

- M A61J 1/00 Containers specially adapted for medical or pharmaceutical purposes (capsules or the like for oral use [A61J 3/07](#); boxes for medical appliances, doctors' bags [A61B 19/02](#); {antithrombogenic treatment of articles for conditioning blood [A61L 33/00](#); devices for introducing media into or onto the body [A61M](#);} containers for radioactive substances [G21F 5/00](#))**
- U A61J 1/05 . for collecting, storing or administering blood, plasma or medical fluids {(multiple bags systems for separating or storing blood components [A61M 1/0209](#)); Infusion or perfusion containers}
- C A61J 1/14 . . Details; {, e.g. **inlet or outlet ports**, provisions for hanging; **or** shape retaining means}; Accessories therefor; {, e.g. **connections of tubings inlet or outlet ports, valves, filters or caps**} (**plugs or stoppers [B65D 51/00](#)**) ([A61J 7/00](#) takes precedence; {**plugs or stoppers [B65D 51/00](#)**;} openers [B65D](#), [B67B 7/00](#))
- WARNING**  
Group [A61J 1/14](#) is impacted by reclassification into group [A61J 1/1468](#). Groups [A61J 1/14](#) and [A61J 1/1468](#) should be considered in order to perform a complete search.
- C A61J 1/1412 . . . {Containers with closing means, e.g. caps (plugs for containers [B65D 51/00](#))}
- WARNING**  
Group [A61J 1/1412](#) is impacted by reclassification into groups [A61J 1/1418](#) - [A61J 1/1431](#). Groups [A61J 1/1412](#) and [A61J 1/1418](#) - [A61J 1/1431](#) should be considered in order to perform a complete search.
- D A61J 2001/1418 . . . . {threaded type}
- N A61J 1/1418 . . . . {Threaded type}
- WARNING**  
Groups [A61J 1/1418](#)- [A61J 1/1431](#) are incomplete pending reclassification of documents from groups [A61J 1/1412](#). Groups [A61J 1/1412](#), [A61J 1/1418](#) - [A61J 1/1431](#) should be considered in order to perform a complete search.
- D A61J 2001/1425 . . . . {snap-fit type}

- N A61J 1/1425 . . . . {Snap-fit type}
- WARNING  
Group(s) [A61J 1/1418- A61J 1/1431](#) is/are incomplete pending reclassification of documents from group(s) [A61J 1/1412](#).  
Groups [A61J 1/1412, A61J 1/1418 - A61J 1/1431](#) should be considered in order to perform a complete search.
- D A61J 2001/1431 . . . . {permanent type, e.g. welded or glued}
- N A61J 1/1431 . . . . {Permanent type, e.g. welded or glued}
- WARNING  
Groups [A61J 1/1418- A61J 1/1431](#) are incomplete pending reclassification of documents from groups [A61J 1/1412](#).  
Groups [A61J 1/1412, A61J 1/1418 - A61J 1/1431](#) should be considered in order to perform a complete search.
- C A61J 1/1443 . . . {Containers with means for dispensing liquid medicaments in a filtered or sterile way, e.g. with bacterial filters}
- WARNING  
Groups [A61J 1/1443](#) is impacted by reclassification into groups [A61J 1/145 - A61J 1/1456](#).  
Groups [A61J 1/1443 and A61J 1/145 - A61J 1/1456](#) should be considered in order to perform a complete search.
- D A61J 2001/145 . . . . {using air filters}
- N A61J 1/145 . . . . {using air filters}
- WARNING  
Groups [A61J 1/145- A61J 1/1456](#) are incomplete pending reclassification of documents from groups [A61J 1/1443](#).  
Groups [A61J 1/1443, A61J 1/145 - A61J 1/1456](#) should be considered in order to perform a complete search.
- D A61J 2001/1456 . . . . {using liquid filters}
- N A61J 1/1456 . . . . {using liquid filters}
- WARNING  
Groups [A61J 1/145- A61J 1/1456](#) are incomplete pending reclassification of documents from groups [A61J 1/1443](#).  
Groups [A61J 1/1443, A61J 1/145 - A61J 1/1456](#) should be considered in order to perform a complete search.
- U A61J 1/1462 . . . {Containers with provisions for hanging, e.g. integral adaptations of the container (accessories for hanging the container [A61J 1/16, A61M 5/1414](#))}
- D A61J 2001/1468 . . . {Containers with specific material properties}
- N A61J 1/1468 . . . {Containers characterised by specific material properties}
- WARNING  
Group [A61J 1/1468](#) is incomplete pending reclassification of documents from group [A61J 1/14](#).  
Groups [A61J 1/14 and A61J 1/1468](#) should be considered in order to perform a complete search.
- C A61J 1/1475 . . . {Inlet or outlet ports}
- WARNING  
Group [A61J 1/1475](#) is impacted by reclassification into groups [A61J 1/1481 - A61J 1/1487](#).

Groups [A61J 1/1475](#) and [A61J 1/1481](#) - [A61J 1/1487](#) should be considered in order to perform a complete search.

- D A61J 2001/1481 . . . . {with connection retaining means, e.g. thread or snap-fit}
- N A61J 1/1481 . . . . {with connection retaining means, e.g. thread or snap-fit}

WARNING

Groups [A61J 1/1481](#)- [A61J 1/1487](#) are incomplete pending reclassification of documents from group [A61J 1/1475](#).  
Groups [A61J 1/1475](#), [A61J 1/1481](#) - [A61J 1/1487](#) should be considered in order to perform a complete search.

- D A61J 2001/1487 . . . . {with friction fit, e.g. connecting tubes directly to a protruding port}
- N A61J 1/1487 . . . . {with friction fit, e.g. connecting tubes directly to a protruding port}

WARNING

Groups [A61J 1/1481](#)- [A61J 1/1487](#) are incomplete pending reclassification of documents from groups [A61J 1/1475](#).  
Groups [A61J 1/1475](#), [A61J 1/1481](#) - [A61J 1/1487](#) should be considered in order to perform a complete search.

- C A61J 1/20 . . . Arrangements for transferring {or mixing} fluids, e.g. from vial to syringe  
{containers in general with provisions for mixing contents [B65D 81/32](#)}

WARNING

Group [A61J 1/20](#) is impacted by reclassification into groups [A61J 1/2003](#) - [A61J 1/2086](#).  
Groups [A61J 1/20](#) and [A61J 1/2003](#) - [A61J 1/2086](#) should be considered in order to perform a complete search.

- D A61J 2001/2003 . . . . {Accessories used in combination with means for transfer or mixing of fluids, e.g. for activating fluid flow, separating fluids, filtering fluid or venting}
- N A61J 1/2003 . . . . {Accessories used in combination with means for transfer or mixing of fluids, e.g. for activating fluid flow, separating fluids, filtering fluid or venting}

WARNING

Groups [A61J 1/2003](#)- [A61J 1/2086](#) are incomplete pending reclassification of documents from groups [A61J 1/20](#).  
Groups [A61J 1/20](#), [A61J 1/2003](#) - [A61J 1/2086](#) should be considered in order to perform a complete search.

- D A61J 2001/2006 . . . . . {Piercing means}
- N A61J 1/2006 . . . . . {Piercing means}
- D A61J 2001/201 . . . . . {having one piercing end}
- N A61J 1/201 . . . . . {having one piercing end}
- D A61J 2001/2013 . . . . . {having two piercing ends}
- N A61J 1/2013 . . . . . {having two piercing ends}
- D A61J 2001/2017 . . . . . {having more than two piercing ends}
- N A61J 1/2017 . . . . . {having three or more piercing ends}
- D A61J 2001/202 . . . . . {Separating means}
- N A61J 1/202 . . . . . {Separating means}
- D A61J 2001/2024 . . . . . {having peelable seals}
- N A61J 1/2024 . . . . . {having peelable seals}
- D A61J 2001/2027 . . . . . {having frangible parts}

N	A61J 1/2027	. . . . . {having frangible parts}
D	A61J 2001/2031	. . . . . {having openings brought into alignment}
N	A61J 1/2031	. . . . . {having openings brought into alignment}
D	A61J 2001/2034	. . . . . {having separation clips}
N	A61J 1/2034	. . . . . {having separation clips}
D	A61J 2001/2037	. . . . . {having valve means}
N	A61J 1/2037	. . . . . {having valve means}
D	A61J 2001/2041	. . . . . {having removable plugs}
N	A61J 1/2041	. . . . . {having removable plugs}
D	A61J 2001/2044	. . . . . {having slits}
N	A61J 1/2044	. . . . . {having slits}
D	A61J 2001/2048	. . . . . {Connecting means}
N	A61J 1/2048	. . . . . {Connecting means}
D	A61J 2001/2051	. . . . . {having tap means, e.g. tap means activated by sliding}
N	A61J 1/2051	. . . . . {having tap means, e.g. tap means activated by sliding}
D	A61J 2001/2055	. . . . . {having gripping means}
N	A61J 1/2055	. . . . . {having gripping means}
D	A61J 2001/2058	. . . . . {having multiple connecting ports}
N	A61J 1/2058	. . . . . {having multiple connecting ports}
D	A61J 2001/2062	. . . . . {with directional valves}
N	A61J 1/2062	. . . . . {with directional valves}
D	A61J 2001/2065	. . . . . {having aligning and guiding means}
N	A61J 1/2065	. . . . . {having aligning and guiding means}
D	A61J 2001/2068	. . . . . {Venting means}
N	A61J 1/2068	. . . . . {Venting means}
D	A61J 2001/2072	. . . . . {for internal venting}
N	A61J 1/2072	. . . . . {for internal venting}
D	A61J 2001/2075	. . . . . {for external venting}
N	A61J 1/2075	. . . . . {for external venting}
D	A61J 2001/2079	. . . . . {Filtering means}
N	A61J 1/2079	. . . . . {Filtering means}
D	A61J 2001/2082	. . . . . {for gas filtration}
N	A61J 1/2082	. . . . . {for gas filtration}
D	A61J 2001/2086	. . . . . {for fluid filtration}
N	A61J 1/2086	. . . . . {for fluid filtration}
<b>U</b>	<b>A61J 7/00</b>	<b>Devices for administering medicines orally, e.g. spoons (calibrated capacity measures for fluids or fluent solid material <a href="#">G01F 19/00</a>; weighing spoons <a href="#">G01G 19/56</a>); Pill counting devices; Arrangements for time indication or reminder for taking medicine</b>
U	A61J 7/04	. Arrangements for time indication or reminder for taking medicine, e.g. programmed dispensers
C	A61J 7/0409	. {with timers}

**WARNING**

**Group A61J 7/0409 is impacted by reclassification into groups [A61J 7/0418](#) - [A61J 7/0463](#).**

*Groups A61J 7/0409 and A61J 7/0418 - A61J 7/0463 should be considered in order to perform a complete search.*

- D A61J 2007/0418 . . . {with electronic history memory}
- N A61J 7/0418 . . . {with electronic history memory}

WARNING

Groups [A61J 7/0418](#)- [A61J 7/0463](#) are incomplete pending reclassification of documents from groups [A61J 7/0409](#).  
Groups [A61J 7/0409](#), [A61J 7/0418](#) - [A61J 7/0463](#) should be considered in order to perform a complete search.

- D A61J 2007/0427 . . . {with direct interaction with a dispensing or delivery system}
- N A61J 7/0427 . . . {with direct interaction with a dispensing or delivery system}

WARNING

Groups [A61J 7/0418](#)- [A61J 7/0463](#) are incomplete pending reclassification of documents from groups [A61J 7/0409](#).  
Groups [A61J 7/0409](#), [A61J 7/0418](#) - [A61J 7/0463](#) should be considered in order to perform a complete search.

- D A61J 2007/0436 . . . . {resulting from removing a drug from, or opening, a container}
- N A61J 7/0436 . . . . {resulting from removing a drug from, or opening, a container}
- D A61J 2007/0445 . . . . {by preventing drug dispensing during a predetermined time period}
- N A61J 7/0445 . . . . {for preventing drug dispensing during a predetermined time period}
- D A61J 2007/0454 . . . {for multiple drugs}
- N A61J 7/0454 . . . {for dispensing of multiple drugs}

WARNING

Groups [A61J 7/0418](#)- [A61J 7/0463](#) are incomplete pending reclassification of documents from groups [A61J 7/0409](#).  
Groups [A61J 7/0409](#), [A61J 7/0418](#) - [A61J 7/0463](#) should be considered in order to perform a complete search.

- D A61J 2007/0463 . . . {for multiple patients}
- N A61J 7/0463 . . . {for multiple patients}

WARNING

Groups [A61J 7/0418](#)- [A61J 7/0463](#) are incomplete pending reclassification of documents from groups [A61J 7/0409](#).  
Groups [A61J 7/0409](#), [A61J 7/0418](#) - [A61J 7/0463](#) should be considered in order to perform a complete search.

- C A61J 7/0481 . . . {working on a schedule basis}

WARNING

*Group [A61J 7/0481](#) is impacted by reclassification into group [A61J 7/049](#).  
Groups [A61J 7/0481](#) and [A61J 7/049](#) should be considered in order to perform a complete search.*

- D A61J 2007/049 . . . . {changed automatically as a reaction on a schedule deviation due to the patient}
- N A61J 7/049 . . . . {automatically changing in response to a schedule deviation by the patient}

WARNING

Group [A61J 7/049](#) is incomplete pending reclassification of documents from group [A61J 7/0481](#).

Groups [A61J 7/0481](#) and [A61J 7/049](#) should be considered in order to perform a complete search.

- M A61J 9/00**      **Feeding-bottles in general (~~electric heating elements H05B~~)**
- C A61J 9/06      • Holders for bottles
- WARNING**  
Group [A61J 9/06](#) is impacted by reclassification into groups [A61J 9/0607](#) - [A61J 9/0692](#).  
Groups [A61J 9/06](#) and [A61J 9/0607](#) - [A61J 9/0692](#) should be considered in order to perform a complete search.
- D A61J 2009/0607      • • {having aesthetic properties, e.g. toy-like or imitating a female breast}
- N A61J 9/0607      • • {having aesthetic features, e.g. toy-like or imitating a female breast}
- WARNING**  
Groups [A61J 9/0607](#)- [A61J 9/0692](#) are incomplete pending reclassification of documents from groups [A61J 9/06](#).  
Groups [A61J 9/06](#), [A61J 9/0607](#) - [A61J 9/0692](#) should be considered in order to perform a complete search.
- D A61J 2009/0615      • • {providing isolation}
- N A61J 9/0615      • • {providing isolation}
- WARNING**  
Groups [A61J 9/0607](#)- [A61J 9/0692](#) are incomplete pending reclassification of documents from groups [A61J 9/06](#).  
Groups [A61J 9/06](#), [A61J 9/0607](#) - [A61J 9/0692](#) should be considered in order to perform a complete search.
- D A61J 2009/0623      • • {facilitating gripping}
- N A61J 9/0623      • • {facilitating gripping}
- WARNING**  
Groups [A61J 9/0607](#)- [A61J 9/0692](#) are incomplete pending reclassification of documents from groups [A61J 9/06](#).  
Groups [A61J 9/06](#), [A61J 9/0607](#) - [A61J 9/0692](#) should be considered in order to perform a complete search.
- D A61J 2009/063      • • {having a particular supporting function}
- N A61J 9/063      • • {having a particular supporting function}
- WARNING**  
Groups [A61J 9/0607](#)- [A61J 9/0692](#) are incomplete pending reclassification of documents from groups [A61J 9/06](#).  
Groups [A61J 9/06](#), [A61J 9/0607](#) - [A61J 9/0692](#) should be considered in order to perform a complete search.
- D A61J 2009/0638      • • • {for supporting in a feeding position}
- N A61J 9/0638      • • • {for supporting in a feeding position}
- D A61J 2009/0646      • • • {for supporting only in a non-feeding position}
- N A61J 9/0646      • • • {for supporting only in a non-feeding position}
- D A61J 2009/0653      • • {characterised by the type of support}
- N A61J 9/0653      • • {characterised by the type of support}
- WARNING**  
Groups [A61J 9/0607](#)- [A61J 9/0692](#) are incomplete pending reclassification of documents from groups [A61J 9/06](#).

Groups [A61J 9/06](#), [A61J 9/0607](#) - [A61J 9/0692](#) should be considered in order to perform a complete search.

- D A61J 2009/0661
  - • • {attachable to a device or furniture, e.g. crib, commode or stroller}
- N A61J 9/0661
  - • • {attachable to other devices or furniture, e.g. crib, commode or stroller}
- D A61J 2009/0669
  - • • {supported by the infant}
- N A61J 9/0669
  - • • {supported by the infant}
- D A61J 2009/0676
  - • • {supported by the caregiver}
- N A61J 9/0676
  - • • {supported by the caregiver}
- D A61J 2009/0684
  - • • {having a self supporting base}
- N A61J 9/0684
  - • • {having a self-supporting base}
- D A61J 2009/0692
  - • • {comprising a flexible arm}
- N A61J 9/0692
  - • • {comprising a flexible arm}

**M A61J 15/00 Feeding-tubes for therapeutic purposes (~~drinking tubes as tableware A47G 21/18~~)**

- C A61J 15/0026
  - {Parts, details or accessories for feeding-tubes (external tubes from ~~the~~ medical ~~container~~ ~~containers~~ to a connector outside of the body [A61M 39/08](#))}

**WARNING**

Group [A61J 15/0026](#) is impacted by reclassification into groups [A61J 15/0076](#) - [A61J 15/0088](#).

Groups [A61J 15/0026](#) and [A61J 15/0076](#) - [A61J 15/0088](#) should be considered in order to perform a complete search.

- U A61J 15/0073
  - {Multi-lumen tubes}
- D A61J 2015/0076
  - {Feeding pumps ([A61M 1/00](#), [A61M 5/142](#), [A61M 25/1018](#) take precedence)}
- N A61J 15/0076
  - {Feeding pumps ([A61M 1/00](#), [A61M 5/142](#), [A61M 25/1018](#) take precedence)}

**WARNING**

Groups [A61J 15/0076](#)- [A61J 15/0088](#) are incomplete pending reclassification of documents from groups [A61J 15/0026](#).

Groups [A61J 15/0026](#), [A61J 15/0076](#) - [A61J 15/0088](#) should be considered in order to perform a complete search.

- D A61J 2015/008
  - {Sensor means, e.g. sensing reflux, acidity, pressure (sensors for diagnostic purposes [A61B 5/00](#); sensors for inflation control [A61M 25/10184](#))}
- N A61J 15/008
  - {Sensor means, e.g. for sensing reflux, acidity or pressure (sensors for diagnostic purposes [A61B 5/00](#); sensors for inflation control [A61M 25/1018](#))}

**WARNING**

Groups [A61J 15/0076](#)- [A61J 15/0088](#) are incomplete pending reclassification of documents from groups [A61J 15/0026](#).

Groups [A61J 15/0026](#), [A61J 15/0076](#) - [A61J 15/0088](#) should be considered in order to perform a complete search.

- D A61J 2015/0084
  - • • {for sensing parameters of the patient}
- N A61J 15/0084
  - • • {for sensing parameters related to the patient}
- D A61J 2015/0088
  - • • {for sensing parameters of the device}
- N A61J 15/0088
  - • • {for sensing parameters related to the device}

**C A61J 17/00 Baby-comforters; Teething rings**

**WARNING**

Group [A61J 17/00](#) is impacted by reclassification into groups [A61J 17/001](#) - [A61J 17/008](#).

Groups [A61J 17/00](#) and [A61J 17/001](#) - [A61J 17/008](#) should be considered in order to perform a complete search.

D A61J 2017/001  
N A61J 17/001

- {~~Baby-comforters~~}
- {~~Baby-comforters~~}

**WARNING**

Groups [A61J 17/001](#)- [A61J 17/008](#) are incomplete pending reclassification of documents from groups [A61J 17/00](#).  
Groups [A61J 17/00](#), [A61J 17/001](#) - [A61J 17/008](#) should be considered in order to perform a complete search.

D A61J 2017/002  
N A61J 17/002  
D A61J 2017/003  
N A61J 17/003

- • {~~with music box~~}
- • {~~with music box~~}
- • {~~with thermometer~~}
- • {~~with thermometer~~}

D A61J 2017/005  
N A61J 17/005

- • {~~light-emitting~~}
- • {~~with light-emitting means~~}

D A61J 2017/006  
N A61J 17/006

- • {~~releasing medication~~}
- • {~~releasing medication~~}

D A61J 2017/007  
N A61J 17/007

- • {~~mounted on soft cushion or doll~~}
- • {~~mounted on soft cushions or dolls~~}

D A61J 2017/008  
N A61J 17/008

- • {~~with protective shield~~}
- • {~~with protective shields~~}

**Project: RP0020 (A01K)**

**C A01K 89/00**

**Reels (devices for casting lines [A01K 91/02](#))**

**WARNING**

Group [A01K 89/00](#) is impacted by reclassification into group [A01K 89/004](#).  
Groups [A01K 89/00](#) and [A01K 89/004](#) should be considered in order to perform a complete search.

U A01K 89/003  
N A01K 89/004

- {Devices for transferring line to a reel}
- {Alternate right or left side drives}

**WARNING**

Group [A01K 89/004](#) is incomplete pending reclassification of documents from group [A01K 89/00](#).  
Groups [A01K 89/00](#) and [A01K 89/004](#) should be considered in order to perform a complete search.

C A01K 89/006  
N A01K 89/009

- {~~Cranks~~~~Hand crank features~~}
- • {Collapsible or extensible}

**WARNING**

Group [A01K 89/009](#) is incomplete pending reclassification of documents from group [A01K 89/006](#).  
Group s [A01K 89/006](#) and [A01K 89/009](#) should be considered in order to perform a complete search.

- C A01K 89/01
- with pick-up, i.e. with the guiding member rotating and the spool **being stationary not rotating** during normal retrieval of the line ([A01K 89/027](#) takes precedence)
- WARNING**  
*Group [A01K 89/01](#) is impacted by reclassification into groups [A01K 89/0106](#), [A01K 89/01121](#), [A01K 89/011221](#), [A01K 89/011222](#), [A01K 89/011223](#), [A01K 89/01123](#), [A01K 89/01124](#), [A01K 89/01125](#), [A01K 89/01126](#), [A01K 89/01127](#), [A01K 89/0113](#), [A01K 89/0122](#), [A01K 89/0123](#), [A01K 89/0124](#), [A01K 89/0125](#), and [A01K 89/0126](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- C A01K 89/0102
- • {with a closed face}
- WARNING**  
*Group [A01K 89/0102](#) is impacted by reclassification into groups [A01K 89/01025](#), [A01K 89/01026](#), and [A01K 89/01029](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- N A01K 89/01025
- • • {with line snubber shifted by a remote actuator}
- WARNING**  
*Groups [A01K 89/01025](#), [A01K 89/01026](#), and [A01K 89/01029](#) are incomplete pending reclassification of documents from group [A01K 89/0102](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- N A01K 89/01026
- • • • {with rotor and snubber shiftable axially}
- N A01K 89/01029
- • • • • {with guiding members shifted radially}
- U A01K 89/0105
- • {Multi-speed mechanisms}
- N A01K 89/0106
- • {Ratchet-type drives}
- WARNING**  
*Group [A01K 89/0106](#), [A01K 89/01121](#), [A01K 89/011221](#), [A01K 89/011222](#), [A01K 89/011223](#), [A01K 89/01123](#), [A01K 89/01124](#), [A01K 89/01125](#), [A01K 89/01126](#), [A01K 89/01127](#), [A01K 89/0113](#), [A01K 89/0122](#), [A01K 89/0123](#), [A01K 89/0124](#), [A01K 89/0125](#), and [A01K 89/0126](#) are incomplete pending reclassification of documents from group [A01K 89/01](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- C A01K 89/0108
- • {Pick-up details}
- WARNING**  
*Group [A01K 89/0108](#) is impacted by reclassification into group [A01K 89/01081](#). Groups [A01K 89/0108](#) and [A01K 89/01081](#) should be considered in order to perform a complete search.*
- N A01K 89/01081
- • • {Guiding members on rotor axially rearward of spool}
- WARNING**  
*Groups [A01K 89/01081](#), [A01K 89/01082](#), [A01K 89/01083](#), [A01K 89/01084](#), [A01K 89/01085](#), [A01K 89/01086](#), [A01K 89/01087](#), and [A01K 89/01088](#) are incomplete pending reclassification of documents from group [A01K 89/0108](#).*

All groups listed in this Warning should be considered in order to perform a complete search.

- N A01K 89/01082 . . . . {Guiding members shiftable on rotor}
- N A01K 89/01083 . . . . {to wind position by rotor drive}
- N A01K 89/01084 . . . . . {Guiding members shifted to unwind position by discrete manual operators}
- N A01K 89/01085 . . . {Guiding members on rotor forward of spool ([A01K 89/0102](#) takes precedence)}

WARNING

Groups [A01K 89/01081](#), [A01K 89/01082](#), [A01K 89/01083](#), [A01K 89/01084](#), [A01K 89/01085](#), [A01K 89/01086](#), [A01K 89/01087](#), and [A01K 89/01088](#) are incomplete pending reclassification of documents from group [A01K 89/0108](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- N A01K 89/01086 . . . . {with rotor drive shifting the guiding member to unwind and wind positions}
- N A01K 89/01087 . . . . {with manual actuator to shift guiding member to unwind position}
- N A01K 89/01088 . . . . . {Actuators forward of spool}
- U A01K 89/0111 . . {Spool details}
- N A01K 89/01121 . . {Frame details}

WARNING

Groups [A01K 89/0106](#), [A01K 89/01121](#), [A01K 89/011221](#), [A01K 89/011222](#), [A01K 89/011223](#), [A01K 89/01123](#), [A01K 89/01124](#), [A01K 89/01125](#), [A01K 89/01126](#), [A01K 89/01127](#), [A01K 89/0113](#), [A01K 89/0122](#), [A01K 89/0123](#), [A01K 89/0124](#), [A01K 89/0125](#) and [A01K 89/0126](#) are incomplete pending reclassification of documents from group [A01K 89/01](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- N A01K 89/011221 . . . {with line or water shields}
- N A01K 89/011222 . . . {with lubrication features}
- N A01K 89/011223 . . . {with bearing features}
- N A01K 89/01123 . . . {Frame disassembly features}
- N A01K 89/01124 . . . . {Hinged frame sections}
- N A01K 89/01125 . . . . {Rotated joints}
- N A01K 89/01126 . . . . . {Threaded}
- N A01K 89/01127 . . . {Reel supports}
- N A01K 89/0113 . . {Spool locking devices on spool shaft}

WARNING

Groups [A01K 89/0106](#), [A01K 89/01121](#), [A01K 89/011221](#), [A01K 89/011222](#), [A01K 89/011223](#), [A01K 89/01123](#), [A01K 89/01124](#), [A01K 89/01125](#), [A01K 89/01126](#), [A01K 89/01127](#), [A01K 89/0113](#), [A01K 89/0122](#), [A01K 89/0123](#), [A01K 89/0124](#), [A01K 89/0125](#), and [A01K 89/0126](#) are incomplete pending reclassification of documents from group [A01K 89/01](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- C A01K 89/0114      • • {Reciprocating mechanisms}
- WARNING**  
*Group A01K 89/0114 is impacted by reclassification into groups A01K 89/01141, A01K 89/01142, and A01K 89/01143. All groups listed in this Warning should be considered in order to perform a complete search.*
- N A01K 89/01141      • • • {including eccentric cams reciprocating the spool}
- WARNING**  
*Groups A01K 89/01141, A01K 89/01142, and A01K 89/01143 are incomplete pending reclassification of documents from group A01K 89/0114. All groups listed in this Warning should be considered in order to perform a complete search.*
- N A01K 89/01142      • • • {for reciprocating the guiding member}
- WARNING**  
*Groups A01K 89/01141, A01K 89/01142, and A01K 89/01143 are incomplete pending reclassification of documents from group A01K 89/0114. All groups listed in this Warning should be considered in order to perform a complete search.*
- N A01K 89/01143      • • • • {Reversely threaded screws}
- C A01K 89/0117      • • {Anti-reverse mechanisms}
- WARNING**  
*Group A01K 89/0117 is impacted by reclassification into group A01K 89/0118. Groups A01K 89/0117 and A01K 89/0118 should be considered in order to perform a complete search.*
- N A01K 89/0118      • • • {defining home position of reel part}
- WARNING**  
*Group s A01K 89/0118 is incomplete pending reclassification of documents from group A01K 89/0117. Group s A01K 89/0117 and A01K 89/0118 should be considered in order to perform a complete search.*
- C A01K 89/012      • • motor-driven
- WARNING**  
*Group A01K 89/012 is impacted by reclassification into group A01K 89/0121. Groups A01K 89/012 and A01K 89/0121 should be considered in order to perform a complete search.*
- N A01K 89/0121      • • • {Spring motors}
- WARNING**  
*Group A01K 89/0121 is incomplete pending reclassification of documents from group A01K 89/012. Groups A01K 89/012 and A01K 89/0121 should be considered in order to perform a complete search.*

- N A01K 89/0122
- • {with unwinding indicators, e.g. bell or flashing light}
- WARNING**  
 Groups [A01K 89/0106](#), [A01K 89/01121](#), [A01K 89/011221](#), [A01K 89/011222](#), [A01K 89/011223](#), [A01K 89/01123](#), [A01K 89/01124](#), [A01K 89/01125](#), [A01K 89/01126](#), [A01K 89/01127](#), [A01K 89/0113](#), [A01K 89/0122](#), [A01K 89/0123](#), [A01K 89/0124](#), [A01K 89/0125](#) and [A01K 89/0126](#) are incomplete pending reclassification of documents from group [A01K 89/01](#). All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/0123
- • • {Clicking indicators, e.g. flexible pawl and toothed member}
- N A01K 89/0124
- • • {Spring biased pawls}
- N A01K 89/0125
- • • • {Plural spring sections}
- N A01K 89/0126
- • {with line unwinding limiters}
- WARNING**  
 Groups [A01K 89/0106](#), [A01K 89/01121](#), [A01K 89/011221](#), [A01K 89/011222](#), [A01K 89/011223](#), [A01K 89/01123](#), [A01K 89/01124](#), [A01K 89/01125](#), [A01K 89/01126](#), [A01K 89/01127](#), [A01K 89/0113](#), [A01K 89/0122](#), [A01K 89/0123](#), [A01K 89/0124](#), [A01K 89/0125](#) and [A01K 89/0126](#) are incomplete pending reclassification of documents from group [A01K 89/01](#). All groups listed in this Warning should be considered in order to perform a complete search.
- C A01K 89/015
- with {a} rotary drum {i.e. with a rotating spool} ([A01K 89/033](#) takes precedence)
- WARNING**  
 Group [A01K 89/015](#) is impacted by reclassification into groups [A01K 89/0175](#), [A01K 89/0176](#), [A01K 89/0178](#), [A01K 89/0179](#), [A01K 89/018](#), [A01K 89/0181](#), [A01K 89/0182](#), [A01K 89/0183](#), [A01K 89/0184](#), [A01K 89/0185](#), [A01K 89/0186](#), [A01K 89/0187](#), [A01K 89/0188](#), [A01K 89/0189](#), [A01K 89/01901](#), [A01K 89/01902](#), [A01K 89/01903](#), [A01K 89/01904](#), [A01K 89/01905](#), [A01K 89/01906](#), [A01K 89/01907](#), [A01K 89/01908](#), [A01K 89/01909](#), [A01K 89/0191](#), [A01K 89/01911](#), [A01K 89/01912](#), [A01K 89/019125](#), [A01K 89/01913](#), [A01K 89/01914](#), [A01K 89/01915](#), [A01K 89/01916](#), [A01K 89/01917](#), [A01K 89/01918](#), [A01K 89/01919](#), [A01K 89/0192](#), [A01K 89/01921](#), [A01K 89/01922](#), [A01K 89/01923](#), [A01K 89/01924](#), [A01K 89/01925](#), [A01K 89/01928](#), [A01K 89/01929](#), [A01K 89/0193](#), and [A01K 89/01931](#). All groups listed in this Warning should be considered in order to perform a complete search.
- C A01K 89/0155
- • Antibacklash devices
- WARNING**  
 Group [A01K 89/0155](#) is impacted by reclassification into groups [A01K 89/01556](#) and [A01K 89/01557](#). Groups [A01K 89/0155](#), [A01K 89/01556](#) and [A01K 89/01557](#) should be considered in order to perform a complete search.
- U A01K 89/01555
- • • {using magnets}
- N A01K 89/01556
- • • {Line tension responsive actuators}
- WARNING**  
 Groups [A01K 89/01556](#) and [A01K 89/01557](#) are incomplete pending reclassification of documents from group [A01K 89/0155](#). Groups [A01K 89/0155](#), [A01K 89/01556](#) and [A01K 89/01557](#) should be considered in order to perform a complete search.

- N A01K 89/01557 . . . {Centrifugal}  
WARNING  
 Groups [A01K 89/01556](#) and [A01K 89/01557](#) are incomplete pending reclassification of documents from group [A01K 89/0155](#).  
 Groups [A01K 89/0155](#), [A01K 89/01556](#) and [A01K 89/01557](#) should be considered in order to perform a complete search.
- C A01K 89/016 . . Fly reels *{i.e. with a stub shaft support}*  
WARNING  
 Group [A01K 89/016](#) is impacted by reclassification into group [A01K 89/0162](#).  
 Groups [A01K 89/016](#) and [A01K 89/0162](#) should be considered in order to perform a complete search.
- N A01K 89/0162 . . . {with a releasable latch to retain spool on shaft}  
WARNING  
 Group [A01K 89/0162](#) is incomplete pending reclassification of documents from group [A01K 89/016](#).  
 Groups [A01K 89/016](#) and [A01K 89/0162](#) should be considered in order to perform a complete search.
- U A01K 89/0165 . . for trolling
- C A01K 89/017 . . motor-driven  
WARNING  
 Group [A01K 89/017](#) is impacted by reclassification into groups [A01K 89/0171](#), [A01K 89/0172](#), [A01K 89/0173](#), and [A01K 89/0174](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/0171 . . . {Spring motors}  
WARNING  
 Groups [A01K 89/0171](#), [A01K 89/0172](#), [A01K 89/0173](#), and [A01K 89/0174](#) are incomplete pending reclassification of documents from group [A01K 89/017](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/0172 . . . . {actuated in response to pull on line}
- N A01K 89/0173 . . . . {with independent manual drive}
- N A01K 89/0174 . . . . {with spring chargers}
- N A01K 89/0175 . . {Axial unwinding}  
WARNING  
 Groups [A01K 89/0175](#), [A01K 89/0176](#), [A01K 89/0178](#), [A01K 89/0179](#), [A01K 89/018](#), [A01K 89/0181](#), [A01K 89/0182](#), [A01K 89/0183](#), [A01K 89/0184](#), [A01K 89/0185](#), [A01K 89/0186](#), [A01K 89/0187](#), [A01K 89/0188](#), [A01K 89/0189](#), [A01K 89/01901](#), [A01K 89/01902](#), [A01K 89/01903](#), [A01K 89/01904](#), [A01K 89/01905](#), [A01K 89/01906](#), [A01K 89/01907](#), [A01K 89/01908](#), [A01K 89/01909](#), [A01K 89/0191](#), [A01K 89/01911](#), [A01K 89/01912](#), [A01K 89/019125](#), [A01K 89/01913](#), [A01K 89/01914](#), [A01K 89/01915](#), [A01K 89/01916](#), [A01K 89/01917](#), [A01K 89/01918](#), [A01K 89/01919](#), [A01K 89/0192](#), [A01K 89/01921](#), [A01K 89/01922](#), [A01K 89/01923](#), [A01K 89/01924](#), [A01K 89/01925](#), [A01K 89/01928](#), [A01K 89/01929](#), [A01K 89/0193](#), [A01K 89/01931](#) are incomplete pending reclassification of documents from group [A01K 89/015](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- N A01K 89/0176
  - • • {with guide shiftable between wind and unwind positions}
- N A01K 89/0178
  - • {with unwinding indicators, e.g. a bell or a flashing light}

WARNING

Groups [A01K 89/0175](#), [A01K 89/0176](#), [A01K 89/0178](#), [A01K 89/0179](#), [A01K 89/018](#), [A01K 89/0181](#), [A01K 89/0182](#), [A01K 89/0183](#), [A01K 89/0184](#), [A01K 89/0185](#), [A01K 89/0186](#), [A01K 89/0187](#), [A01K 89/0188](#), [A01K 89/0189](#), [A01K 89/01901](#), [A01K 89/01902](#), [A01K 89/01903](#), [A01K 89/01904](#), [A01K 89/01905](#), [A01K 89/01906](#), [A01K 89/01907](#), [A01K 89/01908](#), [A01K 89/01909](#), [A01K 89/0191](#), [A01K 89/01911](#), [A01K 89/01912](#), [A01K 89/019125](#), [A01K 89/01913](#), [A01K 89/01914](#), [A01K 89/01915](#), [A01K 89/01916](#), [A01K 89/01917](#), [A01K 89/01918](#), [A01K 89/01919](#), [A01K 89/0192](#), [A01K 89/01921](#), [A01K 89/01922](#), [A01K 89/01923](#), [A01K 89/01924](#), [A01K 89/01925](#), [A01K 89/01928](#), [A01K 89/01929](#), [A01K 89/0193](#), [A01K 89/01931](#) are incomplete pending reclassification of documents from group [A01K 89/015](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- N A01K 89/0179
  - • • {Clicking indicators, e.g. flexible pawl and toothed member}
- N A01K 89/018
  - • • {Spring biased pawls}
- N A01K 89/0181
  - • • • {Plural spring sections}
- N A01K 89/0182
  - • {with line unwinding limiters}

WARNING

Groups [A01K 89/0175](#), [A01K 89/0176](#), [A01K 89/0178](#), [A01K 89/0179](#), [A01K 89/018](#), [A01K 89/0181](#), [A01K 89/0182](#), [A01K 89/0183](#), [A01K 89/0184](#), [A01K 89/0185](#), [A01K 89/0186](#), [A01K 89/0187](#), [A01K 89/0188](#), [A01K 89/0189](#), [A01K 89/01901](#), [A01K 89/01902](#), [A01K 89/01903](#), [A01K 89/01904](#), [A01K 89/01905](#), [A01K 89/01906](#), [A01K 89/01907](#), [A01K 89/01908](#), [A01K 89/01909](#), [A01K 89/0191](#), [A01K 89/01911](#), [A01K 89/01912](#), [A01K 89/019125](#), [A01K 89/01913](#), [A01K 89/01914](#), [A01K 89/01915](#), [A01K 89/01916](#), [A01K 89/01917](#), [A01K 89/01918](#), [A01K 89/01919](#), [A01K 89/0192](#), [A01K 89/01921](#), [A01K 89/01922](#), [A01K 89/01923](#), [A01K 89/01924](#), [A01K 89/01925](#), [A01K 89/01928](#), [A01K 89/01929](#), [A01K 89/0193](#), [A01K 89/01931](#) are incomplete pending reclassification of documents from group [A01K 89/015](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- N A01K 89/0183
  - • {Drive mechanism details}

WARNING

Groups [A01K 89/0175](#), [A01K 89/0176](#), [A01K 89/0178](#), [A01K 89/0179](#), [A01K 89/018](#), [A01K 89/0181](#), [A01K 89/0182](#), [A01K 89/0183](#), [A01K 89/0184](#), [A01K 89/0185](#), [A01K 89/0186](#), [A01K 89/0187](#), [A01K 89/0188](#), [A01K 89/0189](#), [A01K 89/01901](#), [A01K 89/01902](#), [A01K 89/01903](#), [A01K 89/01904](#), [A01K 89/01905](#), [A01K 89/01906](#), [A01K 89/01907](#), [A01K 89/01908](#), [A01K 89/01909](#), [A01K 89/0191](#), [A01K 89/01911](#), [A01K 89/01912](#), [A01K 89/019125](#), [A01K 89/01913](#), [A01K 89/01914](#), [A01K 89/01915](#), [A01K 89/01916](#), [A01K 89/01917](#), [A01K 89/01918](#), [A01K 89/01919](#), [A01K 89/0192](#), [A01K 89/01921](#), [A01K 89/01922](#), [A01K 89/01923](#), [A01K 89/01924](#), [A01K 89/01925](#), [A01K 89/01928](#), [A01K 89/01929](#), [A01K 89/0193](#), [A01K 89/01931](#) are incomplete pending reclassification of documents from group [A01K 89/015](#).

*All groups listed in this Warning should be considered in order to perform a complete search.*

- N A01K 89/0184 . . . {Multiple drive ratio}
- N A01K 89/0185 . . . {Ratchet-type drive}
- N A01K 89/0186 . . . {with disengageable positive drive components, e.g. a clutch}
- N A01K 89/0187 . . . . {having alternative yieldable mechanism}
- N A01K 89/0188 . . . . {Axially engaged}
- N A01K 89/0189 . . . . . {Coaxial of spool}
- N A01K 89/01901 . . . . {Reengageable responsive to drive rotation}
- N A01K 89/01902 . . . . {Gear pair}
- N A01K 89/01903 . . . {with yieldable drive coupling, e.g. friction or fluid clutch}
- N A01K 89/01904 . . . . {adjustable by crank manipulation}
- N A01K 89/01905 . . . . . {adjustable within distinct ranges}
- N A01K 89/01906 . . . . {between drive shaft and crank}
- N A01K 89/01907 . . . . {between drive shaft and gear}
- N A01K 89/01908 . . . . {Coaxial with spool}
- N A01K 89/01909 . . . . . {Axially applied}
- N A01K 89/0191 . . . . . {by centre pin}
- N A01K 89/01911 . . . {with feed roller}
- N A01K 89/01912 . . . {with level winding}
- N A01K 89/019125 . . . . {Line shifts along a rotatable cam bar}
- N A01K 89/01913 . . . . {Line traction guide wheels}
- N A01K 89/01914 . . . . {Manually shifted guides}
- N A01K 89/01915 . . . . {the drive mechanism oscillating the guide}
- N A01K 89/01916 . . . . {the drive mechanism reciprocating the guide}
- N A01K 89/01917 . . . . . {Reversely threaded screw}
- N A01K 89/01918 . . . . . {Guide shiftable between wind and unwind positions}
- N A01K 89/01919 . . . . . {Guide having line removal opening}
- N A01K 89/0192 . . . {Frame details}

**WARNING**

Groups [A01K 89/0175](#), [A01K 89/0176](#), [A01K 89/0178](#), [A01K 89/0179](#), [A01K 89/018](#), [A01K 89/0181](#), [A01K 89/0182](#), [A01K 89/0183](#), [A01K 89/0184](#), [A01K 89/0185](#), [A01K 89/0186](#), [A01K 89/0187](#), [A01K 89/0188](#), [A01K 89/0189](#), [A01K 89/01901](#), [A01K 89/01902](#), [A01K 89/01903](#), [A01K 89/01904](#), [A01K 89/01905](#), [A01K 89/01906](#), [A01K 89/01907](#), [A01K 89/01908](#), [A01K 89/01909](#), [A01K 89/0191](#), [A01K 89/01911](#), [A01K 89/01912](#), [A01K 89/019125](#), [A01K 89/01913](#), [A01K 89/01914](#), [A01K 89/01915](#), [A01K 89/01916](#), [A01K 89/01917](#), [A01K 89/01918](#), [A01K 89/01919](#), [A01K 89/0192](#), [A01K 89/01921](#), [A01K 89/01922](#), [A01K 89/01923](#), [A01K 89/01924](#), [A01K 89/01925](#), [A01K 89/01928](#), [A01K 89/01929](#), [A01K 89/0193](#), [A01K 89/01931](#) are incomplete pending reclassification of documents from group [A01K 89/015](#).

*All groups listed in this Warning should be considered in order to perform a complete search.*

- N A01K 89/01921 . . . {Frame disassembly features}
- N A01K 89/01922 . . . . {Hinged frame sections}
- N A01K 89/01923 . . . . {Rotated joints}

- N A01K 89/01924 . . . . {Threaded}
- N A01K 89/01925 . . . {Reel supports, e.g. reel feet}
- N A01K 89/01928 . . . {with line or water shields}
- N A01K 89/01929 . . . {with lubrication features}
- N A01K 89/0193 . . . {with bearing features}
- N A01K 89/01931 . . {Spool or spool shaft details (spool details in reel with pick-up [A01K 89/0111](#))}

**WARNING**

Groups [A01K 89/0175](#), [A01K 89/0176](#), [A01K 89/0178](#), [A01K 89/0179](#), [A01K 89/018](#), [A01K 89/0181](#), [A01K 89/0182](#), [A01K 89/0183](#), [A01K 89/0184](#), [A01K 89/0185](#), [A01K 89/0186](#), [A01K 89/0187](#), [A01K 89/0188](#), [A01K 89/0189](#), [A01K 89/01901](#), [A01K 89/01902](#), [A01K 89/01903](#), [A01K 89/01904](#), [A01K 89/01905](#), [A01K 89/01906](#), [A01K 89/01907](#), [A01K 89/01908](#), [A01K 89/01909](#), [A01K 89/0191](#), [A01K 89/01911](#), [A01K 89/01912](#), [A01K 89/019125](#), [A01K 89/01913](#), [A01K 89/01914](#), [A01K 89/01915](#), [A01K 89/01916](#), [A01K 89/01917](#), [A01K 89/01918](#), [A01K 89/01919](#), [A01K 89/0192](#), [A01K 89/01921](#), [A01K 89/01922](#), [A01K 89/01923](#), [A01K 89/01924](#), [A01K 89/01925](#), [A01K 89/01928](#), [A01K 89/01929](#), [A01K 89/0193](#), [A01K 89/01931](#) are incomplete pending reclassification of documents from group [A01K 89/015](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- U A01K 89/02 . Brake devices for reels
- C A01K 89/027 . . with pick-up {, i.e. for reels with the guiding member rotating and the spool not rotating during normal retrieval of the line}

**WARNING**

Group [A01K 89/027](#) is impacted by reclassification into groups [A01K 89/028](#), [A01K 89/029](#), and [A01K 89/03](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- U A01K 89/0275 . . . {with closed face}
- N A01K 89/028 . . . {Continuously applied (for closed face reels [A01K 89/0275](#))}

**WARNING**

Groups [A01K 89/028](#), [A01K 89/029](#), and [A01K 89/03](#) are incomplete pending reclassification of documents from group [A01K 89/027](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- N A01K 89/029 . . . . {between spool shaft and frame}
- N A01K 89/03 . . . . {between spool and spool shaft}
- C A01K 89/033 . . with {a} rotary drum {, i.e. for reels with a rotating spool (antibacklash devices [A01K 89/0155](#))}

**WARNING**

Group [A01K 89/033](#) is impacted by reclassification into groups [A01K 89/045](#), [A01K 89/046](#), [A01K 89/047](#), [A01K 89/048](#), [A01K 89/049](#), [A01K 89/05](#), [A01K 89/051](#), [A01K 89/052](#), [A01K 89/053](#), [A01K 89/054](#), [A01K 89/055](#), [A01K 89/056](#), [A01K 89/057](#), [A01K 89/058](#) and [A01K 89/059](#).

All groups listed in this Warning should be considered in order to perform a complete search.

- N A01K 89/045 . . . {Spool bearing brake}
- WARNING  
Groups [A01K 89/045](#), [A01K 89/046](#), [A01K 89/047](#), [A01K 89/048](#), [A01K 89/049](#), [A01K 89/05](#), [A01K 89/051](#), [A01K 89/052](#), [A01K 89/053](#), [A01K 89/054](#), [A01K 89/055](#), [A01K 89/056](#), [A01K 89/057](#), [A01K 89/058](#) and [A01K 89/059](#) are incomplete pending reclassification of documents from group [A01K 89/033](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/046 . . . {Manual pressure control}
- WARNING  
Groups [A01K 89/045](#), [A01K 89/046](#), [A01K 89/047](#), [A01K 89/048](#), [A01K 89/049](#), [A01K 89/05](#), [A01K 89/051](#), [A01K 89/052](#), [A01K 89/053](#), [A01K 89/054](#), [A01K 89/055](#), [A01K 89/056](#), [A01K 89/057](#), [A01K 89/058](#) and [A01K 89/059](#) are incomplete pending reclassification of documents from group [A01K 89/033](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/047 . . . . {Radially applied}
- N A01K 89/048 . . . . {Rolling contact}
- N A01K 89/049 . . . . {Separable attachments}
- N A01K 89/05 . . . {Brakes connected to the spool by one-way clutch}
- WARNING  
Groups [A01K 89/045](#), [A01K 89/046](#), [A01K 89/047](#), [A01K 89/048](#), [A01K 89/049](#), [A01K 89/05](#), [A01K 89/051](#), [A01K 89/052](#), [A01K 89/053](#), [A01K 89/054](#), [A01K 89/055](#), [A01K 89/056](#), [A01K 89/057](#), [A01K 89/058](#) and [A01K 89/059](#) are incomplete pending reclassification of documents from group [A01K 89/033](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/051 . . . {Adjustable pressure pawls, e.g. braking clickers}
- WARNING  
Groups [A01K 89/045](#), [A01K 89/046](#), [A01K 89/047](#), [A01K 89/048](#), [A01K 89/049](#), [A01K 89/05](#), [A01K 89/051](#), [A01K 89/052](#), [A01K 89/053](#), [A01K 89/054](#), [A01K 89/055](#), [A01K 89/056](#), [A01K 89/057](#), [A01K 89/058](#) and [A01K 89/059](#) are incomplete pending reclassification of documents from group [A01K 89/033](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/052 . . . {Positive}
- WARNING  
Groups [A01K 89/045](#), [A01K 89/046](#), [A01K 89/047](#), [A01K 89/048](#), [A01K 89/049](#), [A01K 89/05](#), [A01K 89/051](#), [A01K 89/052](#), [A01K 89/053](#), [A01K 89/054](#), [A01K 89/055](#), [A01K 89/056](#), [A01K 89/057](#), [A01K 89/058](#) and [A01K 89/059](#) are incomplete pending reclassification of documents from group [A01K 89/033](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/053 . . . . {One-way}
- N A01K 89/054 . . . . {with disabler}

- N A01K 89/055 . . . . . {Rotation responsive}
- N A01K 89/056 . . . {Radially engaged}
- WARNING  
Groups [A01K 89/045](#), [A01K 89/046](#), [A01K 89/047](#), [A01K 89/048](#), [A01K 89/049](#), [A01K 89/05](#), [A01K 89/051](#), [A01K 89/052](#), [A01K 89/053](#), [A01K 89/054](#), [A01K 89/055](#), [A01K 89/056](#), [A01K 89/057](#), [A01K 89/058](#) and [A01K 89/059](#) are incomplete pending reclassification of documents from group [A01K 89/033](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/057 . . . {Axially engaged}
- WARNING  
Groups [A01K 89/045](#), [A01K 89/046](#), [A01K 89/047](#), [A01K 89/048](#), [A01K 89/049](#), [A01K 89/05](#), [A01K 89/051](#), [A01K 89/052](#), [A01K 89/053](#), [A01K 89/054](#), [A01K 89/055](#), [A01K 89/056](#), [A01K 89/057](#), [A01K 89/058](#) and [A01K 89/059](#) are incomplete pending reclassification of documents from group [A01K 89/033](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A01K 89/058 . . . . {Coaxial with spool}
- N A01K 89/059 . . . . {on adjustable lever}
- M A01K 89/06 . Reversible reels {, i.e. with spool axis shiftable between winding and unwinding positions}
- C A01K 89/08 . Pole-less fishing apparatus,i.e. hand-held reels
- WARNING  
Group [A01K 89/08](#) is impacted by reclassification into group [A01K 89/081](#).  
Groups [A01K 89/08](#) and [A01K 89/081](#) should be considered in order to perform a complete search.
- N A01K 89/081 . . {Axial unwinding}
- WARNING  
Group [A01K 89/081](#) is incomplete pending reclassification of documents from group [A01K 89/08](#).  
Group s [A01K 89/08](#) and [A01K 89/081](#) should be considered in order to perform a complete search.

**Project: RP0055 (B29B)**

- 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 2911/1432 . . Geometry (not used)
- C B29B 2911/14326 . . . Variable wall thickness
- WARNING  
Group [B29B 2911/14326](#) is impacted by reclassification into groups [B29B 2911/14328](#) - [B29B 2911/14332](#).  
Groups [B29B 2911/14326](#) and [B29B 2911/14328](#) - [B29B 2911/14332](#) should be considered in order to perform a complete search.
- N B29B 2911/14328 . . . . at neck portion

- N B29B 2911/1433 . . . . at flange portion
- N B29B 2911/14331 . . . . at body portion
- N B29B 2911/14332 . . . . at bottom portion
- C B29B 2911/14333 . . . Variable diameter

**WARNING**

Group B29B 2911/14333 is impacted by reclassification into groups B29B 2911/14335 - B29B 2911/14338.  
Groups B29B 2911/14333 and B29B 2911/14335 - B29B 2911/14338 should be considered in order to perform a complete search.

- N B29B 2911/14335 . . . . at neck portion
- N B29B 2911/14336 . . . . at flange portion
- N B29B 2911/14337 . . . . at body portion
- N B29B 2911/14338 . . . . at bottom portion
- C B29B 2911/1434 . . . Ribs or protrusions

**WARNING**

Group B29B 2911/1434 is impacted by reclassification into groups B29B 2911/14341 - B29B 2911/14345.  
Groups B29B 2911/1434 and B29B 2911/14341 - B29B 2911/14345 should be considered in order to perform a complete search.

- N B29B 2911/14341 . . . . at neck portion
- N B29B 2911/14343 . . . . at flange portion
- N B29B 2911/14344 . . . . at body portion
- N B29B 2911/14345 . . . . at bottom portion
- C B29B 2911/14346 . . . Internal separating wall

**WARNING**

Group B29B 2911/14346 is impacted by reclassification into groups B29B 2911/14348 - B29B 2911/14352.  
Groups B29B 2911/14346 and B29B 2911/14348 - B29B 2911/14352 should be considered in order to perform a complete search.

- N B29B 2911/14348 . . . . at neck portion
- N B29B 2911/1435 . . . . at flange portion
- N B29B 2911/14351 . . . . at body portion
- N B29B 2911/14352 . . . . at bottom portion

**Project: RP0084 (F16C)**

- U F16C 19/00 **Bearings with rolling contact, for exclusively rotary movement (adjustable bearings F16C 23/00, F16C 25/00; { electrically insulating bearings H02K 5/173})**
- U F16C 19/22 . . . with bearing rollers essentially of the same size in one or more circular rows, e.g. needle bearings
- U F16C 19/34 . . . for both radial and axial load
- U F16C 19/36 . . . with a single row of rollers
- U F16C 19/364 . . . . {with tapered rollers, i.e. rollers having essentially the shape of a truncated cone}
- D F16C 2019/365 . . . . . {with a single rib on the inner ring, i.e. only with an inner ring back face rib}

- D F16C 2019/367 . . . . {with two ribs on the inner ring, i.e. with a front face rib and a back face rib}
- D F16C 2019/368 . . . . {with a rib on the outer ring facing the large end of the rollers}

**Project: RP0109 (B23K)**

- U B23K 1/00** Soldering, e.g. brazing, or unsoldering (**B23K 3/00** takes precedence; characterised only by the use of special materials or media **B23K 35/00** ; dip or wave soldering in the manufacture of printed circuits **H05K 3/34**)
- D B23K 2001/12 . {specially adapted for particular articles or work}
- U B23K 5/00** Gas flame welding
- D B23K 2005/207 . {specially adapted for particular articles or work}

**Project: N/A (A01B)**

- U A01B 1/00** Hand tools (edge trimmers for lawns **A01G 3/06** ; { machines for working soil **A01B 35/00** ; making hand tools **B21D**})
- A01B 1/02 . Spades; Shovels {(hand-operated dredgers **E02F 3/02**)}
- A01B 1/06 . Hoes; Hand cultivators {(rakes **A01D 7/00** ; forks **A01D 9/00** ; picks **B25D**)}
- U A01B 3/00** Ploughs with fixed plough-shares
- A01B 3/64 . Cable ploughs; Indicating or signalling devices for cable plough systems {(vehicles towed by cable **B60D**)}
- U A01B 15/00** Elements, tools, or details of ploughs
- U A01B 15/02 . Plough blades; Fixing the blades
- A01B 15/04 . . Shares {(making ploughshares by rolling **B21H**)}
- A01B 19/00** Harrows with non-rotating tools {(harrows for working in vineyards **A01B 39/16**)}
- A01B 29/00** Rollers {(rollers for roads **E01C**)}
- U A01B 45/00** Machines for treating meadows or lawns,{e.g. for sports grounds}
- A01B 45/04 . for cutting sods or turves {(machines for lifting and treating soil **A01B 77/00**)}
- U A01B 49/00** Combined machines (auxiliary devices attached to machines of a different kind, e.g. harrows attached to ploughs, see the relevant groups for the machines)
- A01B 49/04 . Combinations of soil-working tools with non-soil-working tools, e.g. planting tools {(seeding machines **A01C 7/00** ; harvesters combined with soil-working implements **A01D 43/12**)}
- A01B 71/00** Construction or arrangement of setting or adjusting mechanisms, of implement or tool drive or of power take-off; Means for protecting parts against dust, or the like; Adapting machine elements to or for agricultural purposes {(adjusting mechanisms in general **G05G**)}

**Project: N/A (A01C)**

- 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**)
- U A01C 15/06 . with distributing slots, {i.e. for dosing, e.g. adjustable openings}
- U A01C 15/08 . . with pushers or stirrers in the slots

- A01C 15/10
- • • with reciprocating pushers {or stirrers in front of the slots (with endless chains [A01C 15/18](#))}

**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 9/00 Forks** {(making forks from sheet metal [B21D 53/68](#) ; making forks by rolling [B21H 7/08](#))}

**A01D 11/00 Other hand implements** {(for maize [A01D 45/026](#) , for cotton [A01D 46/087](#))}

**A01D 31/00 Other digging harvesters** {(for harvesting asparagus [A01D 45/007](#))}

**U A01D 37/00 Reaper-binders (features relating to mowing only [A01D 34/00](#) , to binding only [A01D 39/00](#) ; equipment thereon for binding harvested produce, e.g. knotters, [A01D 59/00](#) ; { bundling articles [B65B 13/00](#))}**

A01D 37/02

- with receiving platform and binding apparatus but without elevating canvases {(knotting [D04G](#))}

A01D 37/04

- conveying the stalks in vertical position {(delivering devices for standing stalks [A01D 57/22](#))}

A01D 37/06

- binding with stalks or straw bands {(implements for laying-out bands for sheaves [A01D 75/16](#))}

**U A01D 42/00 Mowers convertible to apparatus for purposes other than mowing; Mowers capable of performing operations other than mowing (mowers combined with apparatus performing additional operations while mowing [A01D 43/00](#))**

A01D 42/06

- Sweeping or cleaning lawns or other surfaces {(sweeping apparatus for lawns per se [A01G 1/125](#))}

**U A01D 43/00 Mowers combined with apparatus performing additional operations while mowing ([A01D 37/00](#) , [A01D 39/00](#) , [A01D 41/00](#) , take precedence)**

A01D 43/06

- with means for collecting, gathering or loading mown material {([A01D 43/086](#) takes precedence; for hay or the like [A01D 87/00](#))}

A01D 43/08

- with means for cutting up the mown crop, {e.g. forage harvesters (threshing machines having chaff-cutters [A01F 12/40](#) ; cutting apparatus of chaff-cutters or of apparatus for cutting up mown crop [A01F 29/00](#))}

A01D 43/10

- with means for crushing or bruising the mown crop {(stalk crushers or bruisers per se for standing stalks or stubbles [A01D 34/8355](#) , for mown crop [A01D 82/00](#) , for straw [A01F 12/40](#))}

**U A01D 45/00 Harvesting of standing crops ([A01D 44/00](#) takes precedence; threshing machines adapted for special crops, threshing devices for combines adapted for special crops [A01F 11/00](#))**

A01D 45/02

- of maize{, i.e. kernel harvesting (for ensilage maize [A01D 43/081](#))}

A01D 45/10

- of sugar cane {(for digging sugar cane [A01D 31/00](#))}

- U 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
- U A01D 57/02      · · using reels  
 A01D 57/03      · · · with supplementary controlled movement of the crop-engaging members, e.g. of the tines {([A01D 57/025](#) takes precedence)}
- 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 87/08      · with sweep rakes,{i.e. buck-rakes, e.g. transporting rakes (gripping or clamping devices [A01D 87/003](#) ; fork loaders [A01D 87/0053](#))}
- A01D 87/10      · with blowers {(blowing and conveying [B65G 53/00](#) ; loading or distributing arrangements in forage silos [A01F 25/18](#))}
- A01D 89/00 Pick-ups for loaders, chaff-cutters, balers, field-threshers, or the like {i.e. attachments for picking-up hay or the like field crops (field threshers with windrow pick-up apparatus [A01D 41/10](#))}**
- U A01D 90/00 Vehicles for carrying harvested crops with means for self-loading or unloading (combined with mowers [A01D 43/06](#) ; load transporting vehicles modified to facilitate loading in general [B60P](#) ; bucket cars, i.e having scraper bowls [E02F 3/64](#))**
- A01D 90/02      · Loading means {(loaders [A01D 87/00](#) ; pick-ups [A01D 89/00](#))}
- A01D 90/10      · Unloading means {(manure distributors [A01C 3/06](#))}

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

- U A01G 13/00 Protecting plants (apparatus for the destruction of vermin or noxious animals [A01M](#); use of chemical materials therefor, composition of protective materials, e.g. grafting wax, [A01N](#); {coverings around trees forming part of a road [E01C 9/005](#))}**
- U A01G 13/02      · Protective coverings for plants; { Coverings for the ground;} Devices for laying-out { or removing} coverings {(covering materials [A01G 9/1438](#))}
- A01G 13/04      · · Cloches { i.e. protective full coverings for individual plants (dismountable or portable greenhouses [A01G 9/16](#); individual canopies [A01G 13/0212](#))}

**Project: N/A (A01N)**

- U A01N 3/00 Preservation of plants or parts thereof, e.g. inhibiting evaporation, improvement of the appearance of leaves { or protection against physical influences such as UV radiation using chemical compositions; Grafting wax}(preservation of foodstuffs [A23](#); preservation or chemical ripening of fruit or vegetables [A23B 7/00](#)); {(protective coverings [A01G 13/02](#))} Grafting wax**
- A01N 3/04      · Grafting-wax
- NOTES**  
 1.

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

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.

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.

Compounds covered by different main groups according to alternatively specified parts of their formulae are classified in every one of the relevant main groups.

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.

Salts or metal chelates of an organic compound are classified as that compound.

In this subclass, a foodstuff is not considered as an active ingredient.

Different materials applied in sequence, at different times, are considered as a mixture of all materials employed

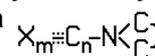
Synergistic or potentiated compositions are classified as if the synergist or potentiator were an active ingredient.

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.  $\text{---}$  indicates one or two single bonds or a double bond.

- 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).
- For compositions containing more than one known active ingredients (e.g. synergistic mixtures) the symbol [A01N 2300/00](#) is additionally given to the symbol of the main ingredient.

#### 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  $\text{CH}_2$  groups, [A01N 33/00](#) to [A01N 41/12](#))**

#### NOTES

- 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:

- i. lowest number of ring members,
  - ii. 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.

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

**U A21C 3/00**  
A21C 3/06

**Machines or apparatus for shaping batches of dough before sub-division**

- Machines for coiling sheets of dough, e.g. for producing rolls, {e.g. crescent-rolls (as part of a machine for further moulding or forming [A21C 7/00](#); with filling [A21C 9/06](#))}

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

A21D 15/00

**Preserving finished { or partly finished (par-baked) bakery products (refreshing [A21D 17/00](#), packaging or wrapping bakery products [B65B](#), [B65D](#))}**

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

**U A22B 3/00**  
A22B 3/02

**Slaughtering or stunning ({anaesthetising animals [A61D 7/04](#)}; cutting in general [B26](#))**

- by means of bolts, e.g. slaughtering pistols, cartridges {(pistols [F41C](#))}

**U A22B 5/00**  
A22B 5/20

**Accessories for use during or after slaughtering**

- Splitting instruments {(cutting operations on carcasses other than splitting [A22B 5/0017](#))}

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

**U A22C 11/00**  
A22C 11/12

**Sausage making {(chemical aspects [A23L 1/31](#)); Apparatus for handling or conveying sausage products during manufacture}**

- Apparatus for tying sausage skins; { Clipping sausage skins (applying clips or binding material to package folds or closures, e.g. to twisted bag necks [B65B 51/04](#), [B65B 51/08](#))}

**U A22C 17/00**  
A22C 17/14

**Other devices for processing meat or bones**

- Working-up animal intestines; { Treatment thereof for the manufacture of natural sausage casings (making artificial casings [A22C 13/0003](#); chemical treatment of natural casings [A22C 13/0026](#)); Apparatus for cutting intestines; Machines for pulling intestines to pieces

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 conveyers or processing machines to the measured size (transport in general [B65G](#))}

**Project: N/A (A23B)****U A23B 4/00****General methods for preserving meat, sausages, fish or fish products**

U A23B 4/044

- Smoking; Smoking devices

A23B 4/052

- • Smoke generators; {Smoking apparatus ([A23B 4/056](#) takes precedence)}

**Project: N/A (A23C)****U A23C 19/00****Cheese; Cheese preparations; Making thereof (cheese substitutes [A23C 20/00](#) ; casein [A23J 1/20](#))**

U A23C 19/097

- Preservation

A23C 19/10

- • Addition of preservatives {(enzymes or micro-organisms, see [A23C 19/032](#) , [A23C 19/04](#) , [A23C 19/061](#) and [A23C 19/063](#))}

**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 1/30

- Cocoa products, e.g. chocolate; Substitutes therefor

A23G 1/56

- • making liquid products, e.g. for making chocolate milk {drinks and the products for their preparation, pastes for spreading, milk crumb, ([A23G 1/305](#) takes precedence)}

NOTE

Attention is drawn to the internal note after the subclass title

**U A23G 9/00****Frozen sweets, e.g. ice confectionery, ice-cream; Mixtures therefor**

U A23G 9/04

- Production of frozen sweets, e.g. ice-cream (packages [B65D 85/78](#))

U A23G 9/22

- • Details, component parts or accessories of apparatus insofar as not peculiar to a single one of the preceding groups

U A23G 9/28

- • • for portioning or dispensing

A23G 9/287

- • • • {for dispensing bulk ice-cream; (ice cream scoops [A47J 43/282](#))}

**Project: N/A (A23K)****U A23K 1/00****Animal feeding-stuffs (detoxicating or removing bitter tastes from seeds, e.g. lupin seeds for fodder or food [A23L 1/211](#))**

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](#))}

**Project: N/A (A43D)****U A43D 95/00****Shoe-finishing machines**

A43D 95/14

- incorporating marking, printing, or embossing apparatus (ornamentation of shoe part blanks [A43D 8/16](#) ; printing per se , stamping per se [B41](#))

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

- U A44B 1/00** **Buttons (setting on garments [A41H 37/10](#) ; setting on footwear [A43D 100/08](#) ; making buttons: see the relevant groups in the classes for making articles from particular materials)**
- U A44B 1/08** · Constructional characteristics
- A44B 1/14** · · with replaceable {or protective}coverings {(removable fabric coverings [A44B 1/123](#) ; sleeve-links concealing a sewed-on button [A44B 5/007](#))}
- U A44B 1/18** · adapted for special ways of fastening
- A44B 1/20** · · attached by thread visible to the front {([A44B 1/185](#) takes precedence)}
- A44B 1/22** · · attached by thread not visible to the front {([A44B 1/185](#) takes precedence)}
- 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
- A44B 11/26** · · with push-button fastenings {([A44B 11/2507](#) takes precedence; press-button fasteners [A44B 17/00](#))}
- A44B 11/28** · · with hooks engaging end-pieces on the strap {([A44B 11/2503](#) takes precedence)}
- U A44B 19/00** **Slide fasteners**
- U A44B 19/10** · with a one-piece interlocking member on each stringer tape
- A44B 19/16** · · interlocking member having uniform section throughout the length of the stringer {(for sacks or bags [B65D 33/2508](#))}

**Project: N/A (A46B)**

- U A46B 7/00** **Bristle carriers arranged in the brush body**
- A46B 7/06** · movably during use, {i.e. the normal brushing action causing movement} (driven brush bodies [A46B 13/00](#))}
- U A46B 11/00** **Brushes with reservoir or other means for applying substances, e.g. paints, pastes, water (driven brush bodies [A46B 13/00](#); { message apparatus with liquid delivery [A61H 7/002](#), [A61H 2201/105](#)}; applying liquids or other fluent materials to surfaces by liquid carrying members in general, e.g. by pads [B05C 1/00](#), [B05D 1/28](#))**
- A46B 11/06** · connected to supply pipe {or to other external supply means ([A46B 11/0003](#) and [A46B 11/0006](#) take precedence)}

**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.

**Project: N/A (A47D)**

- U A47D 13/00** **Other nursery furniture (auxiliary or portable toilet seats for children [A47K 13/06](#))**

- A47D 13/08
- Devices for use in guiding or supporting children, e.g. safety harness, { feeding cushions (harnesses for helping babies to walk [A47D 13/046](#); restraining devices in chairs [A47D 15/006](#); restraining devices in beds, playpens or cradles [A47D 15/008](#)}}

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

- U A47F 1/00** **Racks for dispensing merchandise (racks in general [A47B](#); storing means for workshops [B25H](#)); Containers for dispensing merchandise (show or display aspects [A47F 3/00](#); for workshop fittings [B25H 3/00](#); containers in general [B65D](#); {for liquids [B67D](#)}; coin-freed dispensers [G07F](#))**
- A47F 1/04
- {Racks or} containers with arrangements for dispensing articles, {e.g. by means of gravity or springs (for wallpaper or textile materials in rolls or rolled tapes [A47F 7/17](#); paper-bag dispensers for check-out counters [A47F 9/042](#); for cigarette papers [A24F 17/00](#); for hand towels or toilet paper [A47K](#); for bandages [A61F](#); for playing cards [A63F](#); for pills, needles [B65D 83/00](#); for web-like material with cutting devices [B65H 35/00](#); photographic paper [G03B](#)}}
- U A47F 3/00** **Show cases or show cabinets**
- A47F 3/12
- Clamps or other devices for supporting, fastening, or connecting glass plates, {panels or the like (surrounds or partitioning for display trays or shelves [A47F 5/005](#)}}
- U A47F 5/00** **Show stands, hangers, or shelves characterised by their constructional features**
- A47F 5/0018
- {Display racks with shelves or receptacles (racks *per se* [A47B](#); storage devices for warehouses [B65G 1/02](#)}}
- U A47F 7/00** **Show stands, hangers, or shelves, adapted for particular articles or materials {(A47F 5/0006 takes precedence)}**
- A47F 7/14
- for pictures, e.g. in combination with books or seed-bags; {for cards, magazines, newspapers, books or booklike articles, e.g. audio/video cassettes (racks or containers with dispensing arrangements [A47F 1/04](#); for cardboard panels, e.g. posters, [A47F 7/0042](#)}}
- A47F 7/28
- for containers, e.g. flasks, bottles, {tins, milk packs (racks or containers with dispensing arrangements [A47F 1/04](#); for lipsticks or markers [A47F 7/0021](#); for audio/video cassettes or booklike articles [A47F 7/14](#)}}

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

- U A47K 3/00** **Baths; Douches; Appurtenances therefor (for curative purposes [A61H](#), [A61M](#), e.g. bathing devices for special therapeutic or hygienic purposes [A61H 33/00](#); {spray heads [B05B](#); devices for suspending or supporting the supply pipe or supply hose of a shower bath [E03C 1/06](#); heated bath tubs [F24H 1/0072](#)})**
- A47K 3/10
- Wave-producers or the like, {e.g. with devices for admitting gas, e.g. air, in the bath-water (baths with gas-containing liquids [A61H 33/02](#); for swimming-pools [E04H 4/0006](#)}}
- U A47K 3/28** • Showers { or bathing douches}(combined with baths [A47K 3/20](#); nozzles, spray heads [B05B 1/00](#); { means for suspending or supporting the supply pipe or supply hose [E03C 1/06](#)})
- A47K 3/30
- • Screens or {collapsible} cabinets {for showers or baths (A47K 3/283 takes precedence)}
- U 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](#))**

- A47K 5/18
- for both soap and toothpaste or the like; in combination with holders for drinking glasses, toothbrushes, or the like; {Toothpaste dispensers; Dental care centers (soap dispensers per se [A47K 5/06](#); dispensers using pliable containers with auxiliary devices for expelling contents [B65D 35/28](#))}
- U A47K 10/00**      **Body-drying implements; Toilet paper; Holders therefor**
- U A47K 10/24
- Towel dispensers, {e.g. for piled-up or folded textile towels}; Toilet-paper dispensers (sheet or web dispensers in general [B65H](#); {paper dispensers for publicity purposes [G09F 21/22](#), [G09F 23/10](#)}); Dispensers for piled-up or folded textile towels provided or not with devices for taking-up soiled towels as far as not mechanically driven
- U A47K 10/32
- • Dispensers for paper towels or toilet-paper
- U A47K 10/34
- • • dispensing from a web, e.g. with mechanical dispensing means
- A47K 10/38
- • • • the web being rolled up {with or without tearing edge ([A47K 10/36](#) and [A47K 10/46](#) take precedence)}
- U A47K 11/00**      **Closets without flushing (closets with recirculation of bowl-cleaning fluid [E03D 5/016](#)); Urinals without flushing (for vehicles in general [B60R](#); closets for railway-cars [B61D](#); for ships [B63B](#); for aircraft [B64D](#); urinals with flushing arrangements [E03D 13/00](#)); Chamber pots; Chairs with toilet conveniences or specially adapted for use with toilets**
- A47K 11/10
- Hand tools for cleaning the toilet bowl, {seat or cover, e.g. toilet brushes} (cleaning devices without flushing [A47K 17/00](#); mechanical devices for cleaning toilet bowls [E03D](#))}

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

- U A61B 1/00**      **Instruments for performing medical examinations of the interior of cavities or tubes of the body by visual or photographic inspection, e.g. endoscopes (examination of body cavities or body tracts using ultrasonic, sonic or infrasonic waves [A61B 8/12](#) ; instruments, e.g. endoscopes, for taking a cell sample [A61B 10/00](#) ; endoscopic cutting instruments [A61B 17/32](#) ; surgical instruments using a laser beam being directed along or through a flexible conduit [A61B 18/22](#) ; technical endoscopes [G02B 23/24](#)); Illuminating arrangements therefor (for the eyes [A61B 3/00](#))**
- A61B 1/04
- combined with photographic or television appliances {(camera adapters [G03B 17/48](#))}
- U A61B 3/00**      **Apparatus for testing the eyes; Instruments for examining the eyes (eye inspection using ultrasonic, sonic or infrasonic waves [A61B 8/10](#) ; devices for treatment of the eyes [A61F 9/00](#) ; exercisers for the eyes [A61H 5/00](#) ; optical systems in general [G02B](#))**
- U A61B 3/10
- Objective types, i.e. instruments for examining the eyes independent of the patients` perceptions or reactions
- A61B 3/14
- • Arrangements specially adapted for eye photography {(apparatus or arrangements for taking photographs per se [G03B](#))}
- 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 {(measuring or recording in general subclasses of [G01](#); medical informatics [G06F 19/30](#))}**

**WARNING**

Groups [A61B 5/40](#) - [A61B 5/748](#) do not correspond to former or present IPC groups. Concordance CPC : IPC for these groups is as follows: [A61B 5/40](#) : [A61B 5/00A61B 5/41](#) : [A61B 5/00A61B 5/42](#) : [A61B 5/00A61B 5/43](#) : [A61B 5/00A61B 5/44](#) : [A61B 5/00A61B 5/45](#) : [A61B 5/00A61B 5/48](#)

: [A61B 5/00A61B 5/68](#) : [A61B 5/00A61B 5/70](#) : [A61B 5/00A61B 5/72](#) :  
[A61B 5/00A61B 5/74](#) : [A61B 5/00](#)

- U A61B 5/02
  - Detecting, measuring or recording pulse, heart rate, blood pressure or blood flow; Combined pulse/heart-rate/blood pressure determination; Evaluating a cardiovascular condition not otherwise provided for, e.g. using combinations of techniques provided for in this group with electrocardiography or electroauscultation; Heart catheters for measuring blood pressure
- A61B 5/026
  - • Measuring blood flow [{\(A61B 3/1233 , A61B 3/1241 take precedence\)}](#)
- A61B 5/029
  - • • Measuring or recording blood output from the heart, e.g. minute volume [{\(A61B 8/065 takes precedence\)}](#)
- A61B 5/03
  - Detecting, measuring or recording fluid pressure within the body other than blood pressure, e.g. cerebral pressure; [{Measuring pressure in body tissues or organs \(A61B 5/205 takes precedence\)}](#)
- U A61B 5/04
  - Detecting, measuring or recording bioelectric signals of the body of parts thereof
- U A61B 5/0402
  - • Electrocardiography, i.e. ECG
- A61B 5/044
  - • • Displays specially adapted therefor [{\(arrangements for displaying electric variables or waveforms, e.g. cathode-ray oscilloscopes, G01R 13/00\)}](#)
- A61B 5/0476
  - • Electroencephalography [{\(devices for psychotechnics A61B 5/16\)}](#)
- A61B 5/048
  - • • Detecting the frequency distribution of signals [{\(analysing frequency spectra in general G01R 23/00\)}](#)
- A61B 5/0482
  - • • using biofeedback [{\(biofeedback per se A61B 5/486\)}](#)
- A61B 5/0496
  - • Electro-oculography, e.g. detecting nystagmus [{\(measuring or inducing nystagmus A61B 5/4863\)}](#)
- U A61B 5/08
  - Detecting, measuring or recording devices for evaluating the respiratory organs [\(A61B 5/0205 takes precedence\)](#)
- U A61B 5/087
  - • Measuring breath flow
- A61B 5/09
  - • • using an element rotated by the flow [{\(toys actuated by air current A63H 33/40\)}](#)
- U A61B 5/103
  - Detecting, measuring or recording devices for testing the shape, pattern, {colour,}size or movement of the body or parts thereof, for diagnostic purposes [\(A61B 5/08 takes precedence; measuring aids for tailors A41H 1/00 ; measuring instruments specially adapted for dentistry A61C 19/04\)](#)
- U A61B 5/11
  - • Measuring movement of the entire body or parts thereof, e.g. head or hand tremor, mobility of a limb (for measuring pulse [A61B 5/02](#)){[\(A61B 5/1038 takes precedence; motion detection to correct for motion artifacts in physiological signals A61B 5/721\)}](#)
- A61B 5/1104
  - • • {induced by stimuli or drugs; [\(A61B 5/1102 takes precedence; investigating medicinal preparations G01N 33/15\)}](#)
- A61B 5/12
  - Audiometering {Evaluation of the auditory system, not limited to hearing capacity [\(A61B 5/04845 , A61B 5/4023 take precedence\)}](#)
- U A61B 5/145
  - Measuring characteristics of blood in vivo, e.g. gas concentration, pH value; [{Measuring characteristics of body fluids or tissues, e.g. interstitial fluid, cerebral tissue}](#){[measuring of blood pressure or blood flow A61B 5/02 ; non-radiation detecting or locating of foreign bodies in blood A61B 5/06](#)}

WARNING

Groups [A61B 5/14535](#), [A61B 5/14539](#) and [A61B 5/14546](#) are not complete pending a reorganisation; see also groups [A61B 5/145](#)

- U A61B 5/1455
  - • using optical sensors, e.g. spectral photometrical oximeters

- A61B 5/1459
- • • invasive, e.g. introduced into the body by a catheter [{\(A61B 5/1464 takes precedence\)}](#)
- A61B 5/1468
- • using chemical or electrochemical methods, e.g. by polarographic means [{\(A61B 5/1486 takes precedence\)}](#)
- A61B 5/1473
- • • invasive, e.g. introduced into the body by a catheter [{\(A61B 5/1482 takes precedence\)}](#)
- U A61B 5/15
- Devices for taking samples of blood (hypodermic syringes [A61M 5/178](#))
- NOTE**
- In these subgroups, the following terms are used with the meaning indicated:
- "piercing element" means skin penetrating component e.g. blade, needle, lancet, laser beam;
  - "piercing or lancing device" means device ready to be used for lancing;
  - "driving device" means device for driving a piercing element e.g. spring
- WARNING**
- This group and its subgroups are not complete pending a reorganisation. See also [A61B 5/14](#) , [A61B 5/1405](#) and subgroups
- U A61B 5/151
- {Devices} specially adapted for taking samples of capillary blood, e.g. by lancets{, needles or blades}
- A61B 5/15146
- • • {Devices loaded with multiple lancets simultaneously, e.g. for serial firing without reloading, for example by use of stocking means. [\(multiple simultaneous cutting or piercing A61B 5/150977\)}](#)
- A61B 5/155
- {Devices} specially adapted for continuous or multiple sampling, e.g. at predetermined intervals [{\(devices loaded with multiple lancets simultaneously A61B 5/15146\)}](#)
- A61B 5/20
- for measuring urological functions {restricted to the evaluation of the urinary system [\(A61B 5/4375 takes precedence\)}](#)
- A61B 5/74
- {Details of notification to user or communication with user or patient (indicating measured values [G01D 7/00](#)); user input means [\(input or output arrangements for computers G06F 3/00\)}](#)
- WARNING**
- Group [A61B 5/74](#) and subgroups are not complete pending a reorganisation; see also other subgroups of [A61B 5/00](#)
- U A61B 6/00
- Apparatus for radiation diagnosis, e.g. combined with radiation therapy equipment (analysis of materials using radiation [G01N 23/00](#) , detecting hidden objects by radiation [G01V 5/0008](#) , radiodiagnostic or X-ray contrast preparations [A61K 49/00](#) ; radiation therapy per se [A61N 5/00](#) ; instruments measuring radiation intensity for application in the field of nuclear medicine, e.g. in vivo counting [G01T 1/161](#) ; apparatus for taking X-ray photographs [G03B 42/02](#) ; X-ray photographic processes [G03C 5/16](#) ; irradiation devices [G21K](#); X-ray apparatus or circuits therefor [H05G 1/00](#))**
- WARNING**
- Groups [A61B 6/40](#) to [A61B 6/58](#) do not correspond to former or current IPC groups. Concordance CPC - IPC for these groups is as follows: - [A61B 6/40](#) : [A61B 6/00](#) - [A61B 6/42](#) : [A61B 6/00](#) - [A61B 6/44](#) : [A61B 6/00](#) - [A61B 6/46](#) : [A61B 6/00](#) - [A61B 6/48](#) : [A61B 6/00](#) - [A61B 6/50](#) : [A61B 6/00](#) - [A61B 6/52](#) : [A61B 6/00](#) - [A61B 6/54](#) : [A61B 6/00](#) - [A61B 6/56](#) : [A61B 6/00](#) - [A61B 6/58](#) : [A61B 6/00](#)
- A61B 6/06
- Diaphragms {for particular diagnostic applications, e.g. tomography, i.e. not of general applicability [\(diaphragms, e.g. variable, or collimators in general G21K 1/02\)}](#)

- U A61B 7/00**                    **Instruments for auscultation**  
A61B 7/02                    • Stethoscopes {{(acoustic details thereof [G10K 11/00](#))}}
- 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](#))**  
A61B 17/10                    • for applying or removing wound clamps,{e.g. containing only one clamp or staple ([A61B 17/076](#) takes precedence; containing multiple wound clamps [A61B 17/068](#))}; Wound clamp magazines (containers, packaging elements or packages specially adapted for particular articles or with special means for dispensing contents [B65D 83/00](#) , [B65D 85/00](#))
- U A61B 17/12**                    • for ligaturing or otherwise compressing tubular parts of the body, e.g. blood vessels, umbilical cord (specially adapted for vas deferens or fallopian tubes [A61F 6/20](#) ; materials for ligaturing blood vessels [A61L 17/00](#))  
A61B 17/122                    • • Clamps or clips,{e.g. for the umbilical cord (for the vas deferens [A61F 6/206](#))}  
A61B 17/132                    • • Tourniquets {{(sphygmometers [A61B 5/02](#))}}
- U A61B 17/14**                    • Surgical saws ({[A61B 17/1637](#) takes precedence } ; tooth saws [A61C 3/12](#) ; { saws for jaw bone [A61C 8/0089](#) } ; cast-cutting saws [A61F 15/02](#));  
{Accessories therefor}  
**WARNING**  
New subgroups of [A61B 17/14](#) are not complete, pending a reorganisation. See provisionally also group [A61B 17/14](#)
- A61B 17/15                    • • Guides therefor {{(arrangements for guiding straight saw blades in general [B23D 51/025](#))}}
- A61B 17/16                    • {Bone cutting, breaking or removal means other than saws, e.g.}Osteoclasts; Drills or chisels for bones; Trepanns {{(arthroscopic bone cutters [A61B 17/320016](#) ; dental implant drills potentially for other surgical use [A61C 8/0089](#) ; bone grinders [A61F 2/4644](#) , [A22C 17/06](#) ; [A61B 17/1662](#) takes precedence over all other subgroups except [A61B 17/17](#))}}
- WARNING**  
New groups [A61B 17/1679](#) , [A61B 17/1682](#) , [A61B 17/1684](#) , [A61B 17/1686](#) , [A61B 17/1688](#) , [A61B 17/1691](#) and [A61B 17/1693](#) are not complete, pending a reorganisation. See provisionally also group [A61B 17/16](#) and subgroups
- A61B 17/22                    • Implements for squeezing-off ulcers or the like on {the inside of}inner organs of the body; Implements for scraping-out cavities of body organs, e.g. bones; Calculus removers; Calculus smashing apparatus; {Apparatus for removing obstructions in blood vessels, not otherwise provided for (dilators [A61M 29/00](#))}
- A61B 17/221                    • • Gripping devices in the form of loops or baskets {for gripping calculi or similar types of obstructions (surgical snare instruments [A61B 17/32056](#))}
- A61B 17/32                    • Surgical cutting instruments {{([A61B 18/042](#) takes precedence; suture cutters [A61B 17/0467](#) ; instruments for ligaturing or cutting [A61B 17/128](#) ; instruments for rupturing the amniotic membrane [A61B 17/4208](#) ; specially adapted knives for eye surgery [A61F 9/0133](#))}}
- U A61B 17/3205**                    • • Excision instruments  
A61B 17/3207                    • • • Atherectomy devices {working by cutting or abrading; Similar devices specially adapted for non-vascular obstructions ([A61B 17/32037](#) takes precedence; endoscopic cutting instruments [A61B 17/320016](#))}
- U A61B 17/3209**                    • • Incision instruments
- U A61B 17/3211**                    • • • Surgical scalpels, knives; Accessories therefor  
A61B 17/3215                    • • • • Packages or dispensers for scalpel blades {{(for sharps [A61B 19/0262](#))}}

- A61B 17/3217 . . . . Devices for removing or collecting used scalpel blades {(for sharps [A61B 19/0288](#))}
- A61B 17/34 . Trocars; Puncturing needles {(pointed biopsy instruments [A61B 10/0233](#) ; devices for piercing the ear-lobes [A44C 7/001](#) ; seals or hemostasis valves [A61M 39/06](#))}
- A61B 17/54 . Chiropodists` instruments,{e.g. pedicure}(chiropractic devices [A61H 1/008](#))
- A61B 17/56 . Surgical instruments or methods for treatment of bones or joints; Devices specially adapted therefor {(orthopaedic methods or devices for non-surgical treatment of bones or joints [A61F 5/00](#))}
- NOTES**
1. Documents concerning exclusively surgical methods are classified only in this group.
  2. Surgical instruments or devices are classified only in the relevant subgroups
- U A61B 17/58 . . for osteosynthesis, e.g. bone plates, screws,{setting implements}or the like ([A61B 17/14](#) , [A61B 17/16](#) take precedence; { splints [A61B 5/01](#) ; traction bandages [A61F 13/10](#))}
- U A61B 17/60 . . . for external osteosynthesis, e.g. distractors, contractors
- A61B 17/64 . . . . Devices extending alongside the bones to be positioned {(not used, see subgroups and [A61B 17/60](#))}
- A61B 17/68 . . . Internal fixation devices,{including fasteners and spinal fixators, even if a part thereof projects from the skin (bone staples [A61B 17/0642](#) ; dental regeneration membranes [A61C 8/0006](#))}
- WARNING**
- Subgroups [A61B 17/686](#) and [A61B 17/688](#) are not complete pending a reorganisation. See also [A61B 17/68](#) , [A61B 17/683](#) and [A61B 17/86](#)
- A61B 17/72 . . . . Intramedullary {pins, nails or other}devices {([A61B 17/744](#) takes precedence)}
- A61B 17/74 . . . . Devices for the head {or neck or trochanter}of the femur {(trochanteric devices connected to the proximal part of an endoprosthetic femoral shaft [A61F 2/30739](#) ; endoprosthetic internal fixation devices for the head or neck of the femur [A61F 2/3601](#))}
- A61B 17/80 . . . . Cortical plates {i.e. bone plates; Instruments for holding or positioning cortical plates, or for compressing bone attached to them ([A61B 17/70](#) takes precedence)}
- A61B 17/82 . . . . for bone cerclage {(apparatus for manipulating wires or straps [A61B 17/8861](#) ; wires, bands or straps other than cerclage [A61B 17/842](#))}
- U A61B 17/84 . . . . Fasteners therefor {or fasteners being internal fixation devices}
- A61B 17/86 . . . . {Threaded wires}, pins or screws; {Nuts therefor ([A61B 17/72](#) , [A61B 17/74](#) , [A61F 2/4455](#) take precedence)}
- WARNING**
- Subgroups [A61B 17/861](#) , [A61B 17/865](#), [A61B 17/8665](#), [A61B 17/869](#) and [A61B 17/8695](#) are not complete pending a reorganisation. See also [A61B 17/68](#) , [A61B 17/86](#) , [A61B 17/8605](#) and [A61B 19/026](#)
- U A61B 17/88 . . . {Osteosynthesis instruments;}Methods or means for implanting or extracting internal {or external}fixation devices
- A61B 17/92 . . . . Impactors or extractors, e.g. for removing intramedullary devices {(insertion or extraction of artificial joints [A61F 2/4603](#))}

- U A61B 19/00** Instruments, implements or accessories for surgery or diagnosis not covered by any of the groups [A61B 1/00](#) to [A61B 17/00](#), e.g. for stereotaxis, sterile operation, luxation treatment, wound edge protectors (surgeon's or patient's gowns or dresses, surgical masks [A41D 13/00](#)); devices for carrying-off, for treatment of, or for carrying-over, body liquids [A61M 1/00](#))
- WARNING  
Groups [A61B 19/20](#) - [A61B 19/56](#) do not correspond to former or current IPC groups.  
Concordance CPC : IPC for these groups is as follows: - [A61B 19/20](#) - [A61B 19/56](#) : [A61B 19/00](#)
- A61B 19/02
- Protective casings or covers for appliances or instruments, e.g. boxes or sterile covers; Instrument tables or cupboards; Doctors' bags {(cleaning devices for surgical instruments [A61B 19/34](#); instrument-protective drapes [A61B 19/081](#); for sterilising articles [A61L 2/00](#); for cleaning for sterilising hypodermic or infusion needles or syringes [A61M 5/001](#); for preservation of living parts of the human or animal body [A01N 1/02](#)}
- U A61B 19/08
- Surgical drapes (bandages, dressings or absorbent pads [A61F 13/00](#))
- A61B 19/10
- with means to retain or hold surgical implements {(holders for articles [A61B 19/0256](#))}
- A61B 19/12
- tubular, e.g. for arms or legs {([A61B 19/087](#) takes precedence)}
- U A61B 19/20
- {for stereotaxic surgery (using radio-opaque markers [A61B 19/54](#))}
- A61B 19/203
- {Fixators for body parts, e.g. head fixators, skull clamps or bite blocks (tables with compression means for mammography [A61B 6/0414](#); tables with patient immobilising means for radiation diagnosis [A61B 6/0421](#)); Constructional details thereof, e.g. fixating pins (bone screws or pins [A61B 17/86](#))}

**Project: N/A (A61D)**

A61D 17/00

**Devices for indicating trouble during labour of animals; {Methods or instruments for detecting pregnancy-related states of animals (monitoring or measuring activity of animals [A01K 29/005](#))}**

**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

- 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 2/14
- Eye parts, e.g. lenses, corneal implants; { Implanting instruments specially adapted therefor}; Artificial eyes
- U A61F 2/16
- Intraocular lenses

WARNING

Group [A61F 2/16](#) is impacted by reclassification into groups [A61F 2/1601](#), [A61F 2/16015](#), [A61F 2002/1696](#), and [A61F 2002/16965](#).

All groups listed should be considered in order to perform a complete search.

- A61F 2002/1681
- • • {having supporting structure for lens, e.g. haptics}
- WARNING**
- Group [A61F 2002/1681](#) is impacted by reclassification into groups [A61F 2002/1682](#), ~~[A61F 2002/1690](#)~~[A61F 2002/169](#), [A61F 2002/16901](#), [A61F 2002/16902](#), [A61F 2002/16903](#), [A61F 2002/16905](#), [A61F 2002/169051](#), [A61F 2002/169052](#), and [A61F 2002/169053](#). All groups listed should be considered in order to perform a complete search.
- U A61F 2/50
- Prostheses not implantable in the body {(closure means for urethra or rectum or for artificial body openings therefor [A61F 2/0004](#))}
- U A61F 2/68
- • Operating or control means
- U A61F 2/70
- • • electrical {(not used, see [A61F 2/68](#) and [A61F 2/72](#))}
- A61F 2002/705
- • • • {Electromagnetic data transfer (for implantable prostheses ~~[A61F 2/027](#)~~[A61F 2250/0002](#))}
- U A61F 5/00**
- Orthopaedic methods or devices for non-surgical treatment of bones or joints (surgical instruments or methods for treatment of bones or joints, devices specially adapted therefor [A61B 17/56](#)); Nursing devices; {Anti-rape devices}{bandages, dressings or absorbent pads [A61F 13/00](#)}**
- U A61F 5/44
- Devices worn by the patient for reception of urine, faeces, catamenial or other discharge; {Portable urination aids}{absorbent pads, e.g. sanitary towels, [A61F 13/15](#); drainage appliances for wounds [A61M 27/00](#); {emptying devices for urine bags [B65B 69/0016](#)}; Colostomy devices (adhesives for colostomy devices [A61L 24/00](#); materials for colostomy devices [A61L 28/00](#)}
- U A61F 5/4404
- • {Details or parts}
- A61F 5/4405
- • • {Valves or valve arrangements specially adapted therefor ([A61F 5/441](#) takes precedence); Fluid inlets or outlets ([A61F 5/4407](#) takes precedence)}
- A61F 5/443
- • having {adhesive seals for securing to the body, e.g. of}hydrocolloid type, e.g. gels, starches, karaya gums {(adhesives or sealing pads therefor [A61L 24/00](#))}
- U A61F 9/00**
- Method or devices for treatment of the eyes; Devices for putting-in contact lenses; Devices to correct squinting; Apparatus to guide the blind; Protective devices for the eyes, carried on the body or in the hand (caps with means for protecting the eyes [A42B 1/06](#); visors for helmets [A42B 3/22](#); {retractors [A61B 17/02](#); manipulators specially adapted for use in surgery [A61B 19/22](#)}; appliances to aid invalids to move about [A61H 3/00](#); {exercisers for the eyes [A61H 5/00](#)}; eye baths [A61H 35/02](#); sunglasses or goggles having the same features as spectacles [G02C](#)}**
- U A61F 9/007
- Methods or devices for eye surgery
- U A61F 9/008
- • using laser
- A61F 9/009
- • • Auxiliary devices making contact with the eye-ball and coupling in laser light, {e.g. gonioscopes (apparatus for eye examination [A61B 3/0008](#))}
- A61F 9/04
- Eye-masks; {Devices to be worn on the face, not intended for looking through; Eye-pads for sunbathing (eye-bandages [A61F 13/12](#); protective face-masks [A41D 13/11](#); protectors for shampooing [A45D](#))}
- A61F 9/08
- Devices or methods enabling eye-patients to replace direct visual perception by another kind of perception {(walking or guiding aids for blinds [A61H 3/06](#); teaching or communicating with blinds [G09B 21/00](#) promoting of eye function by stimulation with electric currents using contact electrodes [A61N 1/36046](#))}

- 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](#))**
- 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**
- A61F 13/38** **· · Swabs having a stick-type handle, {e.g. cotton tips {ear cleaners other than cotton tips [A61F 11/006](#); swabs containing a liquid, e.g. in a rupturable reservoir, [A61M 35/006](#)}**
- U A61F 13/45** **· · characterised by the shape (cup-shaped type tampons [A61F13/24](#))**
- U A61F 13/49** **· · · Absorbent articles specially adapted to be worn around the waist, e.g. diapers**
- A61F 13/493** **· · · adjustable { by adding or removing material e.g. umbilical cord arrangements {adjustable by the fastening [A61F 13/5638](#), [A61F 13/5655](#)}**

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

- U A61G 1/00** **Stretchers**
- A61G 1/003** **· with facilities for picking up patients or disabled persons, e.g. break-away type or using endless belts {(devices in general for lifting disabled persons [A61G 7/10](#)}**
- A61G 1/06** **· Supports for stretchers, e.g. to be placed in or on vehicles {([A61G 1/0293](#) takes precedence; supports fixed to a vehicle [A61G 3/02](#) - [A61G 3/08](#)}**
- U A61G 7/00** **Beds specially adapted for nursing; Devices for lifting patients or disabled persons (equipment for beds, treatment tables, floor frames or the like for extending or stretching [A61F5/045](#){takes precedence} ; stretchers with facilities for picking up patients or disabled persons [A61G 1/003](#))**
- U A61G 7/002** **· having adjustable mattress frame**
- NOTE**  
Combinations of adjustments mentioned in the following subgroups are classified in group [A61G 7/002](#)
- A61G 7/005** **· · tiltable around transverse horizontal axis, e.g. for Trendelenburg position {(rocking beds for physical therapy [A61H 1/003](#) ; hanging patient inclined downwardly for drawing him out [A61H 2203/0493](#)}**
- A61G 7/047** **· Beds for special sanitary purposes,{e.g. for giving enemas, irrigations, flushings ([A61G 7/02](#) takes precedence; means for bathing bed-ridden persons [A61G 7/0005](#)}**
- U A61G 7/05** **· Parts, details or accessories of beds (devices for prevention against falling out [A47C 21/08](#) , [A47D 7/00](#) ; { mattresses [A47C 27/00](#)}**
- A61G 7/057** **· · Arrangements for preventing bed-sores or for supporting patients with burns, e.g. mattresses specially adapted therefor {(ventilation openings in mattresses [A47C 21/042](#) ; pneumatic or hydraulic mattresses [A47C 27/08](#)}**
- U A61G 7/065** **· · Rests specially adapted therefor**
- A61G 7/07** **· · · for the head or torso, e.g. special back-rests {(pillows in general [A47G 9/10](#)}**

- U A61G 9/00** **Bed-pans, urinals or other sanitary devices for bed-ridden persons; Cleaning devices therefor, e.g. combined with toilet-urinals (urinals worn by the patient [A61F 5/44](#))**
- A61G 9/02 · Cleaning devices {(washing and rinsing machines for crockery and tableware [A47L 15/00](#))}
- U A61G 13/00** **Operating tables; Auxiliary appliances therefor (illumination of operating tables [F21L](#), [F21S](#) or [F21V](#){ adjustability of tables in general [A47B 9/00](#) ; tables for radiation diagnosis [A61B 6/04](#) , drainage or irrigation pans, bags, or attachments [A61G 7/02](#) , [A61G 7/0503](#)})**
- U A61G 13/10 · Parts, details or accessories (surgical drape sheets [A61B 19/08](#))
- A61G 13/12 · Rests specially adapted therefor; Arrangements of patient-supporting surfaces {(rests for the surgeon [A61B 19/00](#) ; restraining devices [A61F 5/37](#))}
- U A61G 15/00** **Operating chairs; Dental chairs (barbers` chairs [A47C 1/04](#)); Accessories specially adapted therefor, e.g. work stands**
- U A61G 15/10 · Parts, details or accessories ([A61G 15/14](#) takes precedence; dental instruments [A61C](#))
- A61G 15/12 · Rests specially adapted therefor, e.g. for the head or feet {([A61G 15/105](#) takes precedence)}

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

- A61H 9/00** **Pneumatic or hydraulic massage, {e.g. sprays ([A61H 13/00](#) takes precedence; underwater massage, spraying systems acting on a body or body part immersed in water [A61H 33/00](#), [A61H 35/00](#); brushes with fluid supply [A46B 11/00](#); nozzles per se [B05B](#))}**
- A61H 19/00** **Massage for the genitals; { Devices for improving sexual intercourse (penis erection devices [A61F 5/41](#); vibration or percussion related aspects [A61H 23/00](#))}**
- WARNING  
Groups [A61H 19/30](#) to [A61H 19/50](#) do not correspond to former or current IPC groups. Concordance CPC:IPC for these groups is as follows: [A61H 19/30](#) to [A61H 19/50](#): [A61H 19/00](#)
- U A61H 23/00** **Percussion or vibration massage, e.g. using supersonic vibration; Suction-vibration massage; Massage with moving diaphragms {(apparatus for passive exercising [A61H 1/00](#); generating or transmitting mechanical vibrations in general [B06B](#))}**
- A61H 23/06 · Hand percussion { , i.e. Hand driven {(Chiropractic devices, [A61H 1/008](#), [A61H 1/006](#))}

**Project: N/A (A61K)**

- U A61K 6/00** **Preparations for dentistry (teeth cleaning preparations [A61K 8/00](#) , [A61Q 11/00](#) ; { dental prostheses [A61C 13/00](#) ; apparatus or methods for oral or dental hygiene [A61C](#)})**
- NOTE  
In groups [A61K 6/00](#) - [A61K 6/0044](#) and [A61K 6/083](#) - [A61K 6/10](#) , the use of specific polymers is indicated by addition of classification symbols of the subclass [C08L](#) preceded by the sign "+", e.g. compositions for taking dental impressions containing alginates are classified in [A61K 6/10](#) + [C08L 5/04](#)
- U A61K 6/02 · Use of preparations for artificial teeth, for filling or for capping teeth

- A61K 6/027
- • Use of non-metallic elements or compounds thereof, e.g. carbon {(non-metallic elements per se [C01B](#))}
- U A61K 9/00**      **Medicinal preparations characterised by special physical form (nuclear magnetic resonance contrast preparations or magnetic resonance imaging contrast preparataions [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.
- U A61K 9/0012**      • {Galenical forms characterised by the site of application}
- U A61K 9/007**      • • {Pulmonary tract; Aromatherapy}
- A61K 9/0073**      • • • {Sprays or powders for inhalation; Aerolised or nebulised preparations generated by other means than thermal energy; (nasal sprays [A61K 9/0043](#) ; inhalation of vapours of volatile or heated drugs, e.g. essential oils or nicotine, [A61K 9/007](#) ; devices [A61M](#))}
- U A61K 9/08**      • Solutions; {(composition of solutions [A61K 47/00](#))}
- WARNING  
incomplete, see also [A61K 9/0012](#), [A61K 47/00](#) , [A61K 9/0095](#)
- U A61K 9/10**      • Dispersions; Emulsions; {([A61K 9/06](#) takes precedence; composition of dispersions, emulsions [A61K 47/00](#))}
- WARNING  
incomplete, see also [A61K 9/0012](#), [A61K 47/00](#) , [A61K 9/0095](#)
- U A61K 9/107**      • • Emulsions;{Emulsion pre-concentrates; Micelles (composition of emulsions [A61K 47/00](#))}
- WARNING  
incomplete, see also [A61K 9/0012](#), [A61K 47/00](#) , [A61K 9/0095](#)
- U A61K 9/113**      • • • Multiple emulsions, e.g. oil-in-water-in-oil; {([A61K 9/0026](#) takes precedence)}
- A61K 9/12**      • • Aerosols; Foams {([A61K 9/0043](#) , [A61K 9/0056](#) , [A61K 9/006](#) , [A61K 9/0073](#) take precedence; spray-films [A61K 9/7015](#))}
- U A61K 9/48**      • Preparations in capsules, e.g. of gelatin, of chocolate; {([A61K 9/0004](#) takes precedence; bite capsules [A61K 9/0056](#))}
- U A61K 9/50**      • • Microcapsules {having a gas, liquid or semi-solid filling; Solid microparticles or pellets surrounded by a distinct coating layer, e.g. coated microspheres, coated drug crystals ([A61K 9/2081](#) takes precedence; particles with a single coating comprising drug [A61K 9/167](#))}
- A61K 9/5084**      • • • {Mixtures of one or more drugs in different galenical forms, at least one of which being granules, microcapsules or (coated) microparticles according to [A61K 9/16](#) or [A61K 9/50](#) , e.g. for obtaining a specific release pattern or for combining different drugs (tablets containing such a mixture [A61K 9/2077](#))}

- A61K 9/51
- • • Nanocapsules; {Nanoparticles; (nanotubes [A61K 9/0092](#) ; polymeric micelles [A61K 9/1075](#) ; polymersomes [A61K 9/1273](#) ; pure drug nanoparticles [A61K 9/14](#) ; drug nanoparticles with adsorbed surface modifiers [A61K 9/141](#) ; conjugates, e.g. between drug and non-active nanoparticles, [A61K 47/48](#) ; preparations for in vivo diagnosis [A61K 49/00](#) ; with radioactive substances [A61K 51/00](#))}
- A61K 9/70
- Web, sheet or filament bases; {Films; Fibres of the matrix type containing drug; (hollow drug-filled fibres [A61K 9/0092](#) ; bandages, dressings or absorbent pads [A61F 13/00](#) , chemical aspects thereof [A61L 15/00](#))}
- U 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.
- A61K 31/13
- Amines {([A61K 31/04](#) takes precedence)}
- A61K 31/145
- • having sulfur, e.g. thiurams (>N-C(S)-S-C(S)-N< and >N-C(S)-S-S-C(S)-N<), Sulfinylamines (-N=SO), Sulfonylamines (-N=SO<sub>2</sub>) (isothiourea [A61K 31/155](#))
- U A61K 31/185**
- Acids; Anhydrides, halides or salts thereof, e.g. sulfur acids, imidic, hydrazonic, hydroximic acids (hydroxamic acids [A61K 31/16](#) ; peroxy acids [A61K 31/327](#))
- NOTE
- Cyclic anhydrides are considered to be heterocyclic rings
- U A61K 31/19**
- • Carboxylic acids, e.g. valproic acid (Salicylic acid [A61K 31/60](#))
- U A61K 31/195**
- • • having an amino group
- U A61K 31/197**
- • • • the amino and the carboxyl group being attached to the same acyclic carbon chain, e.g. gamma-aminobutyric acid [GABA], beta-alanine, epsilon-aminocaproic acid, pantothenic acid (carnitine [A61K 31/205](#))

- A61K 31/198
- • • • Alpha-aminoacids, e.g. alanine, edetic acids [EDTA], (betaine [A61K 31/205](#) ; proline [A61K 31/401](#) ; tryptophan [A61K 31/405](#) ; histidine [A61K 31/4172](#) ; peptides not degraded to individual aminoacids [A61K 38/00](#))
- U A61K 31/33
- Heterocyclic compounds
- U A61K 31/395
- • having nitrogen as a ring hetero atom, e.g. guanethidine, rifamycins (rifampin [A61K 31/496](#))
- A61K 31/53
- • • having six-membered rings with three nitrogens as the only ring hetero atoms, e.g. chlorazaniil, melamine, (melarsoprol [A61K 31/555](#)){(with four nitrogen atoms [A61K 31/495](#))}
- U A61K 31/56
- Compounds containing cyclopenta[a]hydrophenanthrene ring systems; Derivatives, e.g. steroids
- NOTE
- Attention is drawn to Note (1) following the title of subclass [C07J](#) which explains what is covered by the term "steroids"
- A61K 31/58
- • containing heterocyclic rings, e.g. danazol, stanozolol, pancuronium or digitogenin {(digitoxin [A61K 31/7048](#))}
- U A61K 31/60
- Salicylic acid; Derivatives thereof
- A61K 31/609
- • Amides, e.g. salicylamide {(labetalol, metoclopramide [A61K 31/166](#))}
- A61K 31/625
- • having heterocyclic substituents, e.g. 4-salicycloylmorpholine, (sulfasalazine [A61K 31/635](#))
- U A61K 31/70
- Carbohydrates; Sugars; Derivatives thereof (sorbitol [A61K 31/047](#))
- NOTE
- In this group, the expressions are used with the meanings indicated in Note (3) following the title of the subclass [C07H](#)
- U A61K 31/7028
- • Compounds having saccharide radicals attached to non-saccharide compounds by glycosidic linkages
- U A61K 31/7034
- • • attached to a carbocyclic compound, e.g. phloridzin
- A61K 31/704
- • • • attached to a condensed carbocyclic ring system, e.g. sennosides, thicolchicosides, escin, daunorubicin {(digitoxin [A61K 31/7048](#))}
- A61K 36/00**
- Medicinal preparations of undetermined constitution containing material from algae, lichens, fungi or plants, or derivatives thereof, e.g. traditional herbal medicines {(antigens from pollen [A61K 39/36](#))}**
- NOTE
- In this group, common names of plants, where given, are presented in brackets following their corresponding Latin names.
- U **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 38/16
  - Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof {(enzyme inhibitors [A61K 38/005](#))}
    - • from animals; from humans {(enzyme inhibitors [A61K 38/005](#))}
- U A61K 38/22
  - • • Hormones (derived from pro-opiomelanocortin, pro-enkephalin or pro-dynorphin [A61K 38/33](#) , e.g. corticotropin [A61K 38/35](#))
- A61K 38/30
  - • • • Insulin-like growth factors (somatomedins), e.g. IGF-1, IGF-2 {(insulin-like growth factor binding protein [A61K 38/1754](#))}
- U A61K 38/55
  - • Protease inhibitors
- A61K 38/57
  - • • from animals; from humans {([A61K 38/553](#) , [A61K 38/556](#) take precedence)}
- U 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 39/02
  - Bacterial antigens
- A61K 39/05
  - • {Actinobacteria, e.g. Actinomyces, Streptomyces, Nocardia, Bifidobacterium, Gardnerella}, Corynebacterium; Propionibacterium {(Mycobacterium [A61K 39/04](#))}

**U A61K 47/00 Medicinal preparations characterised by the non-active ingredients used, e.g. carriers, inert additives**

- U A61K 47/30
  - Macromolecular compounds
- U A61K 47/36
  - • Polysaccharides; Derivatives thereof, {e.g. gums, starch, alginate, dextrin, hyaluronic acid, chitosan, inulin, agar, pectin}
- A61K 47/40
  - • • Cyclodextrins; Derivatives thereof {(cyclodextrin inclusion compounds [A61K 47/48969](#))}
- U A61K 47/48
  - the non-active ingredient being chemically bound to the active ingredient, e.g. polymer drug conjugates
- 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

- U A61K 47/48792
  - • • {the form being a colloid, emulsion, i.e. having at least a dispersed/continuous oil phase and a dispersed/continuous aqueous phase, dispersion or suspension}
- A61K 47/48815
  - • • • {the form being a liposome, i.e. a bilayered vesicle, having its surface modified by covalent attachment or complexation of the pharmacologically or therapeutically active agent and/or modifying agent. (Simple encapsulation of a drug which being not functionalised on its surface by a modifying agent: see [A61K 9/127](#))}

**NOTE**

Liposomes modified by a polymer because they incorporate a polymer-lipid conjugate are only additionally classified in [A61K 47/48815](#) if the polymer modifying the lipid being unusual. Liposomes which are

pegylated because they incorporate a pegylated lipid are not classified in [A61K 47/48815](#) but in [A61K 9/1271](#). When the surface of the liposome being functionalised by a modifying agent, classification being also made according to the nature of this modifying agent, e.g. a liposome modified on its surface by a peptide being classified in [A61K 47/48815](#) and [A61K 47/48238](#). In case of antibodies, see [A61K 47/48823](#). Liposomes wherein the pharmacologically or therapeutically active agent being linked to a phospholipid of the liposomal surface are classified in [A61K 47/48815](#) and [A61K 47/48053](#) ]

**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 51/0489 · · · {Phosphates or phosphonates, e.g. bone-seeking phosphonates; (phospholipids: [A61K 51/0408](#) ; nucleotides or nucleic acids: [A61K 51/0491](#))}

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

**U 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 9/01 · Deodorant compositions {(compositions released by contact with a liquid [A61L 9/05](#))}

A61L 9/012 · · characterised by being in a special form, e.g. gels, emulsions {([A61L 9/048](#) takes precedence)}

**A61L 11/00 Methods specially adapted for refuse {(desintegrating medical waste [B02C19/12M](#) ; disposal of medical waste [B09B 3/0075](#))}**

**U 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

- U 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 15/24
- • Macromolecular compounds obtained by reactions only involving carbon-to-carbon unsaturated bonds; Derivatives thereof [{\(A61L 15/225 takes precedence\)}](#)
- A61L 15/26
- • Macromolecular compounds obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds; Derivatives thereof [{\(A61L 15/225 takes precedence\)}](#)
- A61L 15/28
- • Polysaccharides or their derivatives [{\(A61L 15/225 takes precedence\)}](#)
- A61L 15/30
- • Rubbers or their derivatives [{\(A61L 15/225 takes precedence\)}](#)
- A61L 15/32
- • Proteins, polypeptides; Degradation products or derivatives thereof, e.g. albumin, collagen, fibrin, gelatin [{\(A61L 15/225 takes precedence\)}](#)
- A61L 15/34
- • Oils, fats, waxes or natural resins [{\(A61L 15/225 takes precedence\)}](#)
- U 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
- A61L 24/06
- • obtained by reactions only involving carbon-to-carbon unsaturated bonds [{\(A61L 24/043 , A61L 24/046 take precedence\)}](#)
- A61L 24/08
- • Polysaccharides [{\(A61L 24/043 takes precedence\)}](#)
- A61L 24/10
- • Polypeptides; Proteins [{\(A61L 24/043 takes precedence\)}](#)
- A61L 24/12
- • Ionomer cements, e.g. glass-ionomer cements [{\(A61L 24/043 takes precedence\)}](#)
- U 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 19/04](#) , of surgical drapes [A61B 19/08](#) , 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 31/04
  - Macromolecular materials
- A61L 31/06
  - obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds  $\{(\text{A61L 31/041 takes precedence})\}$

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

- U 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  $\{(\text{A61M 3/00 to A61M 5/00 , A61M 11/00 to A61M 16/00 , A61M 27/00 to A61M 35/00 take precedence } )$  ; 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.

- U A61M 1/10
  - Blood pumps; Artificial hearts; Devices for mechanical circulatory assistance, e.g. intra-aortic balloon pumps (artificial heart valves [A61F 2/24](#) ; heart stimulation [A61H 31/00](#))
- A61M 1/12
  - • implantable into the body {(not used, see subgroups)}
- A61M 1/14
  - Dialysis systems; Artificial kidneys; Blood oxygenators; {Reciprocating systems for treatment of body fluids, e.g. single needle systems for haemofiltration, pheris (haemofiltration using non reciprocating systems [A61M 1/34](#) ; extracorporeal blood circuit aspects [A61M 1/36](#))}; {(processes of separation using semi-permeable membranes [B01D 61/00](#) ; semi-permeable membranes characterised by the material, manufacturing processes therefor [B01D 71/00](#))}
- A61M 1/16
  - • with membranes {([A61M 1/30](#) takes precedence; membranes per se [B01D 69/00](#) , [B01D 71/00](#))}
- A61M 1/34
  - Filtering material out of the blood by passing it through a membrane, i.e. haemofiltration, diafiltration {([A61M 1/30](#) takes precedence; extracorporeal blood circuit aspects [A61M 1/36](#))}
- U A61M 5/00
  - **Devices for bringing media into the body in a subcutaneous, intra-vascular or intramuscular way; Accessories therefor, e.g. filling or cleaning devices, arm-rests ( vaccination appliances for veterinary use [A61D 1/025](#) ) ; tube connectors, tube couplings, valves or branch units specially adapted for medical use [A61M 39/00](#) ; containers specially adapted for medical or pharmaceutical purposes [A61J 1/00](#) ; { combinations of vial and syringe for mixing or transferring their contents [A61J 1/20](#) ; holders for containers for collecting, storing or administering blood or medical fluids [A61J 1/16](#) )}**
- U A61M 5/14
  - Infusion devices, e.g. infusing by gravity; Blood infusion; Accessories therefor (suction in pumping blood transfusion [A61M 1/02](#) ; { infusion containers [A61J1/00T](#) )}
- U A61M 5/142
  - • Pressure infusion, e.g. using pumps
  - NOTE
  - In this group, the following expression is used with the meaning indicated:
    - "pressure infusion" includes powered injection working at a controlled rate
- U A61M 5/145
  - • • using pressurised reservoirs, e.g. pressurised by means of pistons
- U A61M 5/148
  - • • • flexible, {e.g. independent bags} ([A61M 5/155](#) takes precedence)
- A61M 5/152
  - • • • • pressurised by contraction of elastic reservoirs {(containers for dispensing contents by contraction of an elastic bag provided therein, in general [B65D 83/0061](#) )}
- U A61M 5/168
  - • Means for controlling media flow to the body or for metering media to the body, e.g. drip meters, counters; {Monitoring media flow to the body (flow control in general [G05D 7/00](#) )}
- A61M 5/172
  - • • electrical or electronic {([A61M 5/16804](#) and [A61M 5/16831](#) take precedence)}
- U A61M 5/178
  - Syringes
- U A61M 5/31
  - • Details

- A61M 5/32
- • • Needles; Details of needles pertaining to their connection with syringe or hub (infusion needles [A61M 5/158](#)); Accessories for bringing the needle into, or holding the needle on, the body [{\(A61M 5/42 , A61M 5/46 take precedence; guide needles for catheters A61M 25/065\)}](#); Devices for protection of needles [{\(apparatus specially adapted for cleaning or sterilising needles A61M 5/001\)}](#)
- U A61M 5/36
- with means for eliminating or preventing injection or infusion of air into body (dialysis systems, blood oxygenators [A61M 1/14](#) ; haemofiltration equipment [A61M 1/34](#) ; { automatic tube cut-off [A61M 39/281](#)})
- A61M 5/40
- • using low-level float-valve to cut off media flow from reservoir [{\(position detection of a floating member A61M 5/1685\)}](#)
- A61M 5/50
- Having means for preventing re-use, or for indicating if defective, used, tampered with or unsterile [{\(retractable needles or needle protectors with means for preventing re-use A61M 5/321\)}](#)
- U **A61M 11/00**
- Sprayers or atomisers specially adapted for therapeutic purposes (in general [B05B](#) ; { aerosol containers [B65D 83/14](#)})**
- WARNING**
- Groups [A61M 11/001 - A61M 11/008](#), [A61M 11/042 - A61M 11/048](#), [A61M 11/065](#) are incomplete pending reclassification of documents from group [A61M 11/00](#) or respective subgroup.
- Until reclassification is complete, groups [A61M 11/00](#) or respective subgroup and [A61M 11/001 - A61M 11/008](#), [A61M 11/042 - A61M 11/048](#), [A61M 11/065](#) should be considered in order to perform a complete search.
- A61M 11/02
- operated by air {or other gas}pressure applied to the liquid {or other product}to be sprayed or atomised [{\(sprayers for horticulture A01G , A01H ; killing insects A01M ; air humidifying by nozzles F24F 6/14 , F24F 6/18 ; cooling by spraying F28B , F28C\)}](#)
- A61M 11/04
- operated by the vapour pressure of the liquid to be sprayed or atomised [{\(air-humidification, e.g. "room humidifiers" F24F 6/00\)}](#)
- U A61M 11/06
- of the injector type
- A61M 11/08
- • Pocket atomisers of the injector type [{\(aerosol cans A61M 15/009\)}](#)
- A61M 15/00**
- Inhalators [{\(drug delivery in endotracheal tubes A61M 16/04\)}](#)**
- WARNING**
- Groups [A61M 15/0001 - A61M 15/0026](#), [A61M 15/003 - A61M 15/0043](#), [A61M 15/0046 - A61M 15/0063](#), [A61M 15/0066 - A61M 15/0083](#), [A61M 15/0088](#), [A61M 15/0093 - A61M 15/0098](#), [A61M 15/025](#), [A61M 15/085](#) are incomplete pending reclassification of documents from group [A61M 15/00](#) or respective subgroup.
- Until reclassification is complete, groups [A61M 15/00](#) or respective subgroup and [A61M 15/0001 - A61M 15/0026](#), [A61M 15/003 - A61M 15/0043](#), [A61M 15/0046 - A61M 15/0063](#), [A61M 15/0066 - A61M 15/0083](#), [A61M 15/0088](#), [A61M 15/0093 - A61M 15/0098](#), [A61M 15/025](#), [A61M 15/085](#) should be considered in order to perform a complete search.
- A61M 15/06
- Inhaling appliances shaped like cigars, cigarettes or pipes [{\(simulated smoking devices, e.g. imitation cigarettes, A24F 47/002\)}](#)

- U A61M 16/00** Devices for influencing the respiratory system of patients by gas treatment, e.g. mouth-to-mouth respiration; Tracheal tubes (stimulating the respiratory movement by mechanical, pneumatic or electrical means, iron lungs combined with gas breathing means [A61H 31/00](#) ; { supine patient supports therefor [A61H 31/008](#) } ; respiratory apparatus in general [A62B](#); respirators for working under water [B63C 11/00](#))

**WARNING**

Groups [A61M 16/0003](#) - [A61M 16/0012](#), [A61M 16/006](#) - [A61M 16/0063](#), [A61M 16/0069](#), [A61M 16/0081](#) - [A61M 16/0084](#), [A61M 16/0093](#), [A61M 16/0402](#) - [A61M 16/0431](#), [A61M 16/0436](#) - [A61M 16/0438](#), [A61M 16/0443](#) - [A61M 16/0459](#), [A61M 16/0475](#) - [A61M 16/0486](#), [A61M 16/049](#) - [A61M 16/0495](#), [A61M 16/0605](#) - [A61M 16/0655](#), [A61M 16/0672](#) - [A61M 16/0677](#), [A61M 16/0688](#) - [A61M 16/0694](#), [A61M 16/0825](#) - [A61M 16/0866](#), [A61M 16/0883](#) - [A61M 16/0891](#), [A61M 16/1005](#) - [A61M 16/1015](#), [A61M 16/106](#) - [A61M 16/107](#), [A61M 16/108](#) - [A61M 16/1095](#), [A61M 16/122](#) - [A61M 16/127](#), [A61M 16/142](#) - [A61M 16/147](#), [A61M 16/161](#), [A61M 16/164](#) - [A61M 16/168](#), [A61M 16/201](#) - [A61M 16/207](#), [A61M 16/209](#) are incomplete pending reclassification of documents from group [A61M 16/00](#) or respective subgroup.

Until reclassification is complete, groups [A61M 16/00](#) or respective subgroup and [A61M 16/0003](#) - [A61M 16/0012](#), [A61M 16/006](#) - [A61M 16/0063](#), [A61M 16/0069](#), [A61M 16/0081](#) - [A61M 16/0084](#), [A61M 16/0093](#), [A61M 16/0402](#) - [A61M 16/0431](#), [A61M 16/0436](#) - [A61M 16/0438](#), [A61M 16/0443](#) - [A61M 16/0459](#), [A61M 16/0475](#) - [A61M 16/0486](#), [A61M 16/049](#) - [A61M 16/0495](#), [A61M 16/0605](#) - [A61M 16/0655](#), [A61M 16/0672](#) - [A61M 16/0677](#), [A61M 16/0688](#) - [A61M 16/0694](#), [A61M 16/0825](#) - [A61M 16/0866](#), [A61M 16/0883](#) - [A61M 16/0891](#), [A61M 16/1005](#) - [A61M 16/1015](#), [A61M 16/106](#) - [A61M 16/107](#), [A61M 16/108](#) - [A61M 16/1095](#), [A61M 16/122](#) - [A61M 16/127](#), [A61M 16/142](#) - [A61M 16/147](#), [A61M 16/161](#), [A61M 16/164](#) - [A61M 16/168](#), [A61M 16/201](#) - [A61M 16/207](#), [A61M 16/209](#) should be considered in order to perform a complete search.

- A61M 16/01 • specially adapted for anaesthetising {([A61M 16/104](#) , [A61M 16/18](#) take precedence)}
- A61M 16/08 • Bellows; Connecting tubes {(having means for taking samples [G01N 1/22](#)); Water traps; Patient circuits}
- U A61M 16/10 • Preparation of respiratory gases or vapours
- U A61M 16/14 • • by mixing different fluids, one of them being in a liquid phase
- A61M 16/16 • • • Devices to humidify the respiration air {([A61M 16/1045](#) takes precedence)}
- U A61M 25/00** **Catheters; Hollow probes (dilators [A61M 29/00](#) ; { peritoneal catheters [A61M 1/285](#) ; tracheal tubes [A61M 16/04](#) ; for drainage [A61M 27/00](#) ; for uterus, vagina or rectum [A61M 31/00](#) } ; for measuring or testing [A61B](#) ; { materials for catheters [A61L 29/00](#)})**
- U A61M 25/01 • Introducing, guiding, advancing, emplacing or holding catheters ([A61M 25/10](#) takes precedence)
- U A61M 25/02 • • Holding devices, e.g. on the body
- A61M 25/04 • • • in the body, e.g. expansible {([A61M 25/10](#) , [A61M 16/0488](#) take precedence)}
- U A61M 29/00** **Dilators with or without means for introducing media, e.g. remedies (instruments for performing visual medical inspections of cavities or tubes of the body [A61B 1/00](#))**
- A61M 29/02 • Dilators made of swellable material {(balloon catheters for angioplasty [A61M 25/104](#))}

- U A61M 39/00** **Tubes, tube connectors, tube couplings, valves, access sites or the like, specially adapted for medical use (for respiratory devices, e.g. tracheal tubes [A61M 16/00](#) ; artificial heart valves [A61F 2/24](#))**
- WARNING**  
Not complete, see [A61J 1/14](#)
- A61M 39/10 · Tube connectors; Tube couplings {([A61M 39/02](#) takes precedence; connecting needles to syringes or hubs [A61M 5/34](#) ; connecting catheter tubes to hubs [A61M 25/0014](#))}
- A61M 39/14 · · for connecting tubes having sealed ends {(needle sets [A61M 5/162](#) ; having valves closing automatically on disconnection of line [A61M 39/26](#))}
- A61M 39/16 · · having provision for disinfection or sterilisation {([A61M 39/143](#) takes precedence; methods or apparatus for disinfection or sterilisation [A61L 2/00](#))}
- A61M 39/22 · Valves or arrangement of valves {([A61M 39/02](#) , [A61M 39/0247](#) , [A61M 39/16](#) take precedence; regulating valves in infusion systems [A61M 5/16881](#) ; in devices worn by the patient for the reception of urine, faeces, catamenial or other discharge, or in colostomy devices [A61F 5/4405](#))}
- A61M 39/26 · · Valves closing automatically on disconnecting the line and opening on reconnection thereof {(check valves [A61M 39/24](#))}
- A61M 39/28 · · Clamping means for squeezing flexible tubes, e.g. roller clamps {(tube strippers [A61M 1/0078](#))}

**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 · Physical fire-barriers
- A62C 2/24 · · Operating or controlling mechanisms {(emergency operation of doors and windows [E05F 1/002](#) , [E05F 15/72](#))}
- U A62C 3/00** **Fire prevention, containment or extinguishing specially adapted for particular objects or places ({in oil wells [E21B 29/08](#) , [A62C 35/00](#) ; in mines or tunnels [E21F 5/00](#) } ; for nuclear reactors [G21C 9/04](#))**
- U A62C 3/07 · in vehicles, e.g. in road vehicles
- A62C 3/08 · · in aircraft {([A62C 3/0207](#) takes precedence)}
- A62C 3/10 · · in ships {([A62C 3/0207](#) takes precedence)}

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

- U A63B 5/00** **Apparatus for jumping (mats for jumping [A63B 6/00](#) ; for racing or riding sports, e.g. hurdles [A63K](#))**
- A63B 5/16 · Training devices for jumping; Devices for balloon-jumping; Jumping aids {([A63B 25/02](#) , [A63B 25/10](#) take precedence)}
- A63B 6/00** **Mats or the like for absorbing shocks for jumping, gymnastics or the like {(for jogging on the spot [A63B 69/0035](#) ; resiliently-mounted floors [E04F 15/22](#))}**
- A63B 6/02 · for landing, e.g. for pole vaulting {(jumping-mattresses for rescue [A62B 1/22](#))}
- A63B 9/00** **Climbing poles, frames, or stages {(climbing walls for mountaineering training [A63B 69/0048](#) ; endless loop ladders [A63B 22/04](#))}**
- WARNING**  
Documents are being reclassified to [A63B 21/072](#) ; [A63B 21/0728](#) is complete

- A63B 19/00** **Hoop exercising apparatus** **{{(A63B 21/0608 takes precedence; not driven by the user, e.g. motor driven, A63G 29/00 , A63G 31/00)}}**
- A63B 19/02
- Freely-movable rolling hoops, e.g. gyrowheels {or spheres or cylinders, carrying the user inside (resisting devices overcoming gyroscopic forces of rotating bodies [A63B 21/22](#) ; standing on it for equilibrium exercises [A63B 26/003](#) ; spherical hulls or hulls in the shape of a vertical ring for use in water [B63B 1/047](#))}
- A63B 19/04
- movably supported on a framework {or spheres or cylinders carrying the user inside (standing on it for equilibrium exercises [A63B 26/003](#))}
- U A63B 21/00** **Exercising apparatus for developing or strengthening the muscles or joints of the body by working against a counterforce, with or without measuring devices (electric or electronic controls therefor [A63B 24/00](#) ; measuring muscular strength [A61B 5/22](#))**
- A63B 21/012
- using frictional force-resisters **{{(electromagnetically-controlled brakes [A63B 21/0056](#))}}**
- U A63B 21/02**
- using resilient force-resisters
- A63B 21/05
- • Linearly-compressed elements **{{(A63B 21/028 takes precedence)}}**
- A63B 21/22
- Resisting devices with rotary bodies, {e.g. by overcoming gyroscopic forces **(A63B 21/0608 takes precedence)**}
- U A63B 22/00** **Exercising apparatus specially adapted for conditioning the cardio-vascular system, for training agility or co-ordination of movements (force-resisting aspects [A63B 21/00](#) ; { for particular parts of the body, e.g. to strengthen particular limbs or muscles [A63B 23/00](#) ; } electric or electronic controls therefor [A63B 24/00](#))**
- NOTE
- In this subclass, 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, may also be classified in each of those groups.
- A63B 22/02
- with movable endless bands {, e.g. treadmills (other training appliances for running on the spot [A63B 69/0028](#))}
- A63B 22/04
- with movable {multiple}steps, {i.e. more than one step per limb, e.g. steps mounted on endless loops, endless ladders (steppers with cantilevered support elements pivoting about an axis [A63B 22/0048](#))}
- A63B 22/16
- Platforms for rocking motion about a horizontal axis {e.g. axis through the middle of the platform}; Balancing drums; Balancing boards or the like **{{(exercising apparatus with cantilevered support elements pivoting about an axis [A63B 22/0056](#) ; other exercising apparatus for improving balance [A63B 26/003](#))}}**
- U A63B 23/00** **Exercising apparatus specially adapted for particular parts of the body (A63B 22/00 takes precedence; force-resisting aspects [A63B 21/00](#) ; electric or electronic controls therefor [A63B 24/00](#) ; devices for exercising or strengthening of fingers, or arms in teaching operation of keyboards [G09B 15/06](#))**
- U A63B 23/035**
- for limbs, i.e. upper or lower limbs, e.g. simultaneously
- A63B 23/03508
- • {For a single arm or leg, **(A63B 21/0726 takes precedence)**}
- WARNING
- not complete, pending the completion of a reclassification
- A63B 23/04
- • for lower limbs **{{(Training appliances for special sports [A63B 69/00](#) ; For the purpose of producing mechanical power [F03G 5/00](#))}}**

- A63B 23/12
- for upper limbs {or related muscles, e.g. chest, upper back or shoulder muscles (bench press exercises [A63B 21/078](#) ; for teaching music [G09B 15/06](#))}
- A63B 23/16
- • for hands or fingers {(for teaching typing [G09B 13/00](#))}
- U A63B 25/00**      **Stilts or the like**
- A63B 25/02
- Elastic stilts {(devices for balloon jumping [A63B 5/166](#))}
- A63B 25/08
- Hopping-sticks, e.g. pogo sticks; {Hopping apparatus with a single resilient support (devices for balloon jumping [A63B 5/166](#))}
- U A63B 29/00**      **Apparatus for mountaineering (helmets [A42B 3/00](#) ; non-skid devices or attachments for footwear, e.g. mountain climbing irons [A43C 15/00](#) ; breathing masks or helmets for use at high altitudes [A62B 18/00](#) ; { safety belts or body harnesses [A62B 35/00](#) } ; picks [B25D 7/00](#))**
- A63B 29/02
- Mountain guy-ropes or accessories, e.g. avalanche ropes {(hooks, e.g. snaphooks, therefor [F16B 45/00](#))}; Means for indicating the location of accidentally buried, e.g. snow-buried, persons (detecting hidden masses in general [G01V](#))
- NOTE
- Contrary to the wording of group [A63B 29/02](#) , devices for lowering persons are classified in [A62B 1/06](#)
- U A63B 37/00**      **Solid balls;{Rigid hollow balls}; Marbles (heavy throwing balls [A63B 65/06](#))**
- A63B 37/02
- Special cores {([A63B 37/0001](#) , [A63B 37/0003](#) take precedence)}
- A63B 37/12
- Special coverings,{i.e. outer layer material ([A63B 37/0001](#) , [A63B 37/0003](#) take precedence)}
- A63B 37/14
- Special surfaces {([A63B 37/0004](#) takes precedence)}
- A63B 39/00**      **Hollow non-inflatable balls,{i.e. having no valves (rigid balls [A63B 37/00](#))}**
- A63B 47/00**      **Devices for handling or treating balls,{e.g. for holding or carrying balls (for maintaining ball pressure [A63B 39/02](#) ; ball holders combined with racket presses [A63B 49/16](#) , with racket covers or cases [A63B 49/18](#) , fitted on golf bags [A63B 55/02](#))}**
- U A63B 49/00**      **Tennis, badminton, or like rackets**
- WARNING
- Group [A63B 49/007](#), [A63B 49/06](#) are not complete pending a reclassification. See also this group, its subgroups and other groups of [A63B](#)
- U A63B 49/02**
- Frames
- A63B 49/04
- • with balancing devices {([A63B 59/0092](#) , [A63B 59/0096](#) take precedence)}
- A63B 49/06
- • with slits {(slits for guiding strings [A63B 49/002](#) ; slits for cooling or ventilation [A63B 59/0037](#))}
- A63B 49/16
- Presses,{e.g. with ball holders (ball holders in general [A63B 47/00](#))}
- A63B 49/18
- Covers {or cases, e.g. with ball holders (ball holders in general [A63B 47/00](#))}
- A63B 51/00**      **Stringing tennis rackets {(string guides on frames [A63B 49/002](#) ; clamping strings on frames [A63B 49/005](#))}**
- A63B 51/02
- Strings; String substitutes; {Products applied on strings, e.g. for protection against humidity or wear (ropes or cables in general [D07B](#); yarns or threads for use in sports applications [D02G 3/444](#) ; mechanical methods or apparatus in the manufacture of artificial filaments, threads, fibres, bristles or ribbons [D01D](#); strings for musical instruments [G10D 3/10](#))}

A63B 53/00	<b>Golf clubs</b> {(cleaning or maintenance <a href="#">A63B 57/0087</a> ; measuring, verifying or correcting golf-club characteristics <a href="#">A63B 59/0074</a> ; clubs or attachments on clubs for golf training <a href="#">A63B 69/3632</a> )}
A63B 53/10	- {Shafts, e.g.}non-metallic shafts {(metallic <a href="#">A63B 53/12</a> )}
<b>U A63B 59/00</b>	<b>Bats, rackets, or the like, for other games (bats with a ball tethered thereto <a href="#">A63B 67/20</a>);{ Hand-held throwing or catching aids; Details or accessories of bats, rackets or the like, not limited to one of the groups <a href="#">A63B 49/00</a> to <a href="#">A63B 57/00</a> , or not otherwise provided for}</b>
A63B 59/02	- for lacrosse, pelota or similar games; {Bats or rackets having means for catching or holding a ball, e.g. pockets, netting, adhesive type surface; Hand-held throwing or catching aids (juggling games with integral catching arrangements <a href="#">A63B 67/083</a> )}
A63B 59/10	- for croquet; {Mallet-form bats (polo mallets <a href="#">A63B 59/16</a> )}
A63B 59/14	- for ice hockey {( <a href="#">A63B 59/12</a> takes precedence)}
A63B 59/18	- Circular {or similar planar}bats for other games {(not covered by groups <a href="#">A63B 59/02</a> to <a href="#">A63B 59/16</a> )}
<b>A63B 61/00</b>	<b>Tennis nets or accessories for tennis or like games,{e.g. volley-ball (devices for holding or carrying balls <a href="#">A63B 47/00</a> ; for table tennis <a href="#">A63B 67/04</a>)}</b>
A63B 61/04	- Straining or adjusting devices for nets,{e.g. centre strainers, single-double adjusters, net height meters (straining or adjusting devices on the posts <a href="#">A63B 61/02</a> )}
<b>U A63B 63/00</b>	<b>Targets or goals for ball games (golf cups <a href="#">A63B 57/00</a>)</b>
A63B 63/08	- with {substantially}horizontal opening for ball, e.g. for basketball {( <a href="#">A63B 57/0056</a> , <a href="#">A63B 63/06</a> take precedence)}
<b>U A63B 65/00</b>	<b>Implements for throwing (throwing toys <a href="#">A63H 33/18</a> ; throwing weapons <a href="#">F41B</a>);{Mechanical projectors, e.g. using spring force}</b>
A63B 65/02	- Spears or the like; {Javelins (darts <a href="#">F42B 6/003</a> )}
A63B 65/10	- Discus discs; Quoits {(flying disc toys <a href="#">A63H 33/18</a> )}
<b>U A63B 65/12</b>	- Ball-throwing apparatus with or without catchers; {(hand-held throwing or catching aids <a href="#">A63B 59/02</a> ); Mechanical projectors, e.g. using spring force}
<b>U A63B 67/00</b>	<b>Miscellaneous sporting games</b>
A63B 67/02	- Special golf games, e.g. miniature golf,{e.g. golf putting games played on putting tracks; putting practice apparatus having an elongated platform as a putting track (mats for golf practice <a href="#">A63B 69/3661</a> )}
A63B 67/08	- Juggling or spinning ball games played as games of skill; {Juggling games (games using tethered bodies, e.g. balls <a href="#">A63B 67/10</a> , <a href="#">A63B 67/20</a> )}
<b>U A63B 69/00</b>	<b>Training appliances or apparatus for special sports (training of parachutists <a href="#">B64D 23/00</a>)</b>
A63B 69/02	- for fencing,{e.g. means for indicating hits (fencing foils, sabres or epees <a href="#">F41B 13/02</a> )}
<b>U A63B 69/12</b>	- Arrangements in swimming pools for teaching swimming {or for training}
A63B 69/14	- • Teaching frames for swimming; {Swimming boards (life-buoys, life-belts <a href="#">B63C 9/08</a> )}
A63B 69/16	- for cycling,{i.e. arrangements on or for real bicycles (home-trainers <a href="#">A63B 23/0476</a> )}
A63B 69/20	- Punching balls,{e.g. for boxing; Other boxing training devices, e.g. bags ( <a href="#">A63B 69/34</a> takes precedence)}

- A63B 69/38 · for tennis {(A63B 61/006 , A63B 69/0073 and A63B 69/0097 take precedence)}
- A63B 69/40 · Stationarily-arranged devices for projecting balls {or other bodies (ball-dispensing devices [A63B 47/002](#) ; golf cups with ball ejector means [A63B 57/0062](#) ; targets with means for returning balls by gravity or mechanically [A63B 63/00](#))}; {(sling weapons [F41B 3/00](#) ; traps for clay-pigeon targets [F41J 9/18](#))}

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

- U A63B 71/08 · Body-protectors for players or sportsmen,{i.e. body-protecting accessories affording protection of body parts against blows or collisions}(protective clothing or garments for sporting purposes [A41D 13/00](#))
- A63B 71/12 · · for the body,{e.g. shoulders}, or the legs {(A63B 71/081 takes precedence)}

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

**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](#))**

**WARNING**

Groups not complete pending reclassification: [A63F 7/022](#), [A63F 7/0656](#), [A63F 7/0616](#), [A63F 7/062](#), [A63F 7/0624](#), [A63F 7/0632](#), [A63F 7/064](#), [A63F 7/0644](#), [A63F 7/0648](#), [A63F 7/0656](#), [A63F 7/24](#), [A63F 7/2418](#), [A63F 7/2427](#), [A63F 7/249](#), [A63F 7/265](#), [A63F 7/28](#), [A63F 7/30](#), [A63F 7/3055](#), [A63F 7/306](#), [A63F 7/307](#), [A63F 7/34](#), [A63F 7/36](#), [A63F 7/382](#). See also this group and its subgroups

- U A63F 7/22 · in which the playing bodies are projected through the air {(not used, see subgroups of [A63F 7/06](#))}
- U 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 7/38 · · · Playing surfaces movable during play{, i.e. games played on a non-stationary surface, e.g. the ball intended to be in permanent motion (balls to be shaken or rolled in small boxes [A63F 7/04](#); eccentric weights put into orbital motion by nutating movement of the user [A63B 21/0608](#))}
- A63F 13/00 **Video games, i.e. games using an electronically generated display having two or more dimensions** {(Gaming systems which provide a financial reward [G07F 17/32](#))}

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

- U B01D 1/00 **Evaporating** {(evaporation in general, e.g. of liquids for gas phase reactions [B01B 1/005](#)} ; removal of incrustation [B08B](#); preparation of starch [C08B 30/00](#) ; sugar industry [C13](#); prevention of incrustation [C23F](#); drying solid materials or objects by evaporating liquids therefrom [F26](#))}
- B01D 1/22 · by bringing a thin layer of the liquid into contact with a heated surface {(B01D 1/065 takes precedence)}
- U B01D 23/00 **Gravity filters (with moving filtering elements [B01D 33/0035](#))**
- U B01D 23/10 · with loose filter material
- B01D 23/16 · · Sand or gravel filters {(filterbed-basin filters, small bed filters, e.g. in closed housing [B01D 23/10](#))}

- B01D 23/26
- integrally combined with devices for controlling the filtration {(shutting-off elements, changing over from one element to another [B01D 35/12](#) , [B01D 35/14](#) ; control of filtration processes [B01D 37/04](#)}
- U B01D 25/00** **Filters formed by clamping together several filtering elements or parts of such elements (disc filters [B01D 29/39](#))**
- WARNING  
See WARNING after subclass title, particularly items (7), (8), (12), (13) and (14)
- B01D 25/12
- Filter presses, i.e. of the plate and frame type {(filter presses in which the liquid is removed by pressing-out solid matter [B30B](#))}
- U B01D 25/32**
- Removal of the filter cakes
- B01D 25/34
- • by moving,{e.g. rotating,}the filter elements {([B01D 25/172](#) , [B01D 25/19](#) take precedence)}
- 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)
- U B01D 29/0002**
- {Aspects of other filters with filtering elements stationary during filtration, or of filtering elements thereof}
- U B01D 29/0029**
- • {Bag, cage, hose, tube, sleeve, or like filters}
- B01D 29/0031
- • • {Pressing-out operation after filtration, e.g. by means of membranes (filter presses per se [B01D 25/12](#))}
- B01D 29/09
- with filtering bands, e.g. movable between filtering operations {([B01D 25/121](#) takes precedence)}
- U B01D 29/76**
- Handling the filter cake in the filter for purposes other than for regenerating ([B01D 29/94](#) takes precedence)
- B01D 29/86
- • Retarding cake deposition on the filter during the filtration period, e.g. using stirrers {([B01D 29/908](#) takes precedence)}
- U 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 33/44**
- Regenerating the filter material in the filter (devices for taking out of action one or more units of multi-unit filters, e.g. for regeneration, [B01D 35/12](#))
- B01D 33/46
- • by scrapers, brushes {nozzles}or the like acting on the cake-side of the filtering element {([B01D 33/503](#) takes precedence)}
- U B01D 35/00** **Other filtering devices; Auxiliary devices for filtration; Filter housing constructions**
- WARNING  
See WARNING after subclass title, particularly item (14)
- B01D 35/02
- Filters adapted for location in special places, e.g. pipe-lines, pumps, stop-cocks, ([B01D 35/05](#) takes precedence; { water pipe system filters [E03B 3/18](#) , [E03B 7/07](#) ; dirt catchers in sewers [E03F](#); filters or strainers for pipe-lines in general [B08B](#), [E03F](#); object or dirt catching devices in sinks or the like [E03C 1/26](#) ; suction strainers or filters for pumps [F04B 53/005](#) , [F04D 29/70](#))}

- B01D 35/22
- Directing the mixture to be filtered on to the filters in a manner to clean the filters [{\(B01D 29/904 takes precedence\)}](#)
- B01D 35/26
- Filters with built-in pumps {filters provided with a pump mounted in or on the casing, (aquarium pumps or filters [A01K 63/04](#))}
- U B01D 37/00** **Processes of filtration (processes specially adapted for filtering gases [B01D 46/00](#))**
- WARNING  
See WARNING after subclass title, particularly item (14)
- B01D 37/02
- Precoating the filter medium; Addition of filter aids to the liquid being filtered [{\(devices for feeding reagents C02F 1/685 and sub-groups; filter aids\)}](#)
- U B01D 39/00** **Filtering material for liquid or gaseous fluids**
- B01D 39/14
- Other self-supporting filtering material; {Other filtering material, (non-woven fabrics in general [D04H 3/00](#))}
- U B01D 51/00** **Auxiliary pre-treatment of gases or vapours to be cleaned (preventing dust fires [A62C](#); pretreatment specially adapted for magnetic or electrostatic separation [B03C](#))**
- B01D 51/02
- Amassing the particles, e.g. by flocculation [{\(amassing by electric fields B03C 3/0175\)}](#)
- 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](#)
- 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](#)
- B01D 53/04
- with stationary adsorbents [{\(B01D 53/025 takes precedence\)}](#)
- B01D 53/06
- with moving adsorbents, e.g. rotating beds [{\(B01D 53/025 takes precedence\)}](#)
- U 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 [B01D2311/26Z](#),  
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 61/24 · Dialysis; {Membrane extraction {(dialysate solution flow [A61M 1/1656](#))}}
- B01D 61/32 · · Controlling or regulating {(Measuring ultrafiltrate during dialysis [A61M 1/16](#))}
- 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](#)

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

- U 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**
  - U B01J 2/02 · by dividing the liquid material into drops, e.g. by spraying, and solidifying the drops (evaporating by spraying [B01D 1/16](#))
  - B01J 2/04 · · in a gaseous medium {(if combined with suspending the material in a gas, e.g. fluidised beds [B01J 2/16](#))}
- U B01J 8/00** **Chemical or physical processes in general, conducted in the presence of fluids and solid particles; Apparatus for such processes (processes or devices for granulating material [B01J 2/00](#) ; furnaces [F27B](#) ; { heat exchange apparatus [F28C 3/10](#) ; [F28D 13/00](#) , [F28D 17/00](#) , [F28D 19/00](#))}**
  - B01J 8/18 · with fluidised particles {(combustion apparatus with fluidised bed in general [F23C 10/00](#) ; furnaces with fluidised bed [F27B 15/00](#))}
- U B01J 13/00** **Colloid chemistry, e.g. the production of colloidal materials or their solutions, not otherwise provided for; Making micro-capsules or micro-balloons (use of substances as emulsifying, wetting, dispersing or foam producing agents [B01F 17/00](#))**
  - B01J 13/02 · Making micro-capsules or micro-balloons {(for medical preparations [A61K 9/50](#))}
  - U B01J 13/06 · · by phase separation
  - B01J 13/08 · · · Simple coacervation, i.e. addition of highly hydrophilic material {(combined with spraying [B01J 13/043](#) ; combined with mechanical division [B01J 13/04](#))}
- U B01J 19/00** **Chemical, physical, or physico-chemical processes in general (physical treatment of fibres, threads, yarns, fabrics, feathers or fibrous goods made from such materials, see the relevant places for such treatment, e.g. [D06M 10/00](#)); Their relevant apparatus (packings, fillings or grids specially adapted for biological treatment of water, waste water or sewage [C02F 3/10](#) ; splashing boards or grids specially adapted for trickle coolers [F28F 25/08](#))**
  - B01J 19/16 · Preventing evaporation or oxidation of non-metallic liquids by applying a floating layer, e.g. of micro-balloons {(in storage tanks [B65D 90/42](#))}

- U B01J 20/00** **Solid sorbent compositions or filter aid compositions; Sorbents for chromatography; Processes for preparing, regenerating or reactivating thereof (use of sorbent compositions in liquid separation [B01D 15/00](#) , use of filter aid compositions [B01D 37/02](#) ; use of sorbent compositions in gas separation [B01D 53/02](#) , [B01D 53/14](#))**
- 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](#)
- U B01J 20/223** **· · {containing metals, e.g. organo-metallic compounds, coordination complexes}**
- B01J 20/226** **· · · {Coordination polymers, e.g. metal-organic frameworks [MOF], zeolitic imidazolate frameworks (ZIF) (preparation of metal complexes containing carboxylic acid moieties [C07C 51/418](#) ; MOF's per se [C07F](#))}**
- 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 29/03** **· not having base-exchange properties {([B01J 29/005](#) takes precedence)}**
- B01J 29/04** **· having base-exchange properties, e.g. crystalline zeolites {([B01J 29/005](#) takes precedence)}**
- B01J 29/82** **· Phosphates {([B01J 29/005](#) takes precedence)}**
- B01J 29/86** **· Borosilicates; Aluminoborosilicates {([B01J 29/005](#) takes precedence)}**
- B01J 29/87** **· Gallosilicates; Aluminogallosilicates; Galloborosilicates {([B01J 29/005](#) takes precedence)}**
- B01J 29/88** **· Ferrosilicates; Ferroaluminosilicates {([B01J 29/005](#) takes precedence)}**
- B01J 29/89** **· Silicates, aluminosilicates or borosilicates of titanium, zirconium or hafnium {([B01J 29/005](#) takes precedence)}**
- U 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 (1)a second carbon; (2)at least one atom of hydrogen or halogen; or (3)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(loids) [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<sub>4</sub>[Fe(CN)<sub>6</sub>] [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
- 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](#))}
- B01J 31/06                   • • containing polymers {(organometallic polymers [B01J 31/123](#) ; polymer-bound organometallic complexes [B01J 31/165](#) ; coordination polymers [B01J 31/1691](#))}
- U B01J 31/16                   • containing coordination complexes
- B01J 31/1691               • • {Coordination polymers, e.g. metal-organic frameworks [MOF] (preparation of metal complexes containing carboxylic acid moieties [C07C 51/418](#) ; MOF's per se [C07F](#))}
- 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](#))}
- U B01J 37/00                   Processes, in general, for preparing catalysts; Processes, in general, for activation of catalysts**
- B01J 37/04                   • Mixing {([B01J 37/0009](#) , [B01J 37/0018](#) take precedence)}
- B01J 37/06                   • Washing {([B01J 37/0009](#) , [B01J 37/0018](#) take precedence)}
- B01J 37/08                   • Heat treatment {([B01J 37/0009](#) , [B01J 37/0018](#) take precedence)}
- U B01J 39/00                   Cation exchange; Use of material as cation exchangers; Treatment of material for improving the cation exchange properties (cation exchange chromatography processes [B01D 15/362](#))**
- U B01J 39/08                   • Use of material as cation exchangers; Treatment of material for improving the cation exchange properties
- U B01J 39/16                   • • Organic material
- B01J 39/18                   • • • Macromolecular compounds {([B01J 39/165](#) takes precedence)}

**Project: N/A (B03D)**

- U 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.

- U B03D 1/14                   • Flotation machines (devices for feeding measured quantities of reagents [B01J 4/02](#) ; flotation apparatus for enzymology or microbiology [C12M 1/09](#))

- B03D 1/16      · · with impellers; Subaeration machines {(mixing gases or vapours with liquids [B01F 3/04](#))}
- B03D 1/24      · · Pneumatic {(mixing gases or vapours with liquids [B01F 3/04](#))}

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

- U B04B 9/00**      **Drives specially designed for centrifuges; Arrangement or disposition of transmission gearing; Suspending or balancing rotary bowls**
- B04B 9/14      · Balancing rotary bowls (balancing per se [G01M](#)); {Schrappers}

**Project: N/A (B04C)**

- B04C 3/00**      **Apparatus in which the axial direction of the vortex {(flow following a screw-thread type line)} remains unchanged {Also devices in which one of the two discharge ducts returns centrally through the vortex chamber, a reverse-flow vortex being prevented by bulkheads in the central discharge duct (combined with other devices [B04C 9/00](#))}**
- U B04C 5/00**      **Apparatus in which the axial direction of the vortex is reversed {(combined with other devices [B04C 9/00](#))}**
- B04C 5/14      · Construction of the underflow ducting; Apex constructions; Discharge arrangements; {discharge through sidewall provided with a few slits or perforations (provided with a great number of slits or perforations [B04C 5/10](#))}

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

- U B05B 1/00**      **Nozzles, spray heads or other outlets, with or without auxiliary devices such as valves, heating means ([B05B 3/00](#) , [B05B 5/00](#) , [B05B 7/00](#) take precedence; { nozzles for baths with water or gas jets [A61H 33/00](#) , e.g. [A61H 33/6063](#) , [A61H 33/6021](#) , [A61H 33/026](#) or [A61H 33/027](#) ; Nozzles specially adapted for fire-extinguishing [A62C 31/02](#) ; Nozzles for generating high velocity abrasive fluid jets [B24C 5/04](#) ; nozzles for jet-ink printing mechanisms [B41J 2/135](#) ; { Nozzles for filling containers [B65B 39/00](#) ; } nozzles for liquid-dispensing, e.g. in vehicle service stations [B67D 7/42](#))**
- U B05B 1/14      · with multiple outlet openings ([B05B 1/02](#) , [B05B 1/26](#) take precedence); with strainers in or outside the outlet opening
- B05B 1/18      · · Roses; Shower heads {(with means for adding soap or the like [E03C 1/046](#) ; jet regulators [E03C 1/08](#))}
- B05B 1/20      · · {Arrangements of several outlets along elongated bodies, e.g.}perforated pipes or troughs, e.g. spray booms {(spray booms for agricultural uses [A01M 7/0071](#) ; spray bars for treating roads [E01C 19/176](#))}; Outlet elements therefor
- U B05B 1/30      · designed to control volume of flow, e.g. with adjustable passages
- B05B 1/32      · · in which a valve member forms part of the outlet opening {([B05B 1/3033](#) takes precedence)}
- U B05B 3/00**      **Spraying or sprinkling apparatus with moving outlet elements or moving deflecting elements;{Spraying or sprinkling heads with rotating elements located upstream the outlet}**
- U B05B 3/02      · with rotating elements
- B05B 3/04      · · driven by the liquid or other fluent material discharged, e.g. the liquid actuating a motor before passing to the outlet {([B05B 3/023](#) takes precedence)}
- B05B 3/10      · · discharging over substantially the whole periphery of the rotating member, {i.e. the spraying being effected by centrifugal forces ([B05B 3/082](#) takes precedence)}

- U B05B 3/14  
B05B 3/16  
B05B 3/18
- with oscillating elements; with intermittent operation
  - • driven or controlled by the liquid or other fluent material discharged, e.g. the liquid actuating a motor before passing to the outlet {{(B05B 3/0431 , B05B 3/0468 , B05B 3/0472 take precedence)}
  - with elements moving in a straight line, e.g. along a track; Mobile sprinklers {{(watering arrangements making use of movable installations A01G 25/09)}
- U B05B 5/00**      **Electrostatic spraying apparatus; Spraying apparatus with means for charging the spray electrically; Apparatus for spraying liquids or other fluent materials by other electric means**
- U B05B 5/025  
B05B 5/03  
B05B 5/035
- Discharge apparatus, e.g. electrostatic spray guns
  - • characterised by the use of gas,{e.g. electrostatically assisted pneumatic spraying (B05B 5/04 , B05B 5/043 , B05B 5/047 take precedence)}
  - • characterised by gasless spraying,{e.g. electrostatically assisted airless spraying (B05B 5/04 , B05B 5/043 , B05B 5/047 take precedence)}
- 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)**
- B05B 7/16  
B05B 7/18  
B05B 7/22
- incorporating means for heating {or cooling}the material to be sprayed {{(spraying by means of explosions B05B 7/0006)}
  - • the material having originally the shape of a wire, rod or the like {{(B05B 7/203 , B05B 7/224 take precedence)}
  - • electrically,{magnetically or electromagnetically}, e.g. by arc {{(B05B 7/20 takes precedence)}
- U B05B 7/24  
B05B 7/26  
B05B 7/28
- 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)
  - • Apparatus in which liquids or other fluent materials from different sources are brought together before entering the discharge device {{(B05B 7/2402 takes precedence)}
  - • • in which one liquid or other fluent material is fed or drawn through an orifice into a stream of a carrying fluid {{(B05B 7/262 takes precedence)}
- U B05B 9/00**      **Spraying apparatus for discharge of liquids or other fluent material, without essentially mixing with gas or vapour (B05B 11/00 takes precedence)**
- B05B 9/03  
U B05B 9/04  
B05B 9/047
- characterised by means for supplying liquid or other fluent material {{(B05B 9/002 takes precedence)}
  - • with pressurised or compressible container (aerosol containers B65D 83/14); with pump
  - • • supply being effected by follower in container, e.g. membrane or floating piston,{or by deformation of container (B05B 9/0838 takes precedence)}
- B05B 11/00**      **Single-unit, i.e. unitary, hand-held apparatus {comprising a container and a discharge nozzle attached thereto}, in which flow of liquid or other fluent material is produced by {the muscular energy of}the operator at the moment of use {or by an equivalent manipulator independent from the apparatus (apparatus with an external source or the possibility of permanent accumulation of pressure for discharging the liquid or fluid material B05B 7/00 , B05B 9/00)}**
- U B05B 11/0005
- {Components or details (of single units wherein the flow is effected by a pump B05B 11/3042)}

- U B05B 11/0027      · · {Means for neutralising the actuation of the sprayer (pump locking means [B05B 11/3059](#)); Means for preventing access to the sprayer actuation means}
- B05B 11/0032      · · · {Manually actuated means located downstream the discharge nozzle for closing or covering it, e.g. shutters, (automatically removed during actuation of a spray pump [B05B 11/3053](#))}
- B05B 11/06        · the spray being effected by a gas or vapour flow {from a source where the gas or vapour is not in contact with the liquid or other fluent material to be sprayed}, e.g. from a compressible bulb, {an air pump or an enclosure surrounding the container ( [B05B 11/046](#) and [B05B 11/3087](#) take precedence)}
- U B05B 11/30        · the flow being effected by a pump
- U B05B 11/3042     · · {Components or details}
- U B05B 11/3052     · · · {Actuation means (locking means therefor [B05B 11/3059](#) ; [B05B 11/309](#) takes precedence)}
- B05B 11/3053     · · · · {Manually actuated means located downstream the discharge nozzle for closing or covering it, e.g. shutters, (automatically removed during actuation of a spray pump [B05B 11/3053](#))}
- U B05B 12/00        Arrangements or special adaptations of delivery controlling means in spraying systems (controlling in general [G05](#){ ; valves in spray head or nozzles [B05B 1/30](#) and sub-groups )}**
- U B05B 12/02        · for controlling time, or sequence, of delivery
- B05B 12/06        · · for effecting pulsating flow {(Nozzles, spray head or outlet with means for generating a discharge of pulsating nature [B05B 1/08](#))}
- U B05B 12/08        · responsive to condition of liquid or other fluent material discharged, of ambient medium or of target{; responsive to condition of spray device or of supply means, e.g. pipes, pumps, their drive}
- B05B 12/12        · · responsive to conditions of ambient medium or target, e.g. humidity, temperature {position or movement of the target relative to the spray apparatus ( [B05B 12/082](#) , [B05B 12/084](#) take precedence)}
- 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](#))**
- B05B 15/06        · Mountings, supporting or holding means, or rests for spray heads or other outlets {or for the whole spraying apparatus}when in use or out of use {( [B05B 13/005](#) , [B05B 15/1225](#) take precedence)}
- B05B 15/10        · Arrangements for moving spray heads automatically to or from the working position {(nozzles for cleaning vehicle windscreens or optical devices moved between a rest position and a working position [B60S 1/528](#))}

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

- U B05D 1/00        Processes for applying liquids or other fluent materials ([B05D 5/00](#) , [B05D 7/00](#) take precedence)**
- WARNING
- Groups [B05D 1/60](#) to [B05D 1/62](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for those groups is as follows - [B05D 1/60](#) to [B05D 1/62](#) : [B05D 1/00](#) , [B05D 7/00](#)
- U B05D 1/02        · performed by spraying
- B05D 1/04        · · involving the use of an electrostatic field {( [B05D 1/025](#) and [B05D 1/14](#) take precedence)}

**U B05D 3/00** Pretreatment of surfaces to which liquids or other fluent materials are to be applied; After-treatment of applied coatings, e.g. intermediate treating of an applied coating preparatory to subsequent applications of liquids or other fluent materials (successively applying liquids or other fluent materials [B05D 1/36](#) ; drying ovens [F26B](#))

**WARNING**

Groups [B05D 3/20](#) to [B05D 3/207](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for those groups is as follows - [B05D 3/20](#) - [B05D 3/207](#) : [B05D 3/00](#)

B05D 3/02 · by baking {([B05D 3/04](#) takes precedence)}

**B05D 7/00** Processes, other than flocking, specially adapted for applying liquids or other fluent materials to particular surfaces or for applying particular liquids or other fluent materials {(coating of foodstuffs [A23P 1/084](#) , [A23P 1/085](#))}

**WARNING**

Groups [B05D 7/50](#) to [B05D 7/5885](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for those groups is as follows - [B05D 7/50](#) to [B05D 7/5885](#) : [B05D 7/00](#)

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

**U B07C 5/00** Sorting according to a characteristic or feature of the articles of material being sorted, e.g. by control effected by devices which detect or measure such characteristic or feature; Sorting by manually actuated devices, e.g. switches (sorting by hand only [B07C 7/00](#); separating solids from solids by sieving, screening, or sifting or by using gas currents or other separating by dry methods applicable to bulk material [B07B](#))

U B07C 5/34 · Sorting according to other particular properties {(material testing per se [G01N](#); quality control [G07C 3/14](#))}

B07C 5/3412 · · according to a code applied to the object which indicates a property of the object, e.g. quality class, contents or incorrect indication {(sorting according to size measured by light-responsive means [B07C 5/10](#); sorting according to optical properties [B07C 5/342](#); for packages [B65D 79/02](#); for information carriers [G06K 7/00](#))}

**B07C 9/00** Sorting, with or without orientating, not otherwise provided for { e.g. sorting of table equipment (washing and rinsing machines for tableware [A47L 15/00](#), [A47L 15/02](#); machines for polishing table equipment [A47L 21/02](#))}

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

**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

B08B 3/06 · · using perforated drums in which the article or material is placed {([B08B 3/042](#) takes precedence)}

**U B08B 5/00** Cleaning by methods involving the use of air flow or gas flow ([B08B 6/00](#) takes precedence)

B08B 5/02 · Cleaning by the force of jets, e.g. blowing-out cavities {(airguns or nozzles per se [B05B 1/005](#))}

**U B08B 7/00** Cleaning by methods not provided for in a single other subclass or a single group in this subclass

- B08B 7/02      · by distortion, beating, or vibration of the surface to be cleaned [{\(B08B 7/0007 takes precedence\)}](#)
- U B08B 9/00      **Cleaning hollow articles by methods or apparatus specially adapted thereto (B08B 3/12 , B08B 6/00 take precedence)****
- U B08B 9/08      · Cleaning containers, e.g. tanks
- 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 11/00      **Cleaning flexible or delicate articles by methods or apparatus specially adapted thereto (B08B 3/12 , B08B 6/00 take precedence)****
- B08B 11/02      · Devices for holding articles during cleaning [{\(B08B 9/42 takes precedence\)}](#)
- U B08B 15/00      **Preventing escape of dirt or fumes from the area where they are produced; Collecting or removing dirt or fumes from that area (parts, details or accessories of cooking-vessels for withdrawing or condensing cooking vapours from such vessels A47J 36/38 ; refuse disposal B65F ; devices for conducting smoke or fumes, e.g. flues, F23J 11/00 ; removing cooking fumes from domestic stoves or ranges F24C 15/20 ; air conditioning, ventilation F24F)****
- B08B 15/02      · using chambers or hoods covering the area [{\(B08B 15/002 takes precedence\)}](#)
- B08B 15/04      · from a small area, e.g. a tool [{\(removing chips B23Q 11/0042\)}](#)
- B08B 17/00      **Methods preventing fouling [{\(preventing accumulation of deposits in pneumatic conveyers B65G 53/521\)}](#)****

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

- U 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 [\(B21B 1/085 to B21B 1/098 take precedence\)}](#)}
- U B21B 1/22      · for rolling {plates, strips,}bands or sheets of indefinite length ([B21B 1/42](#) takes precedence)
- B21B 1/24      · · in a continuous {or semi-continuous}process [{\(B21B 1/224 takes precedence\)}](#)}
- B21B 1/30      · · in a non-continuous process [{\(B21B 1/224 takes precedence\)}](#)}
- U B21B 25/00      **Mandrels for metal tube rolling mills, e.g. mandrels of the types used in the methods covered by group B21B 17/00; Accessories or auxiliary means therefor;{Construction of, or alloys for, mandrels or plugs}****
- B21B 25/06      · Interchanging mandrels,{fixing plugs on mandrel rods or cooling during interchanging mandrels [\(separating tubes from mandrels B21C 45/00\)}](#)}

- U B21B 27/00** **Rolls,{roll alloys or roll fabrication}(shape of working surfaces required by special processes [B21B 1/00](#)); Lubricating, cooling or heating rolls while in use**
- U B21B 27/02 · Shape or construction of rolls (for rolling metal of indefinite length in repetitive shapes specially designed for the manufacture of particular objects [B21H 8/02](#))  
{([B21B 27/005](#) takes precedence)}
- B21B 27/03 · · Sleeved rolls {([B21B 27/028](#) takes precedence)}
- B21B 29/00** **Counter-pressure devices acting on rolls to inhibit deflection of same under load, e.g. backing rolls; {Roll bending devices, e.g. hydraulic actuators acting on roll shaft ends (control devices responsive to roll bending [B21B 37/38](#))}**
- U B21B 37/00** **Control devices or methods specially adapted for metal-rolling mills or the work produced thereby (methods or devices for measuring specially adapted for metal-rolling mills [B21B 38/00](#))**
- B21B 37/58 · Roll-force control; Roll-gap control {([B21B 38/105](#) takes precedence)}
- B21B 38/00** **Methods or devices for measuring,{detecting or monitoring}specially adapted for metal-rolling mills, e.g. position detection, inspection of the product {(Control devices or methods [B21B 37/00](#))}**
- U B21B 41/00** **Guiding, conveying, or accumulating easily-flexible work, e.g. wire, sheet metal bands, in loops or curves; Loop lifters**
- U B21B 41/08 · without overall change in the general direction of movement of the work
- B21B 41/10 · · Loop deflectors {([B21B 39/084](#) takes precedence)}
- 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](#))**
- 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 45/04 · for de-scaling,{e.g. by brushing (descaling of rod or wire [B21C 43/04](#))}

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

- U 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 11/10 · Bending specially adapted to produce specific articles, e.g. leaf springs {(making or bending leaf springs [B21D 53/886](#))}
- U B21D 15/00** **Corrugating tubes (wrinkle-bending using mandrels or the like [B21D 9/14](#))**
- U B21D 15/04 · transversely, e.g. helically
- B21D 15/06 · · annularly {(with thinning [B21C 37/205](#))}
- U B21D 37/00** **Tools as parts of machines covered by this subclass (forms or constructions of tools uniquely adapted for particular operations, see the relevant groups for the operations)**
- B21D 37/18 · Lubricating,{e.g. lubricating tool and workpiece simultaneously (lubricating workpieces for deep-drawing [B21D 22/201](#))}

- U B21D 39/00** Application of procedures in order to connect objects or parts, e.g. coating with sheet metal otherwise than by plating ({joining mitred profiles [B21D 53/745](#) ; } riveting [B21J](#); uniting components by forging or pressing to form integral members [B21K 25/00](#) ; welding [B23K](#); press-fitting, force-fitting, or shrinking in general [B23P 11/00](#) , [B21D 19/00](#) ; by adhesives [F16B 11/00](#) ; {Connections as such [F16L](#), [F16B](#)}); Tube expanders
- B21D 39/04 · of tubes with tubes; of tubes with rods {(crimped pipe joints as such [F16L 13/14](#))}
- 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
- U B21D 43/04 · · by means in mechanical engagement with the work
- B21D 43/05 · · · specially adapted for multi-stage presses {([B21D 43/145](#) takes precedence)}
- B21D 43/08 · · · by rollers {([B21D 43/145](#) takes precedence)}
- B21D 43/10 · · · by grippers {([B21D 43/055](#) , [B21D 43/057](#) , [B21D 43/145](#) take precedence)}
- B21D 43/12 · · · by chains or belts {([B21D 43/145](#) takes precedence)}
- U B21D 51/00** Making hollow objects (from thick-walled or non uniform tubes [B21K 21/00](#))
- B21D 51/02 · characterised by the structure of the objects {([B21D 51/26](#) takes precedence)}
- NOTE  
Making hollow objects characterised both by their structure and by their use is classified only in group [B21D 51/16](#)
- U B21D 51/16 · characterised by the use of the objects (making heat exchangers [B21D 53/02](#))
- U B21D 51/38 · · Making inlet or outlet arrangements of cans, tins, baths, bottles, or other vessels; Making can ends; Making closures
- U B21D 51/44 · · · Making closures, e.g. caps (folded of thin metal foils in the way of making paper caps [B31D 5/00](#) ; making closures in conjunction with applying same [B67B](#))
- B21D 51/46 · · · · Placing sealings or sealing material {(moulding plastic sealing material into closure members [B29C 70/80](#))}
- U B21D 53/00** Making other particular articles (making wire fabrics [B21F](#); making chains or chain parts [B21L](#))
- U B21D 53/38 · locksmith`s goods, e.g. handles
- B21D 53/42 · · keys {(making keys by combined operations [B23P 15/005](#))}
- Project: N/A (B21H)**
- U B21H 5/00** Making gear wheels, {racks, spline shafts or worms}
- B21H 5/02 · with cylindrical outline, {e.g. by means of die rolls (worms [B21H 5/005](#))}
- Project: N/A (B21J)**
- B21J 1/00** Preparing metal stock { or similar ancillary operations prior, during or post forging, e.g. heating or cooling (pretreatment for rolling [B21B 1/02](#), [B21B 15/0035](#))}

**Project: N/A (B22F)**

- U B22F 3/00** **Manufacture of workpieces or articles from metallic powder characterised by the manner of compacting or sintering; Apparatus specially adapted therefor; {Presses and furnaces}**
- U B22F 3/10  
B22F 3/105
- Sintering only
  - · by using electric current {other than for infra-red radiant energy}, laser radiation or plasma ([B22F 3/11](#) takes precedence); {by ultrasonic bonding ([B22F 3/115](#) takes precedence)}
- B22F 7/00** **Manufacture of composite layers, workpieces, or articles, comprising metallic powder, by sintering the powder, with or without compacting { wherein at least one part is obtained by sintering or compression (application of coating layers by use of metal powders, see [C23C](#))}**

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

- B23K 7/00** **Cutting, scarfing, or desurfacing by applying flames {(thermal deburring [B23D 79/005](#))}**
- U B23K 9/00** **Arc welding or cutting (electro-slag welding [B23K 25/00](#) ; welding transformers [H01F](#) ; welding generators [H02K](#))**
- B23K 9/08
- Arrangements or circuits for magnetic control of the arc {(stabilising of the arc position by magnetic means [B23K 9/0737](#))}
- B23K 9/16
- making use of shielding gas {(selection of media [B23K 35/38](#))}
- U B23K 13/00** **Welding by high-frequency current heating**
- B23K 13/04
- by conduction heating {([B23K 13/02](#) takes precedence)}
- 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**
- B23K 20/02
- by means of a press; {Diffusion bonding ([B23K 20/001](#) , [B23K 20/04](#) take precedence)}
- U B23K 26/00** **Working by laser beam, e.g. welding, cutting, boring (lasers per se [H01S 3/00](#) ; { laser assisted deposition [C23C](#); laser inspection or alignment [G01B](#); laser sintering of metallic powder [B22F 3/105](#) , of plastics [B29C 67/00](#) , of glass [C03B 19/06](#) , of ceramics [C04B 35/64](#) ; applying identification marks by laser [B41M 5/24](#))}**
- U B23K 26/02
- Positioning or observing the workpiece, e.g. with respect to the point of impact; Aligning, aiming or focusing the laser beam
- B23K 26/03
- · Observing,{e.g. monitoring,}the workpiece {(protective devices for the eye, carried on the body or in the hand [A61F 9/02](#) , [A61F 9/04](#))}
- B23K 26/18
- using absorbing layers on the material being worked, e.g. for marking or protecting purposes {(observing devices provided with laser radiation protection devices [B23K 26/03](#) ; using masks on the workpiece for shaping the laser beam [B23K 26/0661](#) ; interposing material for facilitating bonding [B23K 26/203](#) ; laser anti-reflection devices, e.g. optical isolators [H01S 3/0064](#))}
- B23K 26/34
- Welding for purposes other than joining, e.g. build-up welding {(laser alloying or sintering [C23C](#))}
- B23K 26/36
- Removing material {(laser wire stripping [H02G 1/128](#) ; cleaning by laser treatment [B08B 7/0042](#))}
- B23K 33/00** **Specially-profiled edge portions of workpieces for making soldering or welding connections; Filling the seams formed thereby {([B23K 11/14](#) takes precedence)}**

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

- U B23P 15/00 **Making specific metal objects by operations not covered by a single other subclass or a group in this subclass**
- B23P 15/26
- heat exchangers {or the like (making heat exchangers by methods covered by other subclasses [B21D 53/02](#))}

**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.

**Project: N/A (B24D)**

- U B24D 3/00 **Physical features of abrasive bodies, or sheets, e.g. abrasive surfaces of special nature; Abrasive bodies or sheets characterised by their constituents (composition of friction linings [F16D 69/02](#))**
- U B24D 3/02
- the constituent being used as bonding agent
- U B24D 3/20
- · and being essentially organic
- B24D 3/28
- · · Resins {or natural or synthetic macromolecular compounds ([B24D 3/22](#) takes precedence)}

**Project: N/A (B25D)**

- B25D 16/00 **Portable percussive machines with superimposed rotation, {the rotational movement of the output shaft of a motor being modified to generate axial impacts on the tool bit (combined percussion and rotary drilling adapted for earth drilling [E21B 6/00](#))}**
- U B25D 17/00 **Details of, or accessories for, portable power-driven percussive tools {(details or components, e.g. casings, bodies, of portable power-driven tools not particularly related to the operation performed [B25F 5/00](#))}**
- B25D 17/08
- Means for retaining and guiding the tool bit, e.g. chucks {allowing axial oscillation of the tool bit ([B25D 17/005](#) takes precedence)}

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

- U B25J 1/00** Manipulators positioned in space by hand (of master-slave type [B25J 3/00](#) ; micromanipulators [B25J 7/00](#))
- B25J 1/04 · rigid, e.g. shelf-reachers {(without grippers [A47F 13/06](#))}
- B25J 7/00** Micromanipulators {(specimen supports for investigating or analysing materials [G01N 23/2204](#) ; associated with microscopes [G02B 21/32](#) ; means for supporting or positioning the objects or the material in discharge tubes [H01J 37/20](#))}
- U B25J 13/00** Controls for manipulators (programme controls [B25J 9/16](#) ; control in general [G05](#))
- B25J 13/02 · Hand grip control means {(handles or pedals for crane control [B66C 13/56](#) ; for measuring the force applied to control members [G01L 5/22](#) ; hand-held casings for switching devices, e.g. joy-sticks [H01H 9/0214](#))}
- U B25J 15/00** Gripping heads {and other end effectors (grippers used in machine tools [B23Q 7/04](#) ; gripping members fitted on cranes [B66C 1/42](#) , [B66C 1/44](#) ; gripping means used in the manufacture of semiconductors [H01L 21/68707](#) ; gripping means used for mounting electrical components [H05K 13/04](#))}
- U B25J 15/08 · having finger members ([B25J 15/02](#) , [B25J 15/04](#) take precedence)
- B25J 15/10 · · with three or more finger members {([B25J 15/0009](#) takes precedence)}
- U B25J 21/00** Chambers provided with manipulation devices (constructional features of the mounting of the manipulator in the wall [B25J 1/08](#) ; { glove-boxes for nuclear applications [G21F 7/04](#))}
- B25J 21/02 · Glove-boxes, i.e. chambers in which manipulations are performed by the human hands in gloves built into the chamber walls {(glove- boxes for removal of dirt [B08B 15/026](#) ; glove-boxes shielded against radiation [G21F 7/04](#))}; Gloves therefor

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

B26D

**CUTTING; DETAILS COMMON TO MACHINES FOR PERFORATING, PUNCHING, CUTTING-OUT, STAMPING-OUT OR SEVERING** (soil-working [A01B](#); for growing crops or plants [A01D](#), [A01G](#); for fodder or straw [A01F](#); for bulk butter [A01J](#); for dough [A21C](#); slaughtering [A22B](#); for tobacco, cigars or cigarettes [A24](#); marking-out, perforating or making buttonholes [A41H 25/00](#); manufacturing footwear [A43D](#); brushmaking [A46D](#); surgery [A61B](#); disintegrating, mincing or shredding in general [B02C](#); cutting wire, making pins or nails [B21F](#), [B21G](#); of the kind used for metal [B23](#); cutting by abrasive fluid jets [B24C 5/02](#); hand-held cutting tools [B26B](#); perforating, cutting-out, stamping-out or punching, or severing by means other than cutting [B26F](#); for wood [B27](#); for stone [B28D](#); working of plastics or substances in a plastic state [B29](#); making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, [B31B](#); article or web delivery apparatus incorporating cutting or line-perforating devices [B65H 35/00](#); for leather or upholstery [B68](#); [C14B](#); for glass [C03B](#); making matches [C06F](#); for peat [C10F](#); for sugar [C13H](#); for textile materials [D06H](#); civil engineering, building, mining, see Section E; for light guides [G02B 6/25](#); cutting processed photographic material [G03D 15/04](#))

**NOTES**

1. This subclass covers:

- cutting non-metallic sheet material and metal foil in general;
- cutting other forms of non-metallic material not otherwise provided for;
- features specific to machines for cutting, perforating, punching, cutting-out, stamping-out and severing by means other than cutting, which relate

to a requirement or problem of a nature which is not peculiar to a machine for these purposes, that is, details of or arrangements for operating or controlling such machines, although the realisation of such features may differ according to the kind of machine concerned. This subclass covers such features in general even if the feature in any particular case is to some extent peculiar to, or is claimed only for, a machine designed for perforating, punching, cutting-out, stamping-out, or for severing other than by cutting.

2. If the details or arrangements have no essential features specific to cutting, perforating, punching, cutting-out, stamping-out or severing machines, the more general classes, e.g. [F16](#), take precedence.

3. In this subclass, in groups [B26D 5/00](#) and [B26D 7/00](#), the following term is used with the meaning indicated:

- "cutting" includes cutting-out, stamping-out, punching, perforating, and severing by means other than cutting.

**Project: N/A (B27G)**

B27G 11/00

**Applying adhesives or glue to surfaces of wood to be joined (applying liquids, e.g. liquid adhesives, to surfaces in general [B05C](#),[B05D](#); adhesive processes [C09J 5/00](#) ; associated with particular wood-working, see the relevant subclasses)**

**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 [M08L](#) 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 (B27L)**

B27L 5/00

**Manufacture of veneer (working veneer or plywood [B27D](#)){Preparatory processing therefor (drying [F26B](#))}**

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

U B27M 3/00

**Manufacture or reconditioning of specific semi-finished or finished articles (features of copying devices [B23Q](#); manufacture of plywood or veneer, shaping plywood or veneer into articles [B27D](#); of central layers for plywood [B27D 1/06](#); nailing or stapling machines in general [B27F 7/00](#); of elements for cooperage or wheel making [B27H](#){presses therefor [B27D 3/00](#))}**

B27M 3/18

• of furniture {or of doors ([B27D 5/003](#) takes precedence)}

- B27M 3/34
- of cases, trunks, or boxes, of wood or equivalent material which cannot satisfactorily be bent without softening (nailing or stapling in general [B25C](#), [B27F](#); of cardboard, paper, or similarly workable material [B31B](#)){Manufacture of cleats therefor (manufacture of tubes, coops or barrels [B27D 1/00](#), [B27D 1/08](#); by folding grooved panels [B27G 5/00](#))}

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

- U B28B 1/00** **Producing shaped {prefabricated}articles from the material (using presses [B28B 3/00](#) ; shaping on moving conveyers [B28B 5/00](#) ; producing tubular articles [B28B 21/00](#) ; { producing articles with embedded elements [B28B 23/00](#)})**
- B28B 1/08
- by vibrating or jolting {(of moulding sand [B22C 15/10](#) ; of concrete in general [E04G 21/063](#))}
- B28B 1/24
- by injection moulding {(injection moulding of ceramic slips [B28B 1/265](#) ; of tubular articles [B28B 21/38](#))}
- B28B 1/29
- by profiling or strickling the material in open moulds or on moulding surfaces {(in rotary moulds [B28B 1/02](#) ; by means of profiled rollers [B28B 3/12](#) , [B28B 3/123](#))}
- U B28B 1/30
- by applying the material on to a core or other moulding surface to form a layer thereon (to form a permanent layer [B28B 19/00](#))
- U B28B 1/32
- • by projecting, e.g. spraying (spraying in general [B05B](#) , [B05D](#))
- B28B 1/34
- • • by centrifugal force {(centrifugally acting implements for applying plaster or the like to walls [E04F 21/10](#))}
- U B28B 3/00** **Producing shaped articles from the material by using presses (shaping on moving conveyers [B28B 5/00](#)); Presses specially adapted therefor (presses in general [B30B](#))**
- B28B 3/20
- wherein the material is extruded {(extrusion moulding of plastics [B29C 47/00](#))}
- U 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 7/28
- Cores; Mandrels {([B28B 1/44](#) takes precedence; of special materials in general [B28B 7/34](#) ; cores for making blind holes in situ [E04G 15/04](#) ; for making recesses [E04G 15/06](#))}
- B28B 7/30
- • adjustable, collapsible, or expanding {(for making tubular objects [B28B 21/88](#))}
- B28B 7/32
- • • inflatable {(connection of valves to inflatable elastic bodies [B60C 29/00](#))}
- U B28B 7/40
- characterised by means for modifying the properties of the moulding material
- B28B 7/44
- • for treating with gases or degassing, e.g. for de-aerating {(treating with hot gases or vapour [B28B 7/42](#))}
- U B28B 17/00** **Details of, or accessories for, apparatus for shaping the material; Auxiliary measures taken in connection with such shaping (moulds [B28B 7/00](#) ; after-treatment [B28B 11/00](#) ; feeding or discharging [B28B 13/00](#) ; arrangements for embedding elements in the material [B28B 23/00](#) ; details, accessories, or auxiliary measures special to any one type of shaping, machine or method of shaping, see the relevant groups for such machines or methods)**
- B28B 17/02
- Conditioning the material prior to shaping {(for mixtures containing clay or cement [B28C](#))}
- U B28B 21/00** **Methods or machines specially adapted for the production of tubular articles**

B28B 21/76 · Moulds {(for slip-casting [B28B 21/08](#))}

**U B28B 23/00 Arrangements specially adapted for the production of shaped articles with elements wholly or partly embedded in the moulding material; {Production of reinforced objects}([B28B 21/00](#) takes precedence; in units for prefabricated buildings [B28B 7/22](#))**

B28B 23/02 · wherein the elements are reinforcing members {([B28B 23/0006](#) takes precedence)}

### Project: N/A (B28C)

**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](#))

U B28C 5/10 · · Mixing in containers not actuated to effect the mixing

U B28C 5/12 · · · with stirrers sweeping through the materials{,e.g. with incorporated feeding or discharging means or with oscillating stirrers}

B28C 5/14 · · · · the stirrers having motion about a horizontal or substantially horizontal axis {(with feeding or discharging means [B28C 5/12](#))}

B28C 5/16 · · · · the stirrers having motion about a vertical or steeply inclined axis {(with feeding or discharging means [B28C 5/12](#))}

**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](#))}**

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](#))}

**B28C 9/00 General arrangement or layout of plant {([B28C 7/0061](#) , [B28C 7/0481](#) take precedence)}**

### Project: N/A (B28D)

**U B28D 7/00 Accessories specially adapted for use with machines or devices of the preceding groups {([B28D 5/0058](#) takes precedence)}**

B28D 7/04 · for supporting or holding work {or conveying or discharging work{([B28D 1/047](#), [B28D 5/0041](#), [B28D 5/0052](#) take precedence)}

### Project: N/A (B29C)

**B29C 31/00 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 [B29C 37/0003](#) ; storage of prepregs or SMC after impregnation or during ageing [B29C 70/54](#) ; baling of rubber [B29B 15/02](#) ; in general [B65G](#))}**

B29C 31/02 · Dispensing from vessels, e.g. hoppers {(into a mould cavity [B29C 31/04](#) ; large containers characterised by discharge means [B65D 88/28](#) , [B65D 88/54](#))}

- U B29C 31/04
- Feeding {of the material to be moulded}, e.g. into a mould cavity ({[B29C 39/08](#) takes precedence; using a material distribution system to two or more fixed injection moulds [B29C 45/125](#) } ; to presses in general [B30B 15/30](#))
- B29C 31/06
- • in measured doses,{e.g. by weighting (feeding mixers with measured doses [B01F 15/0216](#) , [B01F 15/0454](#) , [B29B 7/24](#) , [B29B 7/603](#) ; in general [G01F](#))}
- B29C 31/08
- • 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 conveyers ([B29C 31/066](#) , [B29C 37/001](#) , [B29C 43/085](#) take precedence)}
- NOTE**
- Documents describing feeding preforms, e.g. parisons, tubes, sheets in connection with shaping techniques described in groups [B29C 49/00](#) to [B29C 65/00](#) are not classified in group [B29C 31/08](#) , but in the relevant groups of these techniques
- U B29C 33/00**      **Moulds or cores; Details thereof or accessories therefor**
- U B29C 33/02
- with incorporated heating or cooling means
- B29C 33/04
- • using liquids, gas or steam {(tyre moulds with incorporated heating or cooling means using liquids, gas or steam [B29D 30/0601](#))}
- B29C 33/12
- with incorporated means for positioning inserts, e.g. labels {(positioning reinforcements [B29C 70/541](#))}
- B29C 33/30
- Mounting, exchanging or centering {(moulds, mould parts or cores; [B29C 33/485](#) takes precedence)}
- U B29C 33/34
- movable, e.g. to or from the moulding station
- B29C 33/36
- • continuously movable {in one direction, e.g. in a closed circuit ([B29C 49/0021](#) takes precedence)}
- U B29C 33/44
- with means for , or specially constructed to facilitate, the removal of articles, e.g. of undercut articles
- U B29C 33/48
- • with means for collapsing or disassembling
- B29C 33/50
- • • elastic {or flexible (for isostatic pressing [B29C 43/3642](#))}
- B29C 33/52
- • soluble or fusible {(in particular used in injection moulding [B29C 45/4457](#))}
- B29C 33/56
- Coatings,{e.g. enamelled, galvanised}; Releasing, lubricating or separating agents {(in-mould coating [B29C 37/0028](#) ; using or applying separating agents [B29C 37/0067](#))}
- B29C 33/60
- • Releasing, lubricating or separating agents {(in general [C10M](#))}
- U B29C 33/70
- Maintenance
- B29C 33/72
- • Cleaning {(extruder parts [B29C 47/0877](#) ; in general [B08B 7/00](#))}
- U B29C 35/00**      **Heating, cooling or curing, e.g. crosslinking, vulcanising; Apparatus therefor (moulds with incorporated heating or cooling means [B29C 33/02](#) ; { thermal after-treatment of shaped articles [B29C 71/02](#) } ; curing devices for plastic dental prostheses [A61C 13/14](#) ; before moulding [B29B 13/00](#) ; Chemical aspects [C08J 3/00](#))**
- U B29C 35/02
- Heating or curing, e.g. crosslinking, vulcanising {during moulding, e.g. in a mould}{coldvulcanisation [B29C 35/18](#) ; { vulcanising tyres, presses therefor [B29D 30/0601](#))}
- B29C 35/08
- • by wave energy or particle radiation {([B29C 67/0051](#) , [B29C 71/04](#) take precedence)}
- B29C 35/16
- Cooling {(cooling extruded material [B29C 47/8815](#) ; cooling preforms for blow moulding [B29C 49/6427](#) ; cooling blown articles [B29C 49/66](#) ; cooling tyres during post cure inflation [B29D 30/0643](#))}

- U B29C 37/00** **Component parts, details, accessories or auxiliary operations, not covered by group [B29C 33/00](#) or [B29C 35/00](#)**
- U B29C 37/02 · Deburring or deflashing (by grinding or polishing [B24B](#)){(thermal deburring in general [B23D 79/005](#))}
- B29C 37/04 · · of welded articles, e.g. deburring or deflashing in combination with welding {(shaping the burr [B29C 66/32](#))}
- NOTE  
Attention is drawn to Note (3) following the subclass title.
- U B29C 39/00** **Shaping by casting, i.e. introducing the moulding material into a mould or between confining surfaces without significant moulding pressure; Apparatus therefor ([B29C 41/00](#) takes precedence)**
- U B29C 39/02 · for making articles of definite length, i.e. discrete articles
- B29C 39/10 · · incorporating preformed parts or layers, e.g. casting around inserts or for coating articles {(coating a surface by casting in general [B05D 1/30](#) , [B29C 39/126](#) takes precedence)}
- B29C 39/12 · · Making multilayered or multicoloured articles {([B29C 39/021](#) takes precedence)}
- B29C 39/14 · for making articles of indefinite length {(by depositing material on a substrate and stripping off the shaped article [B29C 41/24](#))}
- B29C 39/18 · · incorporating preformed parts or layers, e.g. casting around inserts or for coating articles {([B29C 39/206](#) takes precedence)}
- B29C 39/20 · · Making multilayered or multicoloured articles {([B29C 39/142](#) takes precedence)}
- U B29C 39/22 · Component parts, details or accessories; Auxiliary operations
- U B29C 39/26 · · Moulds or cores
- B29C 39/28 · · · with means to avoid flashes {([B29C 39/30](#) takes precedence)}
- B29C 39/40 · · Compensating volume change, e.g. retraction {(in general [B29C 37/005](#))}
- U B29C 41/00** **Shaping by coating a mould, core or other substrate, i.e. by depositing material and stripping-off the shaped article; Apparatus therefor (with compacting pressure [B29C 43/00](#) ; { by lay-up of reinforcement of substantial or continuous length [B29C 70/30](#)})**
- U B29C 41/02 · for making articles of definite length, i.e. discrete articles
- B29C 41/08 · · Coating a former, core or other substrate by spraying or fluidisation, e.g. spraying powder {(spray-up of reinforcing fibres [B29C 70/305](#))}
- B29C 41/14 · · Dipping a core {([B29C 41/10](#) takes precedence)}
- U B29C 41/34 · Component parts, details or accessories; Auxiliary operations
- B29C 41/42 · · Removing articles from moulds, cores or other substrates {([B29C 33/444](#) and [B29C 37/0017](#) take precedence)}
- U B29C 43/00** **Compression moulding, i.e. applying external pressure to flow the moulding material; Apparatus therefor (by libertion of internal stresses [B29C 61/006](#) ) ; shaping or impregnating by compression composites comprising reinforcements other than fibres of short length [ [B29C 70/12](#) ] ; presses in general [B30B](#))**
- B29C 43/02 · of articles of definite length, i.e. discrete articles {([B29C 35/0227](#) takes precedence)}
- B29C 43/10 · · Isostatic pressing, i.e. using non-rigid pressure-exerting members against rigid parts or dies {(in general [B30B 11/001](#))}

- B29C 43/12
  - • • using bags surrounding the moulding material (or using membranes contacting the moulding material (B29C 70/44 takes precedence; flexible cores for vulcanizing tyres B29D 30/0654))
- B29C 43/18
  - • incorporating preformed parts or layers, e.g. compression moulding around inserts or for coating articles ((B29C 43/206 takes precedence))
- B29C 43/20
  - • Making multilayered or multicoloured articles ((B29C 43/14 takes precedence))
- B29C 43/22
  - of articles of indefinite length ((for articles with reinforcements of substantial or continuous length B29C 70/50))
- B29C 43/30
  - • Making multilayered or multicoloured articles ((B29C 43/26 takes precedence))
- U B29C 43/32
  - Component parts, details or accessories; Auxiliary operations
- B29C 43/34
  - • Feeding the material to the mould or the compression means ((B29C 43/085 takes precedence))
- U B29C 43/36
  - • Moulds for making articles of definite length, i.e. discrete articles
- B29C 43/38
  - • • with means to avoid flashes ((B29C 43/40 takes precedence))
- B29C 43/58
  - • Measuring, controlling or regulating ((for bank adjustment in calendaring B29C 43/245))
- U **B29C 44/00**

**Shaping by internal pressure generated in the material, e.g. swelling, foaming; Producing porous or cellular expanded plastics articles**

WARNING  
Group B29C 44/00 and subgroups are not complete, see also B29C 67/22 and subgroups
- U B29C 44/02
  - for articles of definite length, i.e. discrete articles
- U B29C 44/04
  - • consisting of at least two parts of chemically or physically different materials, e.g. having different densities
- B29C 44/06
  - • • Making multilayered articles ((B29C 44/0407 - B29C 44/0492 take precedence))
- U B29C 44/12
  - • Incorporating or moulding on preformed parts, e.g. inserts, reinforcements
- B29C 44/14
  - • • the preformed part being a lining ((B29C 44/1209 takes precedence))
- B29C 44/18
  - • • Filling preformed cavities ((B29C 44/1204 takes precedence))
- U B29C 44/20
  - for articles of indefinite length
- B29C 44/30
  - • Expanding the moulding material between endless belts or rollers ((B29C 44/203 takes precedence))
- U B29C 44/34
  - Auxiliary operations
- B29C 44/36
  - • Feeding the material to be shaped ((B29C 44/0492 takes precedence))
- B29C 44/38
  - • • into a closed space, i.e. to make articles of definite length ((B29C 44/365 and B29C 44/367 take precedence))
- B29C 44/46
  - • • into an open space or onto moving surfaces, i.e. to make articles of indefinite length ((B29C 44/365 , B29C 44/367 take precedence))
- B29C 44/48
  - • • • by gravity, e.g. casting onto, or between, moving surfaces ((B29C 44/468 takes precedence))
- B29C 44/50
  - • • • using pressure difference, e.g. by extrusion, by spraying ((B29C 44/468 takes precedence))
- U **B29C 45/00**

**Injection moulding, i.e. forcing the required volume of moulding material through a nozzle into a closed mould; Apparatus therefor (injection blow-moulding B29C 49/06)**
- U B29C 45/03
  - Injection moulding apparatus (transfer moulding B29C 45/02)

- B29C 45/12
  - • using two or more fixed moulds, e.g. in tandem [{\(B29C 45/076 takes precedence\)}](#)
- B29C 45/14
  - incorporating preformed parts or layers, e.g. injection moulding around inserts or for coating articles [{\(B29C 45/1671 takes precedence\)}](#)
- B29C 45/16
  - Making multilayered or multicoloured articles [{\(B29C 45/0062 takes precedence; feeding colouring materials into the injection unit \[B29C 45/1816\]\(#\)\)}](#)
- B29C 45/1679
  - • {applying surface layers onto injection-moulded substrates inside the mould cavity, e.g. in-mould coating (IMC)} [\(applying surface layers after ejection \[B29C 45/0053\]\(#\)\)}](#)
- U B29C 45/17
  - Component parts, details or accessories; Auxiliary operations
- B29C 45/20
  - • Injection nozzles [{\(B29C 45/1603 takes precedence\)}](#)
- U B29C 45/26
  - • Moulds
- U B29C 45/27
  - • • Sprue channels {Runner channels or runner nozzles}
- U B29C 45/2737
  - • • • {Heating or cooling means therefor [\(B29C 45/7331 takes precedence\)}](#)
- B29C 2045/2754
  - • • • • {Plurality of independent heating or cooling means, e.g. independently controlling the heating of several zones of the nozzle, [\(B29C 2045/2753 takes precedence\)}](#)
- B29C 45/46
  - • Means for plasticising or homogenising the moulding material or forcing it into the mould [{\(combined with mould opening, closing or clamping devices \[B29C 45/70\]\(#\)\)}](#)
- U B29C 45/53
  - • • using injection ram or piston
- B29C 45/54
  - • • • and plasticising screw [{\(B29C 45/532 takes precedence\)}](#)
- B29C 45/56
  - • • using mould parts movable during or after injection, e.g. injection-compression moulding [{\(B29C 45/1705 and \[B29C 45/572\]\(#\) take precedence\)}](#)
- B29C 45/57
  - • • Exerting after-pressure on the moulding material [{\(B29C 45/174 takes precedence\)}](#)
- B29C 45/64
  - • Mould opening, closing or clamping devices [{\(combined with means for plasticising or homogenising \[B29C 45/70\]\(#\)\)}](#)
- U B29C 45/72
  - • Heating or cooling
- B29C 45/73
  - • • of the mould [{\(B29C 45/2642 and \[B29C 45/2737\]\(#\) take precedence\)}](#)
- 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

- B29C 45/84
  - • Safety devices [{\(B29C 45/7626 takes precedence\)}](#)
- 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
- U B29C 47/12
  - • Extrusion nozzles or dies
- B29C 47/30
  - • • Multi-port extrusion nozzles [{\(for making granules in the form of filamentary material \[B29B 9/06\]\(#\)\)}](#)
- B29C 47/34
  - • Conveyers 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 [{\(B29C 47/6006 to B29C 47/627 take precedence\)}](#)
  
- 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
- B29C 49/06                    · · Injection blow-moulding [{\(introducing a fluid into the interior of the injected material which is still in a molten state B29C 45/1704\)}](#)
- U B29C 49/08                    · Biaxial stretching during blow-moulding {with or without prestretching}
- B29C 49/16                    · · using pressure difference {for prestretching}, e.g. pre-blowing [{\(B29C 49/649 takes precedence\)}](#)
- U B29C 49/28                    · Blow-moulding apparatus
- U B29C 49/30                    · · having movable moulds or mould parts
- B29C 49/38                    · · · mounted on movable endless supports [{\(B29C 49/0021 takes precedence\)}](#)
- U B29C 49/42                    · Component parts, details or accessories; Auxiliary operations
- B29C 49/58                    · · Blowing means [{\(B29C 45/1734 takes precedence\)}](#)
  
- B29C 51/00                    Shaping by thermoforming, {i.e. shaping sheets or sheet like preforms after heating}, e.g. shaping sheets in matched moulds or by deep-drawing; Apparatus therefor [{\(blow moulding of tubular preforms B29C 49/00 , deforming of tubular or hollow preforms B29C 67/0014\)}](#)**
  
- U B29C 53/00                    Shaping by bending, folding, twisting, straightening or flattening; Apparatus therefor (B29C 61/10 takes precedence)**
- U B29C 53/02                    · Bending or folding ([B29C 53/22](#) , [B29C 53/34](#) , [B29C 53/36](#) , [B29C 53/56](#) take precedence)
- B29C 53/04                    · · of plates or sheets [{\(B29C 63/04 takes precedence; bending or folding paper B31F 1/0003 ; folding films B65H 45/00\)}](#)
- B29C 53/10                    · · of blown tubular films, e.g. gusseting [{\(flattening blown films during extrusion moulding B29C 47/0009\)}](#)
- B29C 53/12                    · · helically, e.g. for making springs [{\(for textile fibres D02G 1/00\)}](#)
- B29C 53/14                    · Twisting [{\(for textile fibres D01H\)}](#)
- B29C 53/56                    · Winding and joining, e.g. winding spirally [{\(winding in general B65H\)}](#)
  
- U B29C 55/00                    Shaping by stretching, e.g. drawing through a die; Apparatus therefor (B29C 61/08 takes precedence)**
- B29C 55/22                    · of tubes [{\(B29C 61/08 takes precedence\)}](#)
- B29C 55/28                    · of blown tubular films, e.g. by inflation [{\(extrusion moulding of tubular films B29C 47/0009\)}](#)
- B29C 55/30                    · Drawing through a die [{\(pultrusion B29C 70/52\)}](#)
  
- U B29C 57/00                    Shaping of tube ends, e.g. flanging, belling, closing; Apparatus therefor, {e.g. collapsible mandrels}**
- U B29C 57/02                    · Belling or enlarging, e.g. combined with forming a groove
- B29C 57/04                    · · using mechanical means [{\(B29C 57/025 takes precedence\)}](#)

- B29C 59/00** Surface shaping {of articles}e.g. embossing; Apparatus therefor {(in-mould printing [B29C 37/0025](#) ; by using liquids [B29C 71/0009](#) ; by using gases without chemical reaction [B29C 71/009](#) ; for decorating in general [B44](#) ; abrasive blasting [B24C](#) ; chemical aspects [C08J 7/00](#))}
- B29C 59/02 · by mechanical means, e.g. pressing {([B29C 59/007](#) takes precedence; embossing expanded porous articles [B29C 44/5627](#))}
- B29C 59/06 · · using vacuum drums {(for thermoforming [B29C 51/225](#))}
- B29C 59/16 · by wave energy or particle radiation,{e.g. infra-red heating ([B29C 59/007](#) takes precedence)}
- U B29C 61/00** Shaping by liberation of internal stresses; Making preforms having internal stresses; Apparatus therefor (for surface shaping [B29C 59/18](#) ; for lining articles [B29C 63/38](#) ; for joining preformed parts [B29C 65/66](#)) {(for packaging [B65B 53/00](#) ; connecting arrangements or other fittings for plastics pipes using shrink-down material [F16L 47/22](#) , electrical connections insulated using heat shrinking insulating sleeves [H01R 4/72](#) ; cable junctions protected by sleeves [H02G 15/18](#))}
- U B29C 61/06 · Making preforms having internal stresses, e.g. plastic memory
- B29C 61/08 · · by stretching tubes {(in general [B29C 55/22](#) , [B29C 55/28](#))}
- B29C 61/10 · · by bending plates or sheets {(in general [B29C 53/36](#))}
- U B29C 63/00** Lining or sheathing, i.e. applying preformed layers or sheathing of plastics; Apparatus therefor ([B29C 73/00](#) takes precedence; by blowing [B29C 49/00](#) ; by thermoforming [B29C 51/00](#))
- U B29C 63/26 · Lining or sheathing of internal surfaces ([B29C 63/38](#) takes precedence)
- U B29C 63/34 · · using tubular layers or sheathings
- B29C 63/36 · · · being turned inside out {(for plastic tubes in general [B29C 67/0018](#))}
- U 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
- 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

- B29C 65/08
- using ultrasonic vibrations {(non-plastics element to plastics elements [B29C 65/645](#))}
- WARNING  
Subgroups of [B29C 65/08](#) are not complete pending reclassification; see also this group and its other subgroups
- 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
- B29C 65/22
- using heated tools
  - Heated wire {resistive ribbon, resistive band or resistive strip {(electrical insulating support therefor [B29C 66/81871](#))}
- WARNING  
Subgroups of [B29C 65/22](#) are not complete, pending reclassification; see also this group
- 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 65/40
- Applying molten plastics, e.g. hot melt (using welding bar{combined with hot gases}[B29C 65/12](#) ; by moulding [B29C 65/70](#))
- B29C 65/42
- between pre-assembled parts {([B29C 65/605](#) takes precedence)}
- U 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 65/50
- using adhesive tape {e.g. thermoplastic tape; using threads or the like {([B29C 65/3444](#) takes precedence)}

- 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 65/7802
- • {Positioning the parts to be joined, e.g. aligning, indexing or centring}
- U B29C 65/7805
- • • {the parts to be joined comprising positioning features}
- B29C 65/7814
- • • • {in the form of inter-cooperating positioning features (holding or clamping means cooperating with specially formed features of at least one of the parts to be joined [B29C 65/7844](#)), e.g. tenons and mortises (tenon and mortise joints [B29C 66/126](#) ; tongue and groove joints [B29C 66/124](#))}
- 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 conveyer belts or conveyer 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](#))}**
- WARNING  
Groups [B29C 66/00](#) - [B29C 66/98](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [B29C 66/00](#) - [B29C 66/98](#) : [B29C 65/00](#) ]
- U B29C 66/40
- {General aspects of joining substantially flat articles, e.g. plates, sheets or web-like materials; Making flat seams in tubular or hollow articles; Joining single elements to substantially flat surfaces}
- WARNING  
Group [B29C 66/40](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/00](#) and its subgroups
- B29C 66/41
- • {Joining substantially flat articles ([B29C 66/47](#) and subgroups take precedence); Making flat seams in tubular or hollow articles ([B29C 66/51](#) and subgroups take precedence)}
- U B29C 67/00**
- Shaping techniques not covered by groups [B29C 39/00](#) to [B29C 65/00](#) , [B29C 70/00](#) or [B29C 73/00](#)**
- B29C 67/02
- Moulding by agglomerating {([B29C 67/0051](#) , [B29C 67/20](#) take precedence)}
- B29C 67/06
- • Coagulating {(selective coagulating for rapid manufacturing or prototyping of 3D objects [B29C 67/0055](#))}
- 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](#))}
- U B29C 67/24
- characterised by the choice of material
- B29C 67/246
- • {Moulding high reactive monomers or prepolymers, e.g. by reaction injection moulding (RIM), liquid injection moulding (LIM) (casting monomers [B29C 39/006](#) , mixing construction [B29B 7/74](#))}

U	B29C 70/00	<p><b>Shaping composites, i.e. plastics material comprising reinforcements, fillers or preformed parts, e.g. inserts (chemical aspects <a href="#">C08</a> , e.g. <a href="#">C08J 5/00</a>)</b></p> <p><u>NOTE</u></p> <p>In this group, the following terms or expressions are used with the meanings indicated:</p> <ul style="list-style-type: none"> <li>• "reinforcement" means a structure in the form of fibres, wires, rods, bars, sections, plates or blocks, which improves the strength of an article;</li> <li>• "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;</li> <li>• "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;</li> <li>• "insert" means a preformed part incorporated in an article during moulding.</li> </ul>
U	B29C 70/04	• comprising reinforcements only, e.g. self-reinforcing plastics
U	B29C 70/06	• Fibrous reinforcements only
U	B29C 70/10	• • characterised by the structure of fibrous reinforcements, {e.g. hollow fibres}
	B29C 70/12	• • • using fibres of short length, e.g. in the form of a mat {(non-woven fabrics per se <a href="#">D04H 1/00</a> )}
	B29C 70/16	• • • using fibres of substantial or continuous length {(non-woven fabrics per se <a href="#">D04H 3/00</a> )}
	B29C 70/20	• • • oriented in a single direction, e.g. roofing or other parallel fibres {( <a href="#">B29C 70/083</a> , <a href="#">B29C 70/226</a> take precedence)}
	B29C 70/202	• • • • {arranged in parallel planes or structures of fibres crossing at substantial angles, e.g. cross-moulding compound (XMC)} ( <a href="#">B29C 70/207</a> takes precedence)}
	B29C 70/22	• • • • oriented in at least two directions forming a two dimensional structure {(woven fabrics per se <a href="#">D03D</a> ; knitted fabrics per se <a href="#">D04D</a> ; braid per se <a href="#">D04C</a> )}
	B29C 70/26	• • Non-fibrous reinforcements only {( <a href="#">B29C 35/0272</a> , <a href="#">B29C 61/0625</a> , <a href="#">B29C 70/887</a> take precedence; combined with fibres <a href="#">B29C 70/023</a> )}
U	B29C 70/28	• Shaping operations therefor
		<p><u>NOTES</u></p> <p>1. This group covers:</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• the impregnation or introduction of a plastics matrix in reinforcements during shaping;</li> </ul> <p>2. This group does not cover:</p> <ul style="list-style-type: none"> <li>• 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;</li> <li>• the pretreatment, e.g. impregnation, of reinforcements per se, i.e. independently of their shaping, which is covered by group <a href="#">B29B 15/08</a></li> </ul>
	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 <a href="#">B29C 53/56</a> ; for building tyres <a href="#">B29D 30/08</a> )}
	B29C 70/38	• • • Automated lay-up, e.g. using robots, laying filaments according to predetermined patterns {(application heads for tyres <a href="#">B29D 30/28</a> )}

- B29C 70/54
- • Component parts, details or accessories; Auxiliary operations, {e.g. feeding or storage of prepregs or SMC after impregnation or during ageing (pretreatment, e.g. impregnation, of reinforcements [B29B 15/08](#))}
- B29C 70/58
- comprising fillers only, {e.g. particles, powder, beads, flakes, spheres ([B29C 70/025](#) takes precedence, agglomerating hollow spheres to produce synthetic foam [B29C 70/66](#) ; compounding ingredients per se [C08K](#))}
- NOTE**
- Moulding of plastics matrix material mixed with fillers by a single technique is classified in the appropriate place for that technique.
- B29C 70/68
- by incorporating or moulding on preformed parts, e.g. inserts, layers, {e.g. foam blocks (mould constructions therefor [B29C 33/12](#) ; joining preformed parts by moulding [B29C 65/70](#))}
- NOTE**
- This group does not cover:
- incorporating, or moulding on, preformed parts by a single technique, which is covered by the appropriate place for that technique;
  - pretreatment of preformed parts per se, i.e. independently of their shaping, which is covered by group [B29B 15/00](#)
- B29C 70/70
- • Completely encapsulating inserts {([B29C 70/86](#) takes precedence)}
- B29C 70/72
- • Encapsulating inserts having non-encapsulated projections, e.g. extremities, terminal portions of electrical components {([B29C 70/742](#) takes precedence)}
- B29C 70/74
- • Moulding material on a relatively small portion of the preformed part, e.g. outsert moulding {([B29C 70/845](#) takes precedence)}
- U B29C 70/78
- • Moulding material on one side only of the preformed part
- B29C 70/80
- • Moulding sealing material into closure members {(placing sealings in closures [B21D 51/46](#))}
- B29C 70/84
- • by moulding material on preformed parts to be joined {(joining plastic parts by moulding [B29C 65/70](#))}
- U B29C 71/00
- After-treatment of articles without altering their shape; Apparatus therefor ([B29C 73/00](#) takes precedence; surface shaping [B29C 59/00](#) ; { for joined or sealed parts [B29C 66/03](#) ; after-treatment specially adapted for vulcanising tyres [B29D 30/0633](#) } ; chemical aspects [C08J 7/00](#))**
- B29C 71/02
- Thermal after-treatment {([B29C 71/0063](#) and [B29C 71/0072](#) take precedence)}
- B29C 71/04
- by wave energy or particle radiation, {e.g. for curing or vulcanising preformed articles (during moulding, e.g. in a mould [B29C 35/08](#))}

**Project: N/A (B29K)**

- B29K 2001/00
- Use of cellulose, modified cellulose or cellulose derivatives, e.g. viscose, as moulding material {(as such [C08L 1/00](#))}**
- B29K 2007/00
- Use of natural rubber as moulding material {(as such [C08L 7/00](#))}**
- B29K 2009/00
- Use of rubber derived from conjugated dienes, as moulding material {(as such [C08L 9/00](#))}**
- B29K 2023/00
- Use of polyalkenes {or derivatives thereof} as moulding material {(as such [C08L 23/00](#))}**
- B29K 2023/18
- {Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene) (as such [C08L 23/18](#))}
- B29K 2025/00
- Use of polymers of vinyl-aromatic compounds {or derivatives thereof} as moulding material {(as such [C08L 25/00](#))}**

B29K 2027/00	Use of polyvinylhalogenides {or derivatives thereof}as moulding material {(as such <a href="#">C08L 27/00</a> )}
B29K 2027/12	· containing fluorine {(as such <a href="#">C08L 27/12</a> )}
B29K 2027/18	· · PTFE, i.e. polytetrafluorethene {(as such <a href="#">C08L 27/18</a> ), e.g. ePTFE, i.e. expanded polytetrafluorethene, Gore Tex (R)}
B29K 2029/00	Use of polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals {or derivatives thereof}as moulding material {(as such <a href="#">C08L 29/00</a> )}
B29K 2031/00	Use of polyvinylesters {or derivatives thereof}as moulding material {(as such <a href="#">C08L 31/00</a> )}
B29K 2033/00	Use of polymers of unsaturated acids or derivatives thereof as moulding material {(as such <a href="#">C08L 33/00</a> )} (B29K35/00 takes precedence)
B29K 2033/04	· Polymers of esters {(as such <a href="#">C08L 33/04</a> )}
B29K 2033/18	· Polymers of nitriles {(as such <a href="#">C08L 33/18</a> )}
B29K 2033/20	· · PAN, i.e. polyacrylonitrile {(as such <a href="#">C08L 33/20</a> )}
B29K 2035/00	Use of polymers of unsaturated polycarboxylic acids {or derivatives thereof}as moulding material {(as such <a href="#">C08L 35/00</a> )}
B29K 2045/00	Use of polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins {or derivatives thereof}, as moulding material {(as such <a href="#">C08L 45/00</a> )}
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 <a href="#">C08L 55/00</a> )}
B29K 2055/02	· ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers {(as such <a href="#">C08L 55/02</a> )}
B29K 2059/00	Use of polyacetals {e.g. POM, i.e. polyoxymethylene; or derivatives thereof}, as moulding material {(as such <a href="#">C08L 59/00</a> )}
B29K 2061/00	Use of condensation polymers of aldehydes or ketones {or derivatives thereof}as moulding material {(as such <a href="#">C08L 61/00</a> )}
B29K 2061/04	· Phenoplasts {(as such <a href="#">C08L 61/04</a> )}
B29K 2061/20	· Aminoplasts {(as such <a href="#">C08L 61/20</a> )}
B29K 2063/00	Use of {EP, i.e.}epoxy resins {or derivatives thereof}as moulding material {(as such <a href="#">C08L 63/00</a> )}
B29K 2067/00	Use of polyesters {or derivatives thereof}as moulding material {(as such <a href="#">C08L 67/00</a> )}
B29K 2069/00	Use of {PC, i.e.}polycarbonates {or derivatives thereof}as moulding material {(as such <a href="#">C08L 69/00</a> )}
B29K 2071/00	Use of polyethers,{e.g. PEEK, i.e. polyether-etherketone or PEK, i.e. polyetherketone or derivatives thereof}as moulding material {(as such <a href="#">C08L 71/00</a> )}
B29K 2073/00	Use of other polymers having oxygen as the only hetero atom in the main chain as moulding material {(as such <a href="#">C08L 73/00</a> )}
B29K 2075/00	Use of {PU, i.e.}polyureas or polyurethanes {or derivatives thereof}as moulding material {(as such <a href="#">C08L 75/00</a> )}

- B29K 2075/02      · Polyureas {(as such [C08L 75/02](#))}
- 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 2081/00      Use of polymers having sulfur, with or without nitrogen, oxygen, or carbon only, in the main chain, as moulding material {(as such [C08L 81/00](#))}
- B29K 2083/00      Use of polymers having silicon, with or without sulfur, nitrogen, oxygen, or carbon only, in the main chain, as moulding material {(as such [C08L 83/00](#))}
- B29K 2085/00      Use of polymers having other elements {than silicon, sulfur, nitrogen, oxygen, and carbon}in the main chain, as moulding material {(as such [C08L 85/00](#))}
- B29K 2091/00      Use of waxes as moulding material {(as such [C08L 91/06](#))}
- B29K 2095/00      Use of bituminous materials as moulding material {(as such [C08L 95/00](#))}
- B29K 2201/00      Use of cellulose, modified cellulose or cellulose derivatives, e.g. viscose, as reinforcement {(as such [C08L 1/00](#))}
- NOTE  
Copolymers are indexed with the same indexing code as the majority polymers
- B29K 2207/00      Use of natural rubber as reinforcement {(as such [C08L 7/00](#))}
- B29K 2209/00      Use of rubber derived from conjugated dienes as reinforcement {(as such [C08L 9/00](#))}
- B29K 2223/00      Use of polyalkenes {or derivatives thereof}as reinforcement {(as such [C08L 23/00](#))}
- B29K 2223/18      · {Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene) (as such [C08L 23/18](#))}
- B29K 2225/00      Use of polymers of vinyl-aromatic compounds {or derivatives thereof}as reinforcement {(as such [C08L 25/00](#))}
- B29K 2227/00      Use of polyvinylhalogenides {or derivatives thereof}as reinforcement {(as such [C08L 27/00](#))}
- B29K 2227/12      · containing fluorine {(as such [C08L 27/12](#))}
- B29K 2227/18      · · PTFE, i.e. polytetrafluorethene {(as such [C08L 27/18](#)), e.g. ePTFE, i.e. expanded polytetrafluorethene, Gore Tex (R)}
- B29K 2229/00      Use of polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals {or derivatives thereof}, as reinforcement {(as such [C08L 29/00](#))}
- B29K 2231/00      Use of polyvinylesters {or derivatives thereof}as reinforcement {(as such [C08L 31/00](#))}
- B29K 2233/00      Use of polymers of unsaturated acids or derivatives thereof as reinforcement {(as such [C08L 33/00](#))} (**B29K35/00** takes precedence)
- B29K 2233/04      · Polymers of esters {(as such [C08L 33/04](#))}
- B29K 2233/18      · Polymers of nitriles {(as such [C08L 33/18](#))}
- B29K 2233/20      · · PAN, i.e. polyacrylonitrile {(as such [C08L 33/20](#))}
- B29K 2235/00      Use of polymers of unsaturated polycarboxylic acids {or derivatives thereof}as reinforcement {(as such [C08L 35/00](#))}

B29K 2245/00	Use of polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins {or derivatives thereof}, as reinforcement {(as such <a href="#">C08L 45/00</a> )}
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 <b>B29K223/00</b> to <b>{B29K 2249/00</b> , e.g. having a vinyl group}, as reinforcement {(as such <a href="#">C08L 55/00</a> )}
B29K 2255/02	· ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers {(as such <a href="#">C08L 55/02</a> )}
B29K 2259/00	Use of polyacetals {e.g. POM, i.e. polyoxymethylene; or derivatives thereof}, as reinforcement {(as such <a href="#">C08L 59/00</a> )}
B29K 2261/00	Use of condensation polymers of aldehydes or ketones {or derivatives thereof}, as reinforcement {(as such <a href="#">C08L 61/00</a> )}
B29K 2261/04	· Phenoplasts {(as such <a href="#">C08L 61/04</a> )}
B29K 2261/20	· Aminoplasts {(as such <a href="#">C08L 61/20</a> )}
B29K 2263/00	Use of {EP, i.e.}epoxy resins {or derivatives thereof}as reinforcement {(as such <a href="#">C08L 63/00</a> )}
B29K 2267/00	Use of polyesters {or derivatives thereof}as reinforcement {(as such <a href="#">C08L 67/00</a> )}
B29K 2269/00	Use of {PC, i.e.}polycarbonates {or derivatives thereof}as reinforcement {(as such <a href="#">C08L 69/00</a> )}
B29K 2271/00	Use of polyethers,{e.g. PEEK, i.e. polyether-etherketone or PEK, i.e. polyetherketone or derivatives thereof}, as reinforcement {(as such <a href="#">C08L 71/00</a> )}
B29K 2273/00	Use of other polymers having oxygen as the only hetero atom in the main chain, as reinforcement {(as such <a href="#">C08L 73/00</a> )}
B29K 2275/00	Use of {PU, i.e.}polyureas or polyurethanes {or derivatives thereof}, as reinforcement {(as such <a href="#">C08L 75/00</a> )}
B29K 2275/02	· Polyureas {(as such <a href="#">C08L 75/02</a> )}
B29K 2279/00	Use of polymers having nitrogen, with or without oxygen, or carbon only, in the main chain{ not provided for in groups <b>B29K261/00</b> to <b>B29K277/00</b> }, as reinforcement {(as such <a href="#">C08L 79/00</a> )}
B29K 2281/00	Use of polymers having sulfur, with or without nitrogen, oxygen, or carbon only, in the main chain, as reinforcement {(as such <a href="#">C08L 81/00</a> )}
B29K 2283/00	Use of polymers having silicon, with or without sulfur, nitrogen, oxygen, or carbon only, in the main chain, as reinforcement {(as such <a href="#">C08L 83/00</a> )}
B29K 2285/00	Use of polymers having other elements {than silicon, sulfur, nitrogen, oxygen, and carbon}in the main chain, as reinforcement {(as such <a href="#">C08L 85/00</a> )}
B29K 2291/00	Use of waxes as reinforcement {(as such <a href="#">C08L 91/06</a> )}
B29K 2295/00	Use of bituminous materials, as reinforcement {(as such <a href="#">C08L 95/00</a> )}

- B29K 2401/00** Use of cellulose, modified cellulose or cellulose derivatives, e.g. viscose, as filler [{\(as such C08L 1/00\)}](#)
- NOTE  
Copolymers are indexed with the same indexing code as the majority polymers
- B29K 2407/00** Use of natural rubber as filler [{\(as such C08L 7/00\)}](#)
- B29K 2409/00** Use of rubber derived from conjugated dienes as filler [{\(as such C08L 9/00\)}](#)
- B29K 2423/00** Use of polyalkenes {or derivatives thereof} as filler [{\(as such C08L 23/00\)}](#)
- B29K 2423/18 · {Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene)} [\(as such C08L 23/18\)}](#)
- B29K 2425/00** Use of polymers of vinyl-aromatic compounds {or derivatives thereof} as filler [{\(as such C08L 25/00\)}](#)
- B29K 2427/00** Use of polyvinylhalogenides {or derivatives thereof} as filler [{\(as such C08L 27/00\)}](#)
- B29K 2427/12 · containing fluorine [{\(as such C08L 27/12\)}](#)
- B29K 2427/18 · · PTFE, i.e. polytetrafluorethene [{\(as such C08L 27/18\)}](#), e.g. ePTFE, i.e. expanded polytetrafluorethene, Gore Tex (R)}
- B29K 2429/00** Use of polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals {or derivatives thereof}, as filler [{\(as such C08L 29/00\)}](#)
- B29K 2431/00** Use of polyvinylesters {or derivatives thereof} as filler [{\(as such C08L 31/00\)}](#)
- B29K 2433/00** Use of polymers of unsaturated acids or derivatives thereof as filler [{\(as such C08L 33/00\)}](#) (**B29K435/00** takes precedence)
- B29K 2433/04 · Polymers of esters [{\(as such C08L 33/04\)}](#)
- B29K 2433/18 · Polymers of nitriles [{\(as such C08L 33/18\)}](#)
- B29K 2433/20 · · PAN, i.e. polyacrylonitrile [{\(as such C08L 33/20\)}](#)
- B29K 2435/00** Use of polymers of unsaturated polycarboxylic acids {or derivatives thereof} as filler [{\(as such C08L 35/00\)}](#)
- B29K 2445/00** Use of polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins {or derivatives thereof}, as filler [{\(as such C08L 45/00\)}](#)
- 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 2455/02 · ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers [{\(as such C08L 55/02\)}](#)
- B29K 2459/00** Use of polyacetals {e.g. POM, i.e. polyoxymethylene; or derivatives thereof}, as filler [{\(as such C08L 59/00\)}](#)
- B29K 2461/00** Use of condensation polymers of aldehydes or ketones {or derivatives thereof}, as filler [{\(as such C08L 61/00\)}](#)
- B29K 2461/04 · Phenoplasts [{\(as such C08L 61/04\)}](#)
- B29K 2461/20 · Aminoplasts [{\(as such C08L 61/20\)}](#)

- B29K 2463/00 Use of {EP, i.e.}epoxy resins {or derivatives thereof}as filler {(as such [C08L 63/00](#))}
- B29K 2467/00 Use of polyesters {or derivatives thereof}as filler {(as such [C08L 67/00](#))}
- B29K 2469/00 Use of {PC, i.e.}polycarbonates {or derivatives thereof}as filler {(as such [C08L 69/00](#))}
- B29K 2471/00 Use of polyethers,{e.g. PEEK, i.e. polyether-etherketone or PEK, i.e. polyetherketone or derivatives thereof}, as filler {(as such [C08L 71/00](#))}
- B29K 2473/00 Use of other polymers having oxygen as the only hetero atom in the main chain, as filler {(as such [C08L 73/00](#))}
- B29K 2475/00 Use of {PU, i.e.}polyureas or polyurethanes {or derivatives thereof}, as filler {(as such [C08L 75/00](#))}
- B29K 2475/02 · Polyureas {(as such [C08L 75/02](#))}
- 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 2481/00 Use of polymers having sulfur, with or without nitrogen, oxygen, or carbon only, in the main chain, as filler {(as such [C08L 81/00](#))}
- B29K 2483/00 Use of polymers having silicon, with or without sulfur, nitrogen, oxygen, or carbon only, in the main chain, as filler {(as such [C08L 83/00](#))}
- B29K 2485/00 Use of polymers having other elements {than silicon, sulfur, nitrogen, oxygen, and carbon}in the main chain, as filler {(as such [C08L 85/00](#))}
- B29K 2491/00 Use of waxes as filler {(as such [C08L 91/06](#))}
- B29K 2495/00 Use of bituminous materials, as filler {(as such [C08L 95/00](#))}
- B29K 2601/00 Use of cellulose, modified cellulose or cellulose derivatives, e.g. viscose, for preformed parts, e.g. inserts {(as such [C08L 1/00](#))}
- NOTE  
Copolymers are indexed with the same indexing code as the majority polymers
- B29K 2607/00 Use of natural rubber for preformed parts, e.g. inserts {(as such [C08L 7/00](#))}
- B29K 2609/00 Use of rubber derived from conjugated dienes for preformed parts, e.g. inserts {(as such [C08L 9/00](#))}
- B29K 2623/00 Use of polyalkenes {or derivatives thereof}for preformed parts, e.g. inserts {(as such [C08L 23/00](#))}
- B29K 2623/18 · {Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene) (as such [C08L 23/18](#))}
- B29K 2625/00 Use of polymers of vinyl-aromatic compounds {or derivatives thereof}for preformed parts, e.g. inserts {(as such [C08L 25/00](#))}
- B29K 2627/00 Use of polyvinylhalogenides {or derivatives thereof}for preformed parts, e.g. inserts {(as such [C08L 27/00](#))}
- B29K 2627/12 · containing fluorine {(as such [C08L 27/12](#))}
- B29K 2627/18 · · PTFE, i.e. polytetrafluorethene {(as such [C08L 27/18](#)), e.g. ePTFE, i.e. expanded polytetrafluorethene, Gore Tex (R)}

B29K 2629/00	Use of polyvinylalcohols, polyvinylethers, polyvinylaldehydes, polyvinylketones or polyvinylketals {or derivatives thereof}, for preformed parts, e.g. inserts {(as such <a href="#">C08L 29/00</a> )}
B29K 2631/00	Use of polyvinylesters {or derivatives thereof}for preformed parts, e.g. inserts {(as such <a href="#">C08L 31/00</a> )}
B29K 2633/00	Use of polymers of unsaturated acids or derivatives thereof for preformed parts, e.g. inserts {(as such <a href="#">C08L 33/00</a> )} (B29K635/00 takes precedence)
B29K 2633/04	· Polymers of esters {(as such <a href="#">C08L 33/04</a> )}
B29K 2633/18	· Polymers of nitriles {(as such <a href="#">C08L 33/18</a> )}
B29K 2633/20	· · PAN, i.e. polyacrylonitrile {(as such <a href="#">C08L 33/20</a> )}
B29K 2635/00	Use of polymers of unsaturated polycarboxylic acids {or derivatives thereof}for preformed parts, e.g. inserts {(as such <a href="#">C08L 35/00</a> )}
B29K 2645/00	Use of polymers of unsaturated cyclic compounds having no unsaturated aliphatic groups in a side-chain, e.g. coumarone-indene resins {or derivatives thereof}, for preformed parts, e.g. inserts {(as such <a href="#">C08L 45/00</a> )}
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 <a href="#">C08L 55/00</a> )}
B29K 2655/02	· ABS polymers, i.e. acrylonitrile-butadiene-styrene polymers {(as such <a href="#">C08L 55/02</a> )}
B29K 2659/00	Use of polyacetals {e.g. POM, i.e. polyoxymethylene; or derivatives thereof}, for preformed parts, e.g. inserts {(as such <a href="#">C08L 59/00</a> )}
B29K 2661/00	Use of condensation polymers of aldehydes or ketones {or derivatives thereof}, for preformed parts, e.g. inserts {(as such <a href="#">C08L 61/00</a> )}
B29K 2661/04	· Phenoplasts {(as such <a href="#">C08L 61/04</a> )}
B29K 2661/20	· Aminoplasts {(as such <a href="#">C08L 61/20</a> )}
B29K 2663/00	Use of {EP, i.e.}epoxy resins {or derivatives thereof}for preformed parts, e.g. inserts {(as such <a href="#">C08L 63/00</a> )}
B29K 2667/00	Use of polyesters {or derivatives thereof}for preformed parts, e.g. inserts {(as such <a href="#">C08L 67/00</a> )}
B29K 2669/00	Use of {PC, i.e.}polycarbonates {or derivatives thereof}for preformed parts, e.g. inserts {(as such <a href="#">C08L 69/00</a> )}
B29K 2671/00	Use of polyethers,{e.g. PEEK, i.e. polyether-etherketone or PEK, i.e. polyetherketone or derivatives thereof}, for preformed parts, e.g. inserts {(as such <a href="#">C08L 71/00</a> )}
B29K 2673/00	Use of other polymers having oxygen as the only hetero atom in the main chain, for preformed parts, e.g. inserts {(as such <a href="#">C08L 73/00</a> )}
B29K 2675/00	Use of {PU, i.e.}polyureas or polyurethanes {or derivatives thereof}, for preformed parts, e.g. inserts {(as such <a href="#">C08L 75/00</a> )}
B29K 2675/02	· Polyureas {(as such <a href="#">C08L 75/02</a> )}
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 <a href="#">C08L 79/00</a> )}

- B29K 2681/00** Use of polymers having sulfur, with or without nitrogen, oxygen, or carbon only, in the main chain, for preformed parts, e.g. inserts {(as such [C08L 81/00](#))}
- B29K 2683/00** Use of polymers having silicon, with or without sulfur, nitrogen, oxygen, or carbon only, in the main chain, for preformed parts, e.g. inserts {(as such [C08L 83/00](#))}
- B29K 2685/00** Use of polymers having other elements {than silicon, sulfur, nitrogen, oxygen, and carbon}in the main chain, for preformed parts, e.g. inserts {(as such [C08L 85/00](#))}
- B29K 2691/00** Use of waxes for preformed parts, e.g. inserts {(as such [C08L 91/06](#))}
- B29K 2695/00** Use of bituminous materials, for preformed parts, e.g. inserts {(as such [C08L 95/00](#))}
- U B29K 2823/00** {Use of polyalkenes or derivatives thereof as mould material (as such [C08L 23/00](#))}
- B29K 2823/18** · {Polymers of hydrocarbons having four or more carbon atoms, e.g. polymers of butylene (e.g. PB, i.e. polybutylene) (as such [C08L 23/18](#))}
- 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 2877/00** {Use of PA, i.e.}polyamides, e.g. polyesteramides or derivatives thereof, as mould material [ (as such [C08L 77/00](#))]
- 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](#))}

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

- U B30B 1/00** Presses, using a press ram, characterised by the features of the drive therefor, pressure being transmitted directly, or through simple thrust or tension members only, to the press ram or platen
- B30B 1/18** · by screw means {([B30B 9/3064](#) takes precedence)}
- B30B 1/24** · by rack-and-pinion means {([B30B 9/3067](#) takes precedence)}
- B30B 1/30** · by the pull of chains or ropes {([B30B 9/3071](#) takes precedence)}
- U B30B 11/00** Presses specially adapted for forming shaped articles from material in particulate or plastic state, e.g. briquetting presses, tableting presses (for clay or mixtures containing cement [B28B](#) ; for plastics materials [B29](#))
- B30B 11/004** · {involving the use of very high pressures, (for the formation of artificial diamonds or boronitrides [B01J 3/065](#))}

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

- U 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](#))

- U B31B 1/02      · Feeding or positioning sheets, blanks, or webs
- U B31B 1/04      · · Feeding sheets or blanks
- B31B 1/06      · · · from stacks {(B31B 5/76 takes precedence)}
- B31B 1/12      · · by air pressure or suction {(B31B 1/06 takes precedence)}
- U B31B 1/14      · Cutting, e.g. perforating, punching, slitting, trimming {(means for removing cut-out material or waste B26D 7/18)}
- B31B 1/20      · · Cutting sheets or blanks {e.g. cutting corners, or involving scoring or printing or embossing (surface scoring per se B31B 1/25; printing or embossing per se B31B 1/88)}
- U B31B 3/00      Machinery characterised by making boxes or cartons by folding single-piece sheets, blanks, or webs (B31B 5/00 takes precedence)**
- B31B 3/14      · and having means for cutting, e.g. perforating, punching, slitting, trimming {(not used; see B31B 1/14)}
- U B31B 5/00      Machinery characterised by making boxes or cartons by folding single-piece sheets which can be set-up from a collapsed condition, including setting-up and recollapsing to break creases**
- B31B 5/02      · and having means for feeding or positioning sheets {(not used; see B31B 1/02)}
- B31B 5/14      · and having means for cutting, e.g. perforating, punching, slitting, trimming {(not used; see B31B 1/14)}

**Project: N/A (B31F)**

- U B31F 1/00      Mechanical deformation of paper or cardboard without removing material including combined deformation and laminating (embossing combined with application of ink, type marking presses, selective embossing machines B41F, B41J, B41K, B41M; machines or apparatus for embossing decorations or marks B44B 5/00; artists hand tools for embossing B44B 11/04; producing decorative effects by processes for stamping ornamental designs on surfaces B44C 1/24; mechanical deformation during paper or board making, kinds of paper or board D21)**
- B31F 1/12      · Crêping paper *or cardboard* {, f.i.e. providing paper *or cardboard* with small irregular crinkles; Making paper *or cardboard* elastic in all directions}
- U B31F 1/20      · Corrugating; Corrugating combined with laminating to other paper or cardboard layers ({corrugating sheet metal B21D 13/00; corrugating plastics material B29C 53/22; } corrugating veneer B27D)
- U B31F 1/24      · · Making webs in which the channel of each corrugation is transverse to the web feed
- B31F 1/26      · · · by interengaging toothed cylinders {cylinder constructions (B31F 1/242 takes precedence)}
- B31F 1/29      · · · by making use of rods, e.g. co-operating with a toothed cylinder {combined with uniting the corrugated web to flat webs (B31F 1/30 takes precedence)}
- B31F 1/36      · Moistening and heating webs to facilitate mechanical deformation and drying deformed webs {(during corrugating B31F 1/28)}
- U B31F 5/00      Attaching together paper or cardboard sheets, strips, or webs; {(or other preformed paper articles joining by rim-rolling B31F 1/0041, B31F 1/009; closing tube ends by inserting an element B31F 1/008, making boxes B31B)} Reinforcing edges of paper or cardboard (means for applying adhesive or glue B05C; stapling in box or like making B31B; attaching the replacement web to the expiring web during web-roll changing B65H 19/18; apparatus for splicing webs during handling B65H 21/00)**

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

- U B32B 1/00 Layered products having a general shape other than plane**
- NOTE  
For classification of a product in this group, surface unevennesses or non-uniformities and the shape of individual layers are ignored.
- B32B 1/04 · characterised by feature of form at particular places, e.g. in edge regions {(not used)}
- B32B 1/06 · characterised by fillings or added members in hollow portions {(not used)}
- B32B 3/00 Layered products comprising a layer with external or internal discontinuities or unevennesses, or a layer of non-planar form {(fibrous or filamentary layers [B32B 5/02](#) ; particulate layers [B32B 5/16](#) ; foamed layers [B32B 5/18](#)); Layered products having particular features of form (receptacles or tubular products [B32B 1/00](#))}**
- B32B 3/02 · characterised by features of form at particular places, e.g. in edge regions {(non-uniform thickness [B32B 3/263](#))}
- B32B 3/08 · · characterised by added members at particular parts {(layer formed of separate pieces of material which are juxtaposed side-by-side [B32B 3/14](#) , [B32B 3/18](#))}
- U B32B 3/10 · characterised by a discontinuous layer, i.e. formed of separate pieces of material**
- NOTE  
In this group, a series of spaced separate elements forming in effect a broken surface should be regarded as a layer.
- U B32B 3/18 · · characterised by an internal layer formed of separate pieces of material {which are juxtaposed side-by-side ([B32B 5/02](#) takes precedence)}**
- B32B 3/22 · · · of spaced pieces {(not used)}
- B32B 3/26 · characterised by a particular shape of the outline of the cross-section of a continuous layer; characterised by a layer with cavities or internal voids {([B32B 27/205](#) takes precedence; foam layer [B32B 15/08](#)); {characterised by an apertured layer}
- 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.
- U 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)}**
- U B32B 5/24 · · one layer being a fibrous or filamentary layer**
- B32B 5/28 · · · impregnated with or embedded in a plastic substance {(not used)}
- U B32B 7/00 Layered products characterised by the relation between layers, i.e. products comprising layers having different physical properties and products characterised by the interconnection of layers**

- U B32B 7/04  
B32B 7/08
- characterised by the connection of layers
  - • by mechanical connection, e.g. stitching {(B32B 5/06 takes precedence)}
- U **B32B 15/00**  
B32B 15/01  
B32B 15/18  
B32B 15/20
- Layered products comprising {a layer of}metal**
- all layers being exclusively metallic {(making layered metal workpieces by pressure cladding B23K 20/22 ; making coatings with a metallic material characterised by its composition C23C 30/00)}
  - comprising iron or steel {(B32B 15/011 , B32B 15/012 and B32B 15/013 take precedence)}
  - comprising aluminium or copper {(B32B 15/016 and B32B 15/017 take precedence)}
- U **B32B 17/00**  
U B32B 17/06  
B32B 17/10
- Layered products essentially comprising sheet glass, or glass, slag, or like fibres**
- 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)}
  - • 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
- U **B32B 23/00**  
B32B 23/02  
U B32B 23/04  
B32B 23/08
- Layered products comprising {a layer of}cellulosic plastic substances{, i.e. substances obtained by chemical modification of cellulose, e.g. cellulose ethers, cellulose esters, viscose}**
- in the form of fibres or filaments {(not used)}
  - comprising such {cellulosic plastic substance as the main or only constituent of a layer, which is next to another layer of the same or of a different material (B32B 17/08 takes precedence)}
  - • of synthetic resin {(all layers being polymeric B32B 2250/24)}
- B32B 25/00**  
U B32B 25/04  
B32B 25/08
- Layered products comprising {a layer of}natural or synthetic rubber {(B32B 5/02 , B32B 5/16 , B32B 5/18 take precedence; thermoplastic elastomer B32B 2274/00)}**
- comprising rubber as the main or only constituent of a layer,{which is next to another layer of the same or of a different material (B32B 17/063 takes precedence; next to a layer of a particular substance B32B 9/043 ; next to a bituminous or tarry layer B32B 11/044 ; next to a water setting substance layer B32B 13/042 ; next to a metal layer B32B 15/06 ; next to a layer formed of natural mineral fibres or particles B32B 19/043 ; next to a wood layer B32B 21/045 ; next to a cellulosic plastic layer B32B 23/046)}
  - • of synthetic resin {(all layers being polymeric B32B 2250/24)}

- 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](#)
- B32B 27/02 · in the form of fibres or filaments {(not used)}
- B32B 27/04 · as impregnant, bonding, or embedding substance {(not used)}
- 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 27/16 · specially treated, e.g. irradiated {(B32B 2255/10 takes precedence)}
- B32B 27/32 · comprising polyolefins {(B32B 27/30 takes precedence)}
- U **B32B 29/00** Layered products comprising {a layer of}paper or cardboard
- B32B 29/06 · specially treated, e.g. surfaced, parchmented {(B32B 2255/12 , [B32B 2260/028](#) take precedence)}
- B32B 37/00** Methods or apparatus for laminating, e.g. by curing or by ultrasonic bonding {(making non-planar products [B32B 1/00](#) ; making products characterised by particular features of structure or of composition, see the relevant groups for such products, e.g. making layered products containing glass and synthetic resin layers [B32B 17/10807](#) ; coating of single webs or the like [B05](#))}

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

- U **B41C 1/00** **Forme preparation**
- 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 1/18 · Curved printing formes or printing cylinders {(B41C 1/10 , [B41C 1/14](#) take precedence)}

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

- U **B41F 1/00** **Platen presses, i.e. presses in which printing is effected by at least one essentially-flat pressure-applying member co-operating with a flat type-bed**
- B41F 1/16 · for offset printing {(pad printing [B41F 17/001](#))}
- U B41F 1/26 · Details
- U B41F 1/28 · · Sheet-conveying, -aligning or -clamping devices (in general [B65H](#))
- B41F 1/36 · · · Clamps for conveying sheets and for holding same on the platens {(clamps in manifolding devices [B41L 3/02](#))}
- B41F 1/40 · · Inking units {(for pad printing [B41F 17/001](#))}
- B41F 5/00** **Rotary letterpress machines {(office printing machines [B41L 15/00](#))}**

- B41F 7/00** Rotary lithographic machines {(such office printing machines [B41L 7/00](#))}
- U B41F 13/00** Common details of rotary presses or machines
- U B41F 13/008 · Mechanical features of drives, e.g. gears, clutches
- B41F 13/012 · · Taking-up backlash {(devices for taking-up backlash in general [F16H 55/00](#) , e.g. [F16H 55/18](#))}
- U B41F 13/08 · Cylinders
- U B41F 13/10 · · Forme cylinders
- B41F 13/11 · · · Gravure cylinders {(attaching cylindrical formes [B41F 27/105](#))}
- B41F 13/193 · · Transfer cylinders; Offset cylinders {(attaching blankets [B41F 30/04](#))}
- 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](#))
- B41F 23/04 · by heat drying, by cooling, by applying powders {([B41F 23/005](#) takes precedence)}
- B41F 23/08 · Print finishing devices, e.g. for glossing prints {([B41F 23/005](#) takes precedence)}
- U B41F 31/00** Inking arrangements or devices (inking units for platen presses [B41F 1/40](#) ; for cylinder presses [B41F 3/81](#) ; { for rotary intaglio printing presses [B41F 9/061](#) } ; applying liquids or other fluent materials to surfaces in general [B05](#) ; inking arrangements or devices for typewriters or selective printing mechanisms [B41J](#))
- U B41F 31/02 · Ducts, containers, supply or metering devices (level control in general [G05D 9/00](#))
- B41F 31/13 · · Means for driving fountain rollers {([B41F 13/12](#) takes precedence)}
- B41F 35/00** Cleaning arrangements or devices {(in manifolding apparatus or the like [B41L 41/00](#))}

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

- B41M** PRINTING, DUPLICATING, MARKING, OR COPYING PROCESSES; COLOUR PRINTING, (correction of typographical errors [B41J](#); processes for applying transfer pictures or the like [B44C 1/16](#) ; fluid media for correction of typographical errors by coating [C09D 10/00](#) ; printing textiles [D06P](#))
- U B41M 1/00** Inking and printing with a printer`s forme
- U B41M 1/26 · Printing on other surfaces than ordinary paper ([B41M 1/40](#) takes precedence)
- B41M 1/30 · · on organic plastics, horn or similar materials {(recording sheets having a coating to improve ink, dye or pigment receptivity [B41M 5/50](#) ; marking or recording on plastic by irradiation with electromagnetic beams, e.g. laser, [B41M 5/267](#))}
- B41M 1/34 · · on glass or ceramic surfaces {(ink-jet printing on glass or ceramic surfaces [B41M 5/00](#))}
- B41M 1/36 · · on pre-treated paper, e.g. parchment, oiled paper, paper for registration purposes {([B41M 5/50](#) takes precedence)}
- B41M 1/40 · Printing on bodies of particular shapes, e.g. golf balls, candles, wine corks {(sublimation or volatilisation of pre-printed design [B41M 5/035](#))}
- B41M 1/42 · Printing without contact between forme and surface to be printed, e.g. by using electrostatic fields {(using a stencil or screen [B41M 1/125](#))}

- U B41M 3/00** **Printing processes to produce particular kinds of printed work, e.g. patterns (special designs or pictures per se [B44F](#); { printing apparatus or machines of special type or for particular purposes [B41F 17/00](#) ; manufacturing organic semiconductor devices using printing techniques [H01L 51/0004](#) } ; manufacturing printed circuits using printing techniques [H05K 3/12](#))**
- B41M 3/12 • Transfer pictures or the like, e.g. decalcomanias {(processes for producing decorative surface effects [B44C 1/00](#) ; [B41M 5/0256](#) takes precedence)}
- 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](#)})**
- B41M 5/24 • Ablative recording, e.g. by burning marks; Spark recording {(marking by high energetic means, e.g. by laser otherwise than burning or ablative removal [B41M 5/26](#) ; materials or methods for recording or reproduction by optical means [G11B 7/00](#))}
- 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](#))}
- B41M 5/28 • • using thermochromic compounds or layers containing liquid crystals, microcapsules, bleachable dyes or heat- decomposable compounds, e.g. gas- liberating {([B41M 5/38271](#) takes precedence)}
- U B41M 5/30** • • using chemical colour formers ([B41M 5/34](#) takes precedence)
- B41M 5/337 • • • Additives; Binders {([B41M 5/46](#) takes precedence)}
- 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 5/385 • • • characterised by the transferable dyes or pigments {(infra-red absorbing dyes [B41M 5/465](#))}
- B41M 5/40 • • characterised by the base {backcoat}, intermediate, or covering layers, {e.g. for thermal transfer dye-donor or dye-receiver sheets}; Heat, radiation filtering or absorbing means or layers; combined with other image registration layers or compositions; Special originals for reproduction by thermography {(macromolecular ink- or dye-receptive coatings [B41M 5/52](#))}
- B41M 5/42 • • • Intermediate,{backcoat}, or covering layers {([B41M 5/405](#) takes precedence; multilayer thermal transfer systems in general [B41M 5/38214](#))}
- NOTE**
- When the invention information lies in the combination of features covered by more than one of the subgroups of [B41M 5/42](#) , classification is made in [B41M 5/42](#) , using the corresponding indexing codes of its subgroups to identify the individual features
- B41M 5/50 • Recording sheets characterised by the coating used to improve ink, dye or pigment receptivity, e.g. for ink-jet or thermal dye transfer recording {(printing on organic plastics using a printer's form [B41M 1/30](#) ; printing on pre-treated paper with a printer's form [B41M 1/36](#))}

**Project: N/A (B41N)**

- U B41N 1/00** **Printing plates or foils; Materials therefor**
- B41N 1/12 • non-metallic other than stone, {e.g. printing plates or foils comprising inorganic materials in an organic matrix} ([B41N 1/003](#), [B41N 1/006](#) take precedence)}
- U B41N 3/00** **Preparing for use and conserving printing surfaces**

- B41N 3/08
- Damping; Neutralising or similar differentiation treatments for lithographic printing formes; { Gumming or finishing solutions, fountain solutions, correction or deletion fluids, or on-press development (treatment of materials containing silver salts [G03F 7/063](#); developers per se for processing photosensitive materials [G03F 7/32](#))}

**Project: N/A (B43K)**

- U B43K 5/00 **Pens with ink reservoirs in holders, e.g. fountain-pens (nibs or writing-points with ink reservoirs [B43K 1/01](#); ball-point pens [B43K 7/00](#); pens with writing-points other than nibs or balls [B43K 8/00](#); multiple-point writing implements [B43K 27/00](#))**
- U B43K 5/02
- Ink reservoirs
- B43K 5/06
- with movable pistons (for withdrawing ink from an ink-receptacle ([B43K 5/1818](#) takes precedence))

**Project: N/A (B60C)**

- U B60C 3/00 **Tyres characterised by the transverse section (characterised by rail-engaging elements [B60B 17/00](#))**
- B60C 3/06
- Asymmetric {(asymmetric bead seats [B60C 15/0236](#) ; asymmetric bead reinforcement [B60C 2015/0696](#))}
- B60C 23/00 **Devices for measuring, signalling, controlling, or distributing tyre pressure or temperature, specially adapted for mounting on vehicles (measuring in general [G01](#) , e.g. [G01L 17/00](#) ; remote signalling in general [G08](#)); Arrangement of tyre inflating devices on vehicles, e.g. of pumps, of tanks {(supplying air for tyre inflation [B60S 5/04](#))}; Tyre cooling arrangements**
- B60C 23/02
- Signalling devices actuated by tyre pressure {(hand-held tyre pressure gauges [G01L 17/00](#))}
- B60C 23/10
- Arrangements of tyre-inflating pumps mounted on vehicles {([B60C 23/001](#) takes precedence)}
- B60C 23/16
- Arrangements of air tanks mounted on vehicles {([B60C 23/001](#) takes precedence)}
- B60C 27/00 **Non-skid devices temporarily attachable to resilient tyres or resiliently-tyred wheels {(vehicle mounted non-skid chains [B60B 39/00](#))}**
- U B60C 29/00 **Arrangements of tyre-inflating valves to tyres or rims; Accessories for tyre-inflating valves, not otherwise provided for (tools for mounting or demounting valves [B60C 25/18](#) ; valves per se, valve dust caps [F16K](#))**
- B60C 29/06
- Accessories for tyre-inflating valves, e.g. housings, guards, covers for valve caps, locks, not otherwise provided for {([B60C 23/0496](#) takes precedence; tools for screwing and unscrewing valve caps [B25B 27/0057](#) ; pump connectors [F04B 33/005](#))}

**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
- B60D 1/36
- for facilitating connection, e.g. hitch catchers {, visual guide means, signalling aids ([B60D 1/465](#) takes precedence; vehicle signalling in general [B60Q](#); optical arrangements specially adapted for viewing trailer-hitches [B60R 1/003](#))}

**Project: N/A (B60G)**

- U B60G 3/00** Resilient suspension for a single wheel (pivoted suspension arms per se, attachment thereof to sprung part of the vehicle, buffer means for limiting movement of arms [B60G 7/00](#); {rigid axle suspensions [B60G 9/00](#);} characterised by arrangement, location or type of springs [B60G 11/00](#))
- U B60G 3/18 · with two or more pivoted arms, e.g. parallelogram
- U B60G 3/20 · · all arms being rigid
- B60G 3/26 · · · Means for maintaining substantially-constant wheel camber during suspension movement; {Means for controlling the variation of the wheel position during suspension movement ([B60G 3/202](#), [B60G 3/22](#), [B60G 7/003](#), [B60G 7/006](#) take precedence; means for adjusting camber, castor, or toe-in [B62D 17/00](#))}
- U B60G 9/00** Resilient suspensions of a rigid axle or axle housing for two or more wheels {(the axle being a part of a set of tandem axles [B60G 5/00-B60G 5/065](#); with leaf springs [B60G 11/02-B60G 11/08](#))}
- B60G 9/02 · the axle or housing being pivotally mounted on the vehicle, {e.g. the pivotal axis being parallel to the longitudinal axis of the vehicle ([B60G 9/003](#) takes precedence)}

**Project: N/A (B60H)**

- U B60H 1/00** Heating, cooling or ventilating devices (heating, cooling or ventilating devices providing other air treatment, the other treatment being relevant, [B60H 3/00](#); ventilating solely by opening windows, doors, roof parts, or the like [B60J](#); heating or ventilating devices for vehicle seats [B60N 2/56](#); vehicle window or windscreen cleaners using air, e.g. defrosters, [B60S 1/54](#))
- NOTE
- In this group and its subgroups, as well as in patent documents, the following abbreviation is used:
- HVAC Heating, Ventilating and Air Conditioning
- U B60H 1/02 · the heat being derived from the propulsion plant {([B60H 1/00492](#) takes precedence)}
- B60H 1/14 · · otherwise than from cooling liquid of the plant {e.g. heat from the grease oil, the brakes, the transmission unit ([B60H 1/03](#) takes precedence)}
- U B60H 3/00** Other air-treating devices
- B60H 3/02 · Moistening; { Devices influencing humidity levels, i.e. humidity control ([B60H 1/3202](#), [B60H 1/3207](#) take precedence)}

**Project: N/A (B60J)**

- U B60J 1/00** Windows; Windscreens; Accessories therefor ([B60J 10/00](#) takes precedence; air curtains instead of windows [B60J 9/04](#); { sealing strips for windshields [B60J 10/02](#); sealing sash guides for sliding window panes [B60J 10/04](#); glass partitions inside vehicles to protect occupants against personal attack [B60R 21/12](#))}
- B60J 1/02 · arranged at the vehicle front {e.g. structure of the glazing, mounting of the glazing (on windscreen mounted antenna wire [H01Q 1/1271](#))}
- 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 7/04
  - with rigid plate-like element or elements {e.g. open roofs with harmonica-type folding rigid panels ([B60J 7/061](#) takes precedence)}

**U B60J 10/00 Sealing arrangements ({sealing arrangements for other vehicle parts [B60R 13/06](#)}; sealings in general [F16J 15/00](#))**

- U B60J 10/02
  - for windows or windscreens {([B60J 10/0002](#) to [B60J 10/0091](#) take precedence)}
- U B60J 10/04
  - for sliding window panes, e.g. sash guides
- B60J 10/06
  - for flush-glass windows { i.e. flush with body or window frame ([B60J 10/041](#) takes precedence)}
- B60J 10/08
  - for doors, {lids or bonnets ([B60J 10/0002](#) to [B60J 10/0091](#) take precedence)}
- B60J 10/10
  - for non-fixed roofs, {e.g. foldable roofs, removable hard-tops and tarpaulins ([B60J 10/0002](#) to [B60J 10/0091](#) take precedence)}

**Project: N/A (B60N)**

**U B60N 2/00 Seats specially adapted for vehicles (for facilitating access of invalids to, or exit of invalids from, vehicles [A61G 3/02](#) ; railway seats [B61D 33/00](#) ; cycle seats [B62J 1/00](#) ; aircraft seats [B64D 11/06](#) , [B64D 25/04](#) , [B64D 25/10](#))**

- U B60N 2/02
  - the seat or part thereof being movable, e.g. adjustable {([B60N 2/427](#) takes precedence) ; adjustable arm-rests [B60N 2/46](#) ; adjustable head-rests [B60N 2/48](#)}
- U B60N 2/04
  - the whole seat being movable
- B60N 2/10
  - tiltable {([B60N 2/2875](#) takes precedence)}
- B60N 2/14
  - rotatable, e.g. to permit easy access {([B60N 2/2869](#) takes precedence)}
- B60N 2/22
  - the back-rest being adjustable {([B60N 2/2878](#) takes precedence)}
- B60N 2/225
  - by cycloidal or planetary mechanisms {(transmissions with orbital motion in general [F16H 1/28](#) , [F16H 1/32](#))}
- B60N 2/44
  - Details or parts not otherwise provided for {(seats in general [A47C 7/00](#) ; storage compartments mounted on or under a seat [B60R 7/043](#))}
- U B60N 2/50
  - Seat suspension devices
- B60N 2/54
  - using mechanical springs {(springs in general [F16F](#))}
- B60N 2/56
  - Heating or ventilating devices {(heating, cooling, ventilating or other air-treating in vehicles in general [B60H 1/00](#) ; control of temperature in general [G05D 23/00](#) ; ventilation, heating or cooling of chairs in general [A47C 7/74](#))}
- B60N 2/62
  - High-rests {([B60N 2/4415](#) takes precedence)}

**U B60N 3/00 Arrangements or adaptations of other passenger fittings, not otherwise provided for (of radio sets, television sets, telephones, {stowing or holding appliances} , safety belts or the like [B60R](#))**

- B60N 3/14
  - of electrically-heated lighters {(arrangements of lighting devices for vehicle interiors for lighting passenger or driving compartment [B60Q 3/02](#) , igniters using electrically-produced heat [F23Q 7/00](#))}

**Project: N/A (B60Q)**

**U B60Q 1/00 Arrangements or adaptations of optical signalling or lighting devices (for lighting vehicle interior [B60Q 3/00](#) ; { circuit arrangements for electric light sources in general [H05B 37/00](#)})**

- B60Q 1/0005
  - {Devices preventing the lights from becoming dirty or damaged (protecting lighting devices from damage in general [F21V 15/00](#)), e.g. protection grids (fastening of grids or protective cages in general [F21V 17/00](#)), cleaning by air flow (windshield wipers for cleaning optical devices of vehicles [B60S 1/04](#))}

- U B60Q 1/02 · the devices being primarily intended to illuminate the way ahead or to illuminate other areas of way or environments
- U B60Q 1/04 · · the devices being headlights
- U B60Q 1/06 · · · adjustable, e.g. remotely controlled from inside vehicle ([B60Q 1/05](#) takes precedence; { changing the characteristics or distribution of the light by adjustment of parts, e.g. reflectors, light sources, lenses, screens [F21V 14/00](#)})
- U B60Q 1/08 · · · · automatically
- U B60Q 1/10 · · · · · due to vehicle inclination, e.g. due to load distribution
- B60Q 1/115 · · · · · by electric means {(details of the electric drive components, e.g. motors, shafts, ball joints [B60Q 1/076](#))}
- B60Q 1/14 · · · having dimming means {(lighting power supply circuits in general [H05B](#))}
- B60Q 1/18 · · · being additional front lights {(bracket mounted headlights [B60Q 1/0483](#))}
- B60Q 1/20 · · · · Fog lights {(single shaped beam lighting devices specially adapted for vehicles for penetrating fog or preventing glare [F21S 8/12](#))}
- B60Q 1/26 · the devices being primarily intended to indicate the vehicle, or parts thereof, or to give signals, to other traffic {(such devices mounted on the vehicle rear part [F21S 48/20](#) ; means for the lighting or illuminating of aerials, e.g. for purpose of warning [H01Q 1/06](#))}
- B60Q 1/46 · · for giving flashing caution signals during drive, other than signalling change of direction, e.g. flashing the headlights,{hazard lights (flashing lights in general [F21S 10/06](#))}
- B60Q 1/48 · · for parking purposes {(warning arrangements in garages [E04H 6/42](#))}
- U B60Q 1/50 · · for indicating other intentions or conditions, e.g. request for waiting or overtaking
- B60Q 1/52 · · · for indicating emergencies {(braking indicating devices [B60Q 1/44](#) , portable emergency signal devices [B60Q 7/00](#))}
- B60Q 1/54 · · · for indicating speed {outside of the vehicle (automatic vehicle speed controlling fittings including unintended speed signalling devices to the vehicle driver [B60K 31/18](#))}
- B60Q 1/56 · · for illuminating registrations or the like,{e.g. for licence plates (license plates [B60R 13/10](#))}

**U B60Q 3/00 Arrangements or adaptations of lighting devices for vehicle interior**

- U B60Q 3/02 · for lighting passenger or driving compartment
- B60Q 3/04 · · for dashboard {(lighting of individual instruments [G01D](#), association of lighting devices with LCDs [G02F 1/1335](#))}

**B60Q 5/00 Arrangements or adaptations of acoustic signal devices {(sound producing devices in general [G10K](#))}**

**B60Q 7/00 Arrangement or adaptation of portable emergency signal devices on {board}vehicles {to be placed on roadways or vehicles, e.g. warning triangles}, (arrangements for enforcing caution on roads, e.g. marker posts, [E01F 9/00](#) ; signs [G09F](#) , e.g. reflecting warning triangles [G09F 13/16](#))**

**Project: N/A (B60R)**

- U B60R 1/00 **Optical viewing arrangements ({house mirrors and spies [A47G 1/00](#) ; } antiglare equipment, e.g. polarising, for windscreens or windows [B60J 3/00](#) ; { visual aids for tractors [B62D 49/0614](#) ; } devices per se [G02B](#))**
- U B60R 1/02 · Rear-view mirror arrangements (periscope arrangements [B60R 1/10](#))
- B60R 1/04 · · mounted inside vehicle {([B60R 1/025](#) , [B60R 1/08](#) take precedence)}

- B60R 1/06
  - • mounted on vehicle exterior [\(B60R 1/025 , B60R 1/08 take precedence\)](#)
- B60R 1/062
  - • • with remote control for adjusting position [\(B60R 1/0607 takes precedence\)](#)
- B60R 1/08
  - • involving special optical features, e.g. avoiding blind spots{,e.g. convex mirrors; Side-by-side associations of rear-view and other mirrors [\(B60R 1/025 , B60R 1/10 take precedence\)](#)}
- U B60R 1/10
  - Front-view mirror arrangements; [{\(specially adapted for covering the peripheral part of the vehicle B60R 1/002\)}](#); periscope arrangements{,i.e. optical devices using combinations of mirrors, lenses, prisms or the like (specially adapted for covering the peripheral part of the vehicle [B60R 1/002](#) ; for viewing traffic-lights [B60R 1/005](#)); Other mirror arrangements giving a view from above or under the vehicle}
- U B60R 3/00
 

**Arrangements of steps {or ladders facilitating access to or on the vehicle}, e.g. running-boards [{\(construction of steps for railway vehicles B61D 23/00\)}](#) ; ladders [E06C](#)**

  - B60R 3/02
    - Retractable steps {or ladders, e.g. movable under shock [\(B60R 3/005 takes precedence\)](#)}
- U B60R 5/00
 

**Compartments within vehicle body primarily intended or sufficiently spacious for trunks, suit-cases, or the like (primarily intended for stowing loads in load-transporting vehicles [B60P](#) ; arrangements for stowing spare wheels [B62D 43/00](#))**

  - B60R 5/02
    - arranged at front of vehicle [{\(B60R 5/003 takes precedence\)}](#)
  - B60R 5/04
    - arranged at rear of vehicle [{\(B60R 5/003 , B60R 5/006 take precedence; external trunks arranged at rear of vehicle \[B60R 9/065\]\(#\)\)}](#)
- U B60R 7/00
 

**Stowing or holding appliances inside vehicle primarily intended for personal property smaller than suit-cases, e.g. travelling articles, or maps (for radio sets, television sets, telephones or the like, mounting of cameras operative during drive, tools, or spare parts [B60R 11/00](#) ; for receptacles for refuse, food, beverages, cigarettes [B60N](#))**

  - B60R 7/02
    - in separate luggage compartment [{\(B60R 7/005 takes precedence\)}](#)
  - B60R 7/04
    - in driver or passenger space,{e.g. using racks [\(B60R 7/005 , B60R 7/08 take precedence\)](#)}
  - B60R 7/08
    - Disposition of racks, clips,{holders, containers}or the like {for supporting specific articles [\(B60R 7/005 takes precedence\)](#)}
- U B60R 9/00
 

**Supplementary fittings on vehicle exterior for carrying loads, e.g. luggage, sports gear or the like**

  - U B60R 9/04
    - Carriers associated with vehicle roof [\(B60R 9/08 takes precedence\)](#)
  - B60R 9/045
    - • Carriers being adjustable or transformable, e.g. expansible, collapsible [{\(transformable into tents \[B60P 3/36\]\(#\) ; into beds \[B60P 3/38\]\(#\)\)}](#)
  - B60R 9/06
    - at vehicle front or rear [{\(rear luggage compartments within vehicle extensible externally of the vehicle body \[B60R 5/041\]\(#\)\)}](#)
- U B60R 13/00
 

**Elements for body-finishing, identifying, or decorating; Arrangements or adaptations for advertising purposes**

  - B60R 13/04
    - {External}Ornamental or guard strips; Ornamental inscriptive devices {thereon (fastening strips or bars to sheets or plates by means of clips [F16B 5/12](#))}
  - B60R 13/08
    - Insulating elements, e.g. for sound insulation [{\(sound insulating linings for trains \[B61D 17/185\]\(#\) ; drivers` cabs for load-carrying vehicles insulated against vibrations or noise \[B62D 33/0604\]\(#\) ; thermal or acoustic insulation of engines \[F02B 77/11\]\(#\) ; damping of sounds using compensation by electro-acoustic methods \[G10K 11/178\]\(#\)\)}](#)

- U B60R 15/00 Arrangements or adaptations of sanitation devices**
- B60R 15/02 · Washing facilities {(in railway vehicles [B61D 35/002](#))}
- B60R 15/04 · Toilet facilities {(in railway vehicles [B61D 35/005](#))}
- B60R 16/00 Electric or fluid circuits specially adapted for vehicles and not otherwise provided for; Arrangement of elements of electric or fluid circuits specially adapted for vehicles and not otherwise provided for {(devices for protecting vehicle occupants in case of accidents [B60R 21/00](#) ; safety belts [B60R 22/00](#) ; central door locking [E05B 49/00](#) , [E05B65/38](#))}**
- U B60R 16/02 · electric {constitutive elements}
- U B60R 16/023 · · for transmission of signals between vehicle parts or subsystems
- B60R 16/027 · · · between relatively movable parts of the vehicle, e.g. between steering wheel and column {(devices for measuring, signalling or controlling tyre pressure or temperature specially adapted for mounting on vehicles [B60C 23/00](#))}
- B60R 16/03 · · for supply of electrical power to vehicle subsystems {or for {circuit arrangements for charging batteries [H02J 7/00](#))}
- U B60R 19/00 Wheel guards; Radiator guards,{e.g. grilles}; Obstruction removers; Fittings damping bouncing force in collisions ({reinforcement elements for side doors [B60J 5/0412](#) ; }mudguards [B62D](#))**
- U B60R 19/02 · Bumpers, i.e. impact receiving or absorbing members for protecting vehicles or fending off blows from other vehicles or objects ({[B60R 19/56](#) takes precedence; } initiating brake action by contact of bumper with an external object [B60T 7/22](#) ; for rail vehicles [B61F 19/04](#) ; safety equipment for cycles [B62J 27/00](#) ;] integral with waterborne vessels or specially adapted therefor [B63B 59/02](#))
- U B60R 19/24 · · Arrangements for mounting bumpers on vehicles
- U B60R 19/26 · · · comprising yieldable mounting means ({[B60R 19/38](#) takes precedence;} springs, shock absorbers, or means for damping vibrations per se [F16F](#))
- B60R 19/30 · · · · Elastomeric material {([B60R 19/34](#) takes precedence)}
- B60R 19/36 · · · · Combinations of yieldable mounting means of different types {(fluid shock absorbers with coaxial coil springs [B60R 19/32](#))}
- B60R 19/38 · · · adjustably or movably mounted, e.g. horizontally displaceable for securing a space between parked vehicles {(adjustably mounted for compensating manufacturing tolerances [B60R 19/24](#) , [B60R 19/26](#))}
- B60R 19/40 · · · · in the direction of an obstacle before a collision,{or extending during driving of the vehicle, i.e. to increase the energy absorption capacity of the bumper{(inflatable bumpers [B60R 19/20](#))}
- B60R 19/52 · Radiator or grille guards{; Radiator grilles {cooling aspects [B60K 11/08](#))}
- 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](#))**
- B60R 21/02 · Occupant safety arrangements or fittings,{e.g. crash pads {seat belts with crash pads [B60R 22/14](#) ; removable children's seats having a front guard or barrier [B60N 2/2839](#))}

- B60R 21/055
  - Padded {or energy-absorbing} fittings, {e.g. seat belt anchors (sun visors [B60J 3/00](#) ; head rests [B60N 2/48](#))}
- B60R 21/09
  - Control elements or operating handles movable from an operative to an out-of-the way position, e.g. {pedals,} switch knobs, window cranks {(specially adapted for brake pedals, e.g. by venting of master cylinder or destruction of force transmitting rod, [B60T 7/065](#))}
- B60R 21/11
  - Overhead guards, e.g. against loads falling down {(specially adapted for fork-lift trucks [B66F 9/07545](#))}
- U B60R 21/16
  - Inflatable occupant restraints or confinements designed to inflate upon impact or impending impact, e.g. air bags {(protective garments with automatically inflatable shock-absorbing means [A41D 13/018](#) ; } connection of valves to inflatable elastic bodies [B60C 29/00](#)}
- U B60R 21/20
  - Arrangements for storing inflatable members in their non-use or deflated condition; Arrangement or mounting of air bag modules or components
- B60R 21/215
  - characterised by the covers for the inflatable member {(B60R 21/2176 takes precedence)}
- B60R 21/26
  - characterised by the inflation fluid source or means to control inflation fluid flow {(arrangement or mounting thereof to the vehicle [B60R 21/20](#) ; blasting cartridges for producing gas under pressure in general [F42B 3/04](#) ; Initiators or igniters therefor [F42B 3/10](#))}

WARNING  
Groups [B60R 21/261](#) - [B60R 21/264](#) are not complete, pending a reorganisation; see provisionally also this group
- B60R 21/268
  - using instantaneous release of stored pressurized gas {(B60R 21/26005 takes precedence)}
- B60R 21/276
  - with means to vent the inflation fluid source, e.g. in case of overpressure {(B60R 21/30 takes precedence; venting means on inflatable member walls [B60R 21/239](#))}
- B60R 21/34
  - Protecting non-occupants of a vehicle, e.g. pedestrians {(B60R 19/02 takes precedence)}
- U **B60R 22/00**

**Safety belts or body harnesses in vehicles (safety belts or body harnesses in general [A62B 35/00](#))**
- B60R 22/02
  - Semi-passive restraint systems, e.g. systems applied or removed automatically but not both; {Manual restraint systems (knee, leg or head belts [B60R 22/001](#) ; devices for releasing in an emergency, remote or automatic unbuckling devices [B60R 22/32](#))}
- U B60R 22/12
  - Construction of belts or harnesses ([B60R 21/18](#) takes precedence; { woven fabrics for safety belts [D03D 1/0005](#))}
- B60R 22/14
  - incorporating enlarged restraint areas, e.g. vests, nets, crash pads, optionally for children (crash pads for occupants' safety on vehicles in general [B60R 21/02](#))}
- U B60R 22/18
  - Anchoring devices
- B60R 22/185
  - with stopping means for acting directly upon the belt in an emergency, e.g. by clamping or friction {(B60R 22/195 takes precedence; combined with the retractor [B60R 22/42](#))}
- B60R 22/19
  - with means for reducing belt tension during use under normal conditions {(included in the retractor [B60R 22/44](#))}
- B60R 22/28
  - incorporating energy-absorbing devices {(belt anchors provided with energy-absorbing means for protecting the occupants in case of physical contact therewith [B60R 21/055](#) ; belt retractors comprising energy-absorbing means [B60R 22/341](#) , [B60R 22/4676](#))}

- B60R 22/30
  - Coupling devices other than buckles, including length-adjusting fittings {or anti-slip devices} (adaptations of manual three-point seat belt systems for use by small passengers using other means than belt anti-slip devices [B60R 22/024](#) ; buckles [A44B 11/00](#) ; releasable fastenings in general [F16B](#))}
- B60R 22/32
  - Devices for releasing in an emergency, e.g. after an accident; {Remote or automatic unbuckling devices} (unlocking devices for retractors [B60R 22/3416](#))}
- U B60R 22/34
  - Belt retractors, e.g. reels (anchoring devices {e.g. guide loops} , with means to tension the belt in an emergency [B60R 22/195](#))
- B60R 22/343
  - • with electrically actuated locking means {(B60R 22/3405 takes precedence)}
- U B60R 22/36
  - • self-locking in an emergency {(B60R 22/3405} , [B60R 22/343](#) take precedence)
- B60R 22/42
  - • • having means for acting directly upon the belt, e.g. by clamping or friction {(not combined with the retractor [B60R 22/185](#))}
- B60R 22/44
  - • with means for reducing belt tension during use under normal conditions {(not included in the retractor [B60R 22/19](#) ; [B60R 22/3405](#) takes precedence)}

**Project: N/A (B60T)**

- U **B60T 7/00** **Brake-action initiating means**
  - B60T 7/12
    - for automatic initiation; for initiation not subject to will of driver or passenger {(limiting speed of vehicles other than rail vehicles [B60K 31/00](#))}
- 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 8/17
    - Using electrical or electronic regulation means to control braking {(detecting or indicating faulty operation [B60T 8/885](#))}
  - B60T 8/172
    - • Determining control parameters used in the regulation, e.g. by calculations involving measured or detected parameters {(B60T 8/17551 takes precedence)}
  - B60T 8/1725
    - • • {Using tyre sensors, e.g. Sidewall Torsion sensors (SWT)} (for tyre pressure and temperature detection [B60C 23/00](#))}
  - B60T 8/24
    - responsive to vehicle inclination or change of direction, e.g. negotiating bends {(using electrical circuitry or regulation means [B60T 8/17](#))}
  - B60T 8/26
    - characterised by producing differential braking between front and rear wheels {(using electrical circuitry or regulation means [B60T 8/17](#))}
  - B60T 8/28
    - • responsive to deceleration {(B60T 8/261 , [B60T 8/262](#) , [B60T 8/266](#) take precedence)}
  - B60T 8/30
    - • responsive to load {(B60T 8/261 , [B60T 8/262](#) , [B60T 8/266](#) take precedence)}
- 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
  - U B60T 11/28
    - • Valves specially adapted therefor (recuperation valves [B60T 11/232](#))
  - B60T 11/34
    - • • Pressure reducing or limiting valves {(for arrangements for adjusting wheel-braking force responsive to vehicle weight or load [B60T 8/1831](#))}

- U B60T 13/00** 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 (arrangements for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions [B60T 8/00](#) ; valves incorporated in such systems [B60T 15/00](#))
- B60T 13/02 · with mechanical assistance or drive {(combined with fluid pressure [B60T 13/588](#))}
- U B60T 13/10 · with fluid assistance, drive, or release
- U B60T 13/12 · · the fluid being liquid
- U B60T 13/16 · · · using pumps directly, i.e. without interposition of accumulators or reservoirs
- B60T 13/18 · · · · with control of pump output delivery {e.g. by distributor valves ([B60T 13/167](#) takes precedence)}
- U B60T 13/24 · · the fluid being gaseous
- U B60T 13/26 · · · Compressed-air systems
- B60T 13/38 · · · · Brakes applied by springs or weights and released by compressed air {([B60T 13/261](#) takes precedence)}
- U B60T 13/66 · · Electrical control in fluid-pressure brake systems
- B60T 13/68 · · · by electrically-controlled valves {([B60T 13/662](#) and [B60T 13/665](#) take precedence)}
- U B60T 15/00** Construction arrangement, or operation of valves incorporated in power brake systems and not covered by groups [B60T 11/00](#) or [B60T 13/00](#)(valve structures responsive to a speed condition [B60T 8/34](#) ; valves in general [F16K](#))
- U B60T 15/02 · Application and release valves
- B60T 15/36 · · Other control devices or valves characterised by definite functions {(electrically controlled valves in fluid-pressure brake systems [B60T 15/027](#) , [B60T 15/028](#))}
- U B60T 17/00** Component parts, details, or accessories of power brake systems not covered by groups [B60T 8/00](#) , [B60T 13/00](#) or [B60T 15/00](#) , or presenting other characteristic features (air compressors per se [F04](#))
- B60T 17/04 · Arrangements of piping, valves in the piping, e.g. cut-off valves, couplings or air hoses (traction couplings involving joints for supply lines, electric circuits, or the like [B60D 1/62](#) ; couplings peculiar to railway vehicles for, or combined with, couplings or connectors for fluid conduits or electric cables [B61G 5/06](#) ; pipes, cut-off valves, couplings, air hoses per se [F16C](#) , [F16K](#) , [F16L](#))

**Project: N/A (B60W)**

- B60W 30/00** Purposes of road vehicle drive control systems not related to the control of a particular sub-unit, e.g. of systems using conjoint control of vehicle sub-units, { or advanced driver assistance systems for ensuring comfort, stability and safety or drive control systems for propelling or retarding the vehicle (anti-lock brake systems (ABS) [B60T 8/00](#))}

**Project: N/A (B62B)**

- B62B 3/00** Hand carts having more than one axis carrying transport wheels; Steering devices therefor; Equipment therefor {(convertible from one-axled to two-axled vehicle [B62B 1/002](#))}
- B62B 3/14 · characterised by provisions for nesting or stacking, e.g. shopping trolleys {(collapsible shopping trolleys [B62B 3/027](#))}

- B62B 3/18
- nestable by means of pivoted supports or support parts, e.g. baskets {{(B62B 3/1476 takes precedence)}}
- U B62B 9/00** **Accessories or details specially adapted for children`s carriages or perambulators (providing for travelling on snow B62B 19/00)**
- B62B 9/005
- {Safety means for traffic, e.g. lights, reflectors, mirrors etc. (Signaling means for cycles B62J)}
- WARNING
- Not complete, see also [B62B 9/00](#)
- U B62B 9/10
- Perambulator bodies; Equipment therefor (collapsible or foldable [B62B 7/06](#) ; convertible [B62B 7/12](#))
- B62B 9/12
- involving parts that are adjustable, attachable or detachable {{(B62B 9/102 , [B62B 9/14](#) take precedence)}}
- B62B 17/00** **Accessories or details of sledges {{(propulsion devices for sledges B62M 27/00 , B62M 29/00)}}**

**Project: N/A (B62D)**

- U B62D 1/00** **Steering controls, i.e. means for initiating a change of direction of the vehicle**
- U B62D 1/02
- vehicle-mounted
- U B62D 1/16
- Steering columns
- U B62D 1/18
- yieldable or adjustable, e.g. tiltable (padded linings associated with the steering column [B60R 21/05](#))
- NOTE
- Group [B62D 1/181](#) takes precedence over groups [B62D 1/183](#) - [B62D 1/187](#) .
- B62D 1/184
- Mechanisms for locking columns at selected positions {{(locking of telescopic systems in general [F16B 7/10](#))}}
- B62D 1/24
- not vehicle-mounted {{(special adaptations of automatic tractor steering [A01B69/04](#) ; devices for lifting, movable on wheels, automatically guided [B66F 9/063](#))}}
- U B62D 5/00** **Power-assisted or power-driven steering {{controlling steering depending on driving conditions sensed and responded to B62D 6/00 ; } for non-deflectable wheels B62D 11/00 ; fluid pressure servomotors in general F15B)**
- U B62D 5/06
- fluid, i.e. using a pressurised fluid for most or all the force required for steering a vehicle
- U B62D 5/20
- specially adapted for particular type of steering gear or particular application (steering gears per se [B62D 3/00](#) ; steering linkages not characterised by being power-assisted or power-driven [B62D 7/00](#))
- B62D 5/22
- for rack-and-pinion type {{(pressure yokes [B62D 3/123](#))}}
- U B62D 7/00** **Steering linkage; Stub axles or their mountings (B62D 13/00 takes precedence; power-assisted or power-driven steering B62D 5/00)**
- U B62D 7/06
- for individually-pivoted wheels, e.g. on king-pins
- U B62D 7/14
- the pivotal axes being situated in more than one plane transverse to the longitudinal centre line of the vehicle, e.g. all-wheel steering
- B62D 7/15
- characterised by means varying the ratio between the steering angles of the steered wheels {{(B62D 7/148 takes precedence)}}

- U B62D 7/1518 . . . . {comprising a mechanical interconnecting system between the steering control means of the different axles}
- B62D 7/1536 . . . . {provided with hydraulic assistance; (power-assisted fluid steering per se [B62D 5/06](#))}
- B62D 7/1545 . . . . {provided with electrical assistance; (power-assisted electrical steering per se [B62D 5/04](#))}
- B62D 7/1554 . . . . {comprising a fluid interconnecting system between the steering control means of the different axles; (power-assisted fluid steering per se [B62D 5/06](#))}
- B62D 7/1563 . . . . {provided with fluid control means; ([B62D 7/1572](#) takes precedence)}
- B62D 7/1581 . . . . {characterised by comprising an electrical interconnecting system between the steering control means of the different axles; (power-assisted electrical steering per se [B62D 5/04](#))}
- B62D 7/22 . Arrangements for reducing or eliminating reaction, e.g. vibration, from parts, e.g. wheels, of the steering system {(dampers in general [F16F](#))}
  
- 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
  
- U B62D 11/02 . by differentially driving ground-engaging elements on opposite vehicle sides
- U B62D 11/06 . by means of a single main power source
- B62D 11/10 . . . using gearings with differential power outputs on opposite sides, e.g. with twin-differential or epicyclic gears {(arrangements or mounting of transmissions in vehicles [B60K 17/00](#) ; gearing in general [F16H](#))}
  
- B62D 25/00            Superstructure {or monocoque structure}sub-units; Parts or details thereof not otherwise provided for {(having impact absorbing means [B62D 21/15](#) ; running-boards, steps, or the like as superstructure sub-unit [B60R 3/00](#))}**
- B62D 25/02 . Side panels {([B62D 33/046](#) takes precedence; sideboards for open load compartments [B62D 33/023](#))}
- B62D 25/08 . Front or rear portions {(sub-frames for mounting engine or suspensions [B62D 21/11](#))}
- B62D 25/20 . Floors or bottom sub-units {(sub-frames for mounting engine or suspensions [B62D 21/11](#) ; drip trays [F16N 31/006](#))}
  
- B62D 27/00            Connections between superstructure {or understructure}sub-units {([B62D 33/0207](#) , [B62D 33/044](#) take precedence; between sub-units predominantly made of synthetic material [B62D 29/048](#))}**
  
- B62D 29/00            Superstructures,{understructures, or sub-units thereof,}characterised by the material thereof {([B62D 33/044](#) , [B62D 33/048](#) take precedence)}**
  
- U B62D 33/00            Superstructures for load-carrying vehicles {(having impact absorbing means [B62D 21/15](#) ; } in which a load-carrying element is movable [B60P](#); liners [B60R 13/00](#) ; { joining sheets or plates to one another or to strips or bars parallel to them [F16B 5/00](#))}**
- B62D 33/02 . Platforms; Open load compartments {(Flat wagons including posts or standards [B61D 3/08](#))}
- B62D 33/023 . Sideboard or tailgate structures {(vehicle side panels in general [B62D 25/02](#))}
- U B62D 33/027 . . . movable
- B62D 33/03 . . . . by swinging down {([B62D 33/0273](#) takes precedence)}
- B62D 33/033 . . . . removable {([B62D 33/0273](#) takes precedence)}

- B62D 33/06 · Drivers` cabs {{overhead guards, e.g. against loads falling down [B60R 21/11](#) ; roll-over protection [B60R 21/13](#)}}
- B62D 33/077 · characterised by the connection of the superstructure to the vehicle frame {{([B62D 33/06](#) takes precedence)}
- U B62D 35/00 Vehicle bodies characterised by streamlining**
- B62D 35/02 · Streamlining the undersurfaces {{([B62D 35/005](#) , [B62D 35/007](#) , [B62D 35/008](#) take precedence)}
- B62D 51/00 Motor vehicles characterised by the driver not being seated {{(wheeled carriers for golf bags [A63B 55/08](#))}}**
- 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](#))}**
- B62D 53/02 · comprising a uniaxle tractor unit and a uniaxle trailer unit {{(see [B60B 11/00](#) - [B60B 11/08](#))}}
- U B62D 55/00 Endless track vehicles (steering aspects [B62D 11/00](#) ; { characterised by the driver not being seated [B62D 51/007](#))}**
- B62D 55/02 · with tracks and additional ground wheels {{(for multi-purpose tractors [B62D 49/0635](#))}}
- B62D 55/04 · with tracks and alternative ground wheels, e.g. changeable from endless track vehicle into wheeled vehicle and vice versa {{(for multi-purpose tractors [B62D 49/0635](#))}}
- U B62D 55/06 · with tracks without ground wheels
- B62D 55/065 · · Multi-track vehicles, i.e. more than two tracks {{(soil-shifting machines [E02F](#) ; mining machines [E21C](#))}}
- U B62D 55/08 · Endless track units; Parts thereof
- U B62D 55/14 · · Arrangement, location, or adaptation of rollers
- B62D 55/15 · · · Mounting devices, e.g. bushings, axles, bearings, sealings {{(with lubrication means [B62D 55/092](#))}}
- U B62D 55/18 · · Tracks (self-cleaning track links [B62D 55/088](#))
- B62D 55/20 · · · of articulated type, e.g. chains {{(with lubrication means [B62D 55/092](#))}}
- B62D 55/26 · · · Ground engaging parts or elements {{(tracks specially adapted for amphibious vehicles [B60F 3/0015](#))}}
- U B62D 57/00 Vehicles characterised by having other propulsion or other ground-engaging means than wheels or endless track, alone or in addition to wheels or endless track (sledges [B62B](#) ; motor sledges [B62M](#))**
- U B62D 57/02 · with ground-engaging propulsion means, e.g. walking members
- B62D 57/036 · · screw type, e.g. Archimedian screw {{(amphibious vehicles comprising screw-type ground-engaging means [B60F 3/0023](#))}}
- U B62D 61/00 Motor vehicles or trailers, characterised by the arrangement or number of wheels, not otherwise provided for, e.g. four wheels in diamond pattern**
- B62D 61/10 · with more than four wheels {{(tractors of the low ground pressure type [B62D 49/002](#))}}
- 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 65/06
- the sub-units or components being doors, windows, openable roofs, lids, bonnets, or weather strips or seals therefor [{\(assembling sealing arrangements with vehicle parts, e.g. doors, windows B60J 10/0088\)}](#)
- B62D 65/18
- Transportation, conveyor or haulage systems specially adapted for motor vehicle or trailer assembly lines [{\(conveyers and haulage in general B65G\)}](#)

**Project: N/A (B63B)**

- U B63B 1/00** **Hydrodynamic or hydrostatic features of hulls or of hydrofoils (keels [B63B 3/38](#) ; determining hydrodynamic or hydrostatic features [B63B 9/00](#) ; hulls peculiar to submarines [B63B 3/13](#) ; decreasing pitch, roll or like unwanted vessel movements by using foils or acting on ambient water [B63B 39/06](#))**
- U B63B 1/02
- deriving lift mainly from water displacement ([B63B 1/16](#) takes precedence)
- U B63B 1/10
- with multiple hulls
- B63B 1/12
- the hulls being interconnected rigidly [{\(B63B 1/107 takes precedence\)}](#)
- U B63B 1/16
- deriving additional lift from hydrodynamic forces
- B63B 1/24
- of hydrofoil type [{\(controlling attitude or depth of underwater vessels by hydrofoils or the like \[B63G 8/18\]\(#\)\)}](#)
- WARNING  
This group is pending a reorganisation, also documents covered by group [B63B 1/26](#) are within this group
- U B63B 5/00** **Hulls characterised by their construction of non-metallic material**
- B63B 5/24
- made predominantly of plastics [{\(surf boards \[B63B 35/7909\]\(#\)\)}](#)
- U B63B 9/00** **Methods of designing, building, maintaining, converting, refitting, repairing, or determining properties of vessels, not otherwise provided for (shuttering for building concrete vessels [E04G](#))**
- B63B 9/02
- Using towing tanks or model basins for designing [{\(arrangements in or on ship testing tanks or water tunnels \[G01M 10/00\]\(#\)\)}](#)
- U B63B 13/00** **Conduits for emptying or ballasting; Self-bailing equipment; Scuppers (draining means for hatches [B63B 19/26](#) ; centrifugal bilge-water separators [B04](#); { arrangements of installations for treating ballast water [B63J 4/002](#) ; }pipes in general [F16L](#))**
- B63B 13/02
- Ports for passing water through vessels` sides [{\(jet propulsors with clogging prevention means \[B63H 11/01\]\(#\)\)}](#)
- 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](#)

- U B63B 21/00** **Tying-up; Shifting, towing, or pushing equipment; Anchoring** ({of buoys [B63B 22/04](#) ; dynamic anchoring [B63H 25/00](#) ; equipment for shipping on coasts, in harbours or on other fixed marine structures, e.g. for landing purposes, [E02B](#))
- WARNING**  
Group [B63H 21/00](#) is no longer used for classification of adaptations of ropes, hawsers, or the like, or parts thereof. Documents are in the process of being reorganised to [B63B 21/20](#)
- B63B 21/04      · Fastening or guiding equipment for chains, ropes, hawsers, or the like {(means for fastening cables or ropes in general [F16G 11/00](#))}
- B63B 21/18      · Stoppers for anchor chains {(anchor capstans [B66D 1/72](#))}
- U B63B 21/24**      · Anchors
- B63B 21/30      · · rigid when in use {([B63B 21/28](#) takes precedence)}
- B63B 21/38      · · pivoting when in use {([B63B 21/28](#) takes precedence)}
- U B63B 22/00** **Buoys** ({floating decoys, e.g. for waterfowl [A01M 31/06](#);} means for indicating the location of underwater objects [B63C 7/26](#) ; life-buoys, e.g. rings [B63C 9/08](#) ; { mountings of acoustic transducer in underwater equipment, e.g. sonobuoys [G10K 11/006](#) ; electric cables supported on or from floats [H02G 9/12](#)})
- U B63B 22/04**      · {Fixations or other}anchoring arrangements
- B63B 22/06      · · with means to cause the buoy to surface in response to a transmitted signal {([B63B 22/023](#) takes precedence)}
- U B63B 22/24**      · container type, i.e. having provision for the storage of material
- B63B 22/28      · · submerged when not in use {([B63B 22/023](#) takes precedence)}
- WARNING**  
Not complete, pending a reorganisation; see [B63B 22/023](#) and [B63B 22/24](#)
- U B63B 25/00** **Load-accomodating arrangements, e.g. stowing, trimming; Vessels characterised thereby** (trimming otherwise than by cargo division, e.g. by use of ballast [B63B 43/06](#) , [B63B 43/08](#) ; constructive aspects of cargo spaces [B63B 11/00](#) ; hatches, hatchways [B63B 19/12](#))
- U B63B 25/02**      · for bulk goods
- B63B 25/08      · · fluid {(constructional features of bunkers [B63B 11/04](#) ; tanks for fuel or the like not forming bunkers [B63B 17/0027](#))}
- WARNING**  
Documents in [B63B 25/08](#) and subgroups concerning bunkers and other tanks for fuel or the like are in the process of being reclassified to [B63B 11/04](#) and [B63B 17/0027](#)
- 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 27/30 · {Arrangement of ship-based loading or unloading equipment}for transfer at sea between ships or between ships and off-shore structures
- WARNING  
Not complete, pending a reorganisation, see [B63B 22/021](#), [B63B 35/44](#) , and subgroups
- B63B 27/34 · · using pipe-lines {(Anchoring arrangements for special vessels with mooring turrets [B63B 21/507](#) ; Buoys specially adapted for mooring a vessel and for transferring fluids , e.g. liquids [B63B 22/021](#))}
- WARNING  
Not complete, pending a reorganisation, see [B63B 21/507](#), [B63B 22/021](#), [B63B 35/44](#) and subgroups
- U B63B 29/00 Accomodation for crew or passengers not otherwise provided for**
- B63B 29/16 · Soil water discharges {(arrangements of installations for treating waste water or sewage [B63J 4/006](#))}
- 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 35/28 · Barges or lighters {(underwater-towed barges [B63G 8/42](#) ; for transporting logs [B63B 35/62](#))}
- B63B 35/40 · for transporting marine vessels {(load accomodation for floating barges and the like [B63B 25/006](#))}
- B63B 35/44 · Floating buildings, stores, drilling platforms, or workshops, e.g. carrying water-oil separating devices {(construction methods for floating offshore platforms [B63B 9/065](#))}
- WARNING  
This group and its subgroups are pending a reorganisation, also documents covered by groups [B63B 27/30](#) , [B63B 27/32](#) and [B63B 27/34](#) are within this group and its subgroups.
- B63B 39/00 Equipment to decrease pitch, roll, or like unwanted vessel movements; Apparatus for indicating vessel attitude {(for amphibious vehicles [B60F 3/0038](#))}**
- B63B 41/00 Drop keels, e.g. centre boards or side boards {; Collapsible keels, or the like, e.g. telescopically; Longitudinally split hinged keels (keels integral with hull [B63B 3/38](#); foils or keels on surf-boards [B63B 35/7906](#); stabilising foils [B63B 39/06](#))}**
- U B63B 43/00 Improving safety of vessels, e.g. damage control, not otherwise provided for (fire-fighting in ships [A62C 3/10](#))**
- U B63B 43/02 · reducing risk of capsizing or sinking (by means of watertight doors in bulkheads [B63B 43/24](#))
- B63B 43/10 · · by improving buoyancy {(amphibious cycles [B60F 3/0038](#))}
- B63B 43/18 · preventing collision {or grounding}; reducing collision damage {(reducing pollution by collision [B63B 25/082](#))}

**Project: N/A (B63C)**

**U B63C 7/00** **Salvaging of disabled, stranded, or sunken vessels; Salvaging of vessel parts or furnishings, e.g. of safes; salvaging of other underwater objects (means for searching for underwater objects [B63C 11/48](#))**

NOTE

in this group the following indexing codes are used:

- [B63B 2702/02](#) , [B63B 2738/00](#) , [B63B 2738/04](#)

WARNING

this group is pending a reorganisation; also documents covered by groups [B63C 7/006](#) are within this group

B63C 7/16 · Apparatus engaging vessels or objects [{\(B63C 7/006 takes precedence\)}](#)

B63C 7/20 · · using grabs [{\(cable grapnels with grabs B63C 11/50\)}](#)

**U 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](#))**

U B63C 11/02 · Divers` equipment

B63C 11/12 · · Diving masks [{\(swimming helmets, swimming goggles A63B 33/00\)}](#)

B63C 11/30 · · Ballast [{\(weights worn on user`s body for exercising A63B 21/065\)}](#)

U 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](#))

U B63C 11/36 · · of closed type

B63C 11/42 · · · with independent propulsion or direction control [{\(underwater vessels adapted for special purposes B63G 8/001\)}](#)

WARNING

this group is pending a reorganisation; also documents covered by group [B63G 8/001](#) are within this group

B63C 11/46 · Divers` sleds or like craft, i.e. craft on which man in diving-suit rides [{\(devices fixed to the body of a swimmer, e.g. diver, or held in his hands, and propelling the swimmer by muscle power or by a motor A63B 35/00\)}](#)

**Project: N/A (B63H)**

**B63H 3/00** **Propeller-blade pitch changing [{\(Aircraft propellers B64C 11/30 ; Rotors of turbines F01D 7/00 ; Axial wind motors F03D 7/022 ; Axial-flow pumps F04D 29/00\)}](#)**

B63H 3/02 · actuated by control element coaxial with propeller shaft, e.g. the control element being rotary [{\(B63H 3/002 takes precedence, fluid actuated B63H 3/081\)}](#)

**U B63H 5/00** **Arrangements on vessels of propulsion elements directly acting on water**

U B63H 5/07 · of propellers (forming part of outboard units{or Z-drives}[B63H 20/00](#))

U B63H 5/18 · · of emergency propellers, e.g. arranged at the side of the vessel

WARNING

this group is pending a reorganisation; also documents covered by group [B63H 5/20](#) are within this group

- B63H 5/20
- • • movable from a working position to a non-working position {(movable arrangements of propellers in general [B63H 5/125](#) ; outboard propulsion units in general [B63H 20/00](#) ; steering or dynamic anchoring by propellers used therefore only, or by rudders carrying propellers [B63H 25/42](#))}  
WARNING  
This group is not complete pending a reclassification; for documents published before 01.01.2012, see also group [B63H 5/18](#)
- U B63H 11/00**      **Effecting propulsion by jets, i.e. reaction principle (steering by{auxiliary}jet action,{rudders carrying jets}[B63H 25/46](#) ; power plant per se, see the relevant classes)**
- U B63H 11/02      • the propulsive medium being ambient water
- U B63H 11/10      • • having means for deflecting jet or influencing cross-section thereof  
WARNING  
Documents concerning deflection of the jet into a direction substantially parallel to the plane of the pump outlet are in the process of being reorganised to [B63H 11/101](#)
- B63H 11/107      • • • Direction control of propulsive fluid {([B63H 11/101](#) takes precedence)}  
WARNING  
Documents concerning means for deflecting jet into a propulsive direction substantially parallel to the plane of the pump outlet opening are in the process of being reorganized to [B63H 11/101](#)
- U B63H 20/00**      **Outboard propulsion units, i.e. propulsion units having a substantially vertical power leg mounted outboard of a hull and terminating in a propulsion element, e.g. "outboard motors", Z-drives {with level bridging shaft arranged substantially outboard}(power plants per se, see the relevant classes); Arrangements thereof on vessels {(transom panels for outboard motors on inflatable boats [B63B 7/087](#); tug-type floating propeller units [B63B 35/665](#); rudders carrying propellers [B63H 25/42](#); rudders carrying jets [B63H 25/46](#); engines of outboard propulsion units [F02B 61/045](#))}  
WARNING  
Not complete pending a reclassification; see also [B63H 5/1252](#), as well as [B63H 21/26](#) and subgroups**
- B63H 20/24      • {Arrangements, apparatus and methods for handling exhaust gas in outboard drives, e.g.}exhaust gas outlets {(in engines, e.g. outboard marine engines, [F01N](#))}  
WARNING  
This group and its subgroups are not complete, pending a reorganisation; see [B63H 21/32](#) , [B63H 21/38](#) and [B63B 2770/00](#)
- B63H 20/28      • {Arrangements, apparatus and methods for handling cooling-water in outboard drives, e.g.}cooling-water intakes {(cooling circuits for outboard marine engines [F01P 3/202](#))}  
WARNING  
This group and its subgroups are not complete, pending a reorganisation; see [B63H 21/38](#) and [B63B 2770/00](#)
- B63H 20/30      • • {Cooling-water intakes}for flushing {(circuits for flushing outboard marine engines [F01P 3/205](#))}
- B63H 20/32      • Housings {(air intakes for outboard engines [F02M 35/167](#))}

- B63H 20/36
- Transporting or testing stands {{(hand carts for transporting outboard units [B62B](#); measuring torque [G01L 3/00](#) , measuring thrust of propellers [G01L 5/133](#) , testing in general [G01M](#)); Use of outboard propulsion units as pumps}; Protection of power legs {e.g. when not in use}
- 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
- U B63H 21/12**
- the vessel being motor-driven ([B63H 21/175](#) , [B63H 21/18](#) take precedence; { cooling circuits with liquid-to-liquid heat-exchange relative to marine vessels [F01P 3/207](#)})
- WARNING  
Group [B63H 21/12](#) is no longer used for classification of vessels being motor-driven by electric motor, powered by land vehicle supported by vessel, and powered by nuclear energy. These documents are in the process of being reorganised to groups [B63H 21/17](#) , [B63H 21/175](#) , and [B63H 21/18](#) respectively
- B63H 21/14
- relating to internal-combustion engines {{(of outboard type [B63H 20/00](#))}
- B63H 21/165
- by hydraulic fluid motor, i.e. wherein a liquid under pressure is utilised to rotate the propelling means {{(transmission from power plant or unit to propeller using fluid gearing per se [B63H 23/26](#))}
- WARNING  
This group is not complete pending a reclassification; for documents published before 01.01.2012, see also group [B63H 21/12](#)
- U B63H 21/24**
- the vessels being small craft, e.g. racing boats
- B63H 21/26
- of outboard type; Outboard propulsion power units movably installed for steering, reversing, tilting, or the like {{(transom panels for outboard motors for inflatable boats [B63B 7/087](#) ; floating propeller units [B63B 35/665](#))}
- WARNING  
Group [B63H 21/26](#) and subgroups are no longer used for classification. Documents are in the process of being reorganised to [B63H 5/125](#) , and subgroups, to [B63H 20/00](#) , and subgroups, and to [B63H 25/42](#)
- B63H 21/32
- Arrangements of propulsion-unit exhaust uptakes; Funnels peculiar to vessels; {Small watercraft exhaust arrangements, e.g. under-water}, (engine exhausts in general [F01N](#) ; flue devices for furnaces in general [F23J](#) ; { exhaust gas outlets forming part of outboard propulsion units or Z-drives [B63H 20/24](#)})
- WARNING  
Group [B63H 21/32](#) is no longer used for classification of documents dealing with gas exhaust outlets forming part of outboard propulsion units or Z-drives. Respective documents are in the process of being reorganised to groups [B63H 20/24](#) and [B63H 20/26](#)

- U B63H 23/00** Transmitting power from propulsion power plant to propulsive elements (changing pitch or propellers [B63H 3/00](#) ; adaptation of transmission to allow adjustment in location or direction of propellers [B63H 5/125](#) ; transmission between wind motors and propulsive elements [B63H 13/00](#) ; in outboard propulsion units [B63H 20/14](#) ; adaptation of transmission to allow adjustment of location of propeller [B63H 20/08](#) ; { adaptations of transmissions to allow steering or dynamic anchoring by propellers carried on rudders [B63H 25/42](#) ; }for vehicles in general [B60K](#); driving auxiliary machinery [B63J](#); transmission elements per se [F16](#))
- U B63H 23/22  
B63H 23/24
- with non-mechanical gearing
  - · electric {(dynamo-electric machines [H02K](#))}
- WARNING  
This group is not complete pending a reclassification; also documents covered by group [B63H 21/17](#) are in this group

**Project: N/A (B64C)**

- U B64C 1/00** Fuselages; Constructional features common to fuselages, wings, stabilising surfaces and the like (aerodynamical features common to fuselages, wings, stabilising surfaces, and the like [B64C 23/00](#) ; flight-deck installations [B64D](#))
- B64C 1/22
- Other structures integral with fuselages to facilitate loading {e.g. cargo bays, cranes (cargo door type ramps [B64C 1/1415](#))}
- B64C 1/38
- Constructions adapted to reduce effects of aerodynamic or other external heating {(cooling structural parts of aircrafts with air flow [B64D 13/006](#))}
- B64C 1/40
- Sound or heat insulation,{e.g. using insulation blankets (insulating elements for vehicles, in general [B60R 13/08](#))}
- U B64C 3/00** Wings (stabilising surfaces [B64C 5/00](#) ; ornithopter wings [B64C 33/02](#))
- B64C 3/36
- Structures adapted to reduce effects of aerodynamic or other external heating {(cooling structural parts of aircrafts with air flow [B64D 13/006](#))}
- U B64C 11/00** Propellers, e.g. of ducted type; Features common to propellers and rotors for rotorcraft (rotors specially adapted for rotorcraft [B64C 27/32](#))
- NOTE  
Documents classified in [B64C 11/001](#) - [B64C 11/008](#) which also contain relevant information, covered by other subgroups of [B64C 11/00](#) , are also classified in the appropriate subgroup of [B64C 11/00](#)
- B64C 11/46
- Arrangements of or constructional features peculiar to multiple propellers {([B64C 11/306](#) takes precedence)}
- U B64C 25/00** Alighting gear (air-cushion alighting gear [B60V 3/08](#))
- U B64C 25/32
- characterised by the ground or like engaging elements (arrester hooks [B64C 25/68](#))
- U B64C 25/42
- · Arrangements or adaptations of brakes (the ground braking force being regulated, at least in part, by a speed condition, e.g. acceleration or deceleration of the ground engaging alighting gear, [B60T 8/32](#))
- U B64C 25/44
- · · Actuating mechanisms
- B64C 25/46
- · · · Brake regulators for preventing skidding or aircraft somersaulting {(anti-skidding regulators; electric or electronic controllers therefor [B60T 8/1703](#))}
- U B64C 27/00** Rotorcraft; Rotors peculiar thereto (alighting gear [B64C 25/00](#))

- U B64C 27/32 · Rotors (features common to rotors and propellers [B64C 11/00](#))
- U B64C 27/46 · · Blades
- B64C 27/467 · · · Aerodynamic features {([B64C 27/463](#) takes precedence)}
- B64C 27/473 · · · Constructional features {([B64C 27/463](#) takes precedence)}
- U B64C 39/00 Aircraft not otherwise provided for**
- B64C 39/06 · having disc- or ring-shaped wings {([B64C 39/001](#) takes precedence)}
- B64C 39/08 · having multiple wings {([B64C 39/06](#) takes precedence)}
- B64C 39/10 · All-wing aircraft {([B64C 39/001](#) takes precedence)}

**Project: N/A (B64D)**

- U B64D 17/00 Parachutes (non canopied parachutes [B64D 19/00](#))**
- U B64D 17/22 · Load suspension
- B64D 17/36 · · incorporating friction devices or frangible connections to reduce shock loading of canopy {([B64D 17/343](#) , [B64D 17/346](#) take precedence)}
- B64D 25/00 Emergency apparatus or devices, not otherwise provided for (parachutes [B64D 17/00](#) , [B64D 19/00](#) ; jettisoning of fuel tanks or fuel per se [B64D 37/00](#) ; { specially adapted for protection against criminal attack, e.g. anti-hijacking systems [B64D 45/0015](#) } ; safety belts or body harnesses in general [A62B 35/00](#) ; safety belts or body harnesses for land vehicles [B60R 22/00](#) ; jettisonable parts of fuselage facilitating emergency escape [B64C](#))**

**Project: N/A (B64G)**

- U B64G 1/00 Cosmonautic vehicles**
- U B64G 1/22 · Parts of, or equipment specially adapted for fitting in or to, cosmonautic vehicles
- B64G 1/24 · · Guiding or controlling apparatus, e.g. for attitude control (jet-propulsion plants [F02K](#) ; navigation or navigational instruments, see the relevant subclass, e.g. [G01C](#) ; automatic pilots [G05D 1/00](#))

**Project: N/A (B65D)**

- U B65D 1/00 Containers having bodies formed in one piece, e.g. by casting metallic material, by moulding plastics, by blowing vitreous material, by throwing ceramic material, by moulding pulped fibrous material, by deep-drawing operations performed on sheet material (by winding, bending, or folding paper [B65D 3/00](#) , [B65D 5/00](#) ; specially constructed to be opened by cutting, piercing, or tearing of wall portions [B65D 17/00](#) ; pallets [B65D 19/00](#) ; details of bottles or of jars [B65D 23/00](#) ; bundles of articles held together by packaging elements for convenience of storage or transport, e. g. portable segregating carriers for plural receptacles such as beer cans, pop bottles, [B65D 71/00](#))**
- B65D 1/10 · Jars, e.g. for preserving foodstuffs {([B65D 81/3837](#) takes precedence)}
- B65D 1/22 · Boxes or like containers with side walls of substantial depth for enclosing contents {([B65D 43/162](#) , [B65D 81/02](#) , [B65D 81/3813](#) take precedence)}
- B65D 1/26 · · Thin-walled containers, e.g. formed by deep-drawing operations {([B65D 1/165](#) takes precedence)}
- B65D 1/38 · Baskets or like containers of skeleton or apertured construction, {(crates for bottles or like containers [B65D 1/243](#))}

- U B65D 3/00** Containers having bodies or peripheral walls of curved or partially curved cross-section made by winding or bending paper without folding along defined lines (with end walls of different materials [B65D 15/00](#))
- B65D 3/22 · with double walls; with walls incorporating air-chambers; with walls made of laminated material [B65D 81/3818](#)
- U B65D 5/00** Containers of polygonal cross-section, e.g. boxes, cartons, trays, formed by folding or erecting one or more blanks made of paper (pallets [B65D 19/00](#) ; bundles of articles held together by packaging elements for convenience of storage or transport, e.g. portable segregating carriers for plural receptacles such as beer cans, pop bottles, [B65D 71/00](#) ; forming foldable or erectable blanks [B31B](#))
- U B65D 5/42 · Details of containers or of foldable or erectable container blanks
- U B65D 5/44 · · Integral, inserted or attached portions forming internal or external fittings {not used, see subgroups}
- B65D 5/52 · · · External stands or display elements for contents [A47F 5/11](#)
- U B65D 5/56 · · Linings or internal coatings, {e.g. pre-formed trays provided with a blow- or thermoformed layer} (to protect the articles from mechanical damage [B65D 81/127](#))
- B65D 5/58 · · · Linings spaced appreciably from container wall [B65D 81/3853](#)
- B65D 5/60 · · · Loose, {or loosely attached}, linings [B65D 5/566](#)
- B65D 5/62 · · External coverings or coatings [B65D 5/4245](#) , [B65D 5/4262](#) take precedence)
- U B65D 7/00** Containers having bodies formed by interconnecting or uniting two or more rigid, or substantially rigid, components made wholly or mainly of metal (specially constructed to be opened by cutting, piercing, or tearing of wall portions [B65D 17/00](#) ; pallets [B65D 19/00](#) ; tanks for domestic water storage heaters [F24H 1/181](#))
- U B65D 7/02 · characterised by shape
- B65D 7/04 · · of curved cross-section, e.g. cans of circular or elliptical cross-section [B65D 81/3813](#) , [B65D 81/3837](#)
- U B65D 7/12 · characterised by wall construction or by connections between walls
- B65D 7/22 · · with double walls, e.g. double end walls [B65D 81/3806](#) , [B65D 81/3818](#) , [B65D 81/383](#)
- U B65D 9/00** Containers having bodies formed by interconnecting or uniting two or more rigid, or substantially rigid, components made wholly or mainly of wood or substitutes therefor
- B65D 9/02 · Containers of curved cross-section, e.g. cylindrical boxes [B65D 81/3813](#) , [B65D 81/3837](#)
- B65D 9/04 · · made up of staves, e.g. barrels for liquids [B65D 81/3802](#)
- B65D 9/26 · with double end walls, e.g. double bottoms [B65D 81/3806](#) , [B65D 81/3818](#) , [B65D 81/383](#)
- U B65D 11/00** Containers having bodies formed by interconnecting or uniting two or more rigid, or substantially rigid, components made wholly or mainly of plastics material (specially constructed to be opened by cutting, piercing, or tearing of wall portions [B65D 17/00](#) ; pallets [B65D 19/00](#))

- B65D 11/02      · of curved cross-section {(thermally insulated [B65D 81/3813](#))}
- B65D 11/04      · · Bottles or similar containers with necks or like restricted apertures designed for pouring contents {(thermally insulated [B65D 81/3837](#))}
- B65D 11/06      · · Drums or barrels {(thermally insulated [B65D 81/3802](#))}
- B65D 11/10      · of polygonal cross-section {and all parts being permanently connected to each other ([B65D 11/18](#) takes precedence)}
- U B65D 17/00      Containers specially constructed to be opened by cutting or piercing, or by tearing of frangible member or portion (opening devices for containers made by winding, bending, or folding paper [B65D 3/00](#) , [B65D 5/00](#) ; frangible inner closure members associated with caps, lids, or covers [B65D 51/20](#) ; opening devices added or incorporated during filling or closing of containers [B65D 77/30](#) ; separate devices for opening closed containers [B67B 7/00](#))**
- B65D 17/16      · Opening arrangements or devices incorporated in or attached to, containers {([B65D 17/50](#) takes precedence)}
- U B65D 21/00      Nestable, stackable, or joinable containers; Containers of variable capacity (large containers [B65D 88/00](#) ; { containers for display purposes [A47B 87/0276](#))}**
- B65D 21/02      · Containers specially shaped, or provided with fittings or attachments, to facilitate nesting, stacking, or joining together {(stackable containers of polygonal cross-section formed by folding or erecting blanks made of paper [B65D 5/001](#))}
- U B65D 21/0209      · · {stackable or joined together one-upon-the-other in the upright or upside-down position ([B65D 21/0234](#) , [B65D 21/0235](#) take precedence)}**
- B65D 21/0228      · · · {Containers joined together by screw-, bayonet-, snap-fit or the like, ([B65D 21/0211](#) , [B65D 21/0231](#) take precedence)}
- B65D 21/06      · · with movable parts adapted to be placed in alternative positions for nesting the containers when empty and for stacking them when full {(without means for nesting [B65D 21/0226](#))}
- U B65D 23/00      Details of bottles or jars not otherwise provided for (closure-securing elements [B65D 45/00](#))**
- U B65D 23/12      · Means for the attachment of smaller articles**
- B65D 23/14      · · of tags, {labels, cards, coupons, decorations or the like ([B65D 23/008](#) takes precedence)}
- U B65D 25/00      Details of other kinds or types of rigid or semi-rigid containers**
- U B65D 25/02      · Internal fittings (of containers made by folding or erecting blanks made of paper [B65D 5/44](#))**
- B65D 25/10      · · Devices to locate articles in containers {(for protecting articles from mechanical damage [B65D 81/02](#))}
- U B65D 25/20      · External fittings (of containers made by folding or erecting blanks made of paper [B65D 5/44](#))**
- B65D 25/205      · · {Means for the attachment of labels, cards, coupons or the like; (Cards or coupons for the other types of rigid or semi-rigid containers [B65D 25/36](#) takes precedence)}
- B65D 31/00      Bags or like containers made of paper and having structural provision for thickness of contents {(with shock-absorbing properties [B65D 81/03](#))}**
- B65D 31/04      · with multiple walls {([B65D 81/3881](#) takes precedence; for shock absorbing purposes [B65D 81/03](#))}
- U B65D 33/00      Details of, or accessories for, sacks or bags**

- B65D 33/01
- Ventilation or drainage of bags, {e.g. disaligned apertures, labyrinth welds (pressure-relief valves comprising at least one elastic element [B65D 77/225](#); connection of valves to inflatable elastic bodies [B60C 29/00](#))}
- B65D 33/02
- Local reinforcements or stiffening inserts, e.g. wires, strings, strips, frames {([B65D 33/007](#) takes precedence)}
- B65D 33/04
- Windows or other apertures, e.g. for viewing contents {(ventilation apertures [B65D 33/01](#) ; windows for level indication [B65D 33/004](#))}
- B65D 33/06
- Handles {(forming part of the closing arrangement [B65D 33/16](#))}
- U B65D 33/16
- End- or aperture-closing arrangements or devices (valves of valve bags {[B65D 31/14](#)}; removable stoppers or caps [B65D 39/00](#) , [B65D 41/00](#) ; closures of filled bags [B65D 77/10](#) ; closing filled bags in association with packaging [B65B 7/00](#) , [B65B 51/00](#))
- B65D 33/25
- • Riveting; Dovetailing; Screwing; using press buttons or slide fasteners {(slide fasteners per se [A44B 19/00](#))}
- B65D 33/26
- • using staples or stitches {([B65D 33/1641](#) takes precedence)}
- B65D 33/30
- • Deformable or resilient metal or like strips or bands {([B65D 33/1616](#) takes precedence)}
- B65D 33/34
- • with special means for indicating unauthorised opening {([B65D 33/2516](#) takes precedence)}
- 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 35/56
- Holders for collapsible tubes {([B65D 51/249](#) takes precedence)}
- U **B65D 41/00**
- Caps, e.g. crown caps, crown seals, i.e. members having parts arranged for engagement with the external periphery of a neck or wall defining a pouring opening or discharge aperture; Protective cap-like covers for closure members, e.g. decorative covers of metal foil or paper ([B65D 45/00](#) takes precedence; combinations of caps and protective cap-like covers [B65D 51/18](#) ; making closures by working metal sheet [B21D 51/44](#) ; affixing labels [B65C 3/06](#))**
- U B65D 41/02
- Caps or cap-like covers without lines of weakness, tearing strips, tags, or like opening or removal devices
- U B65D 41/16
- • Snap-on caps or cap-like covers
- B65D 41/18
- • • non-metallic, e.g. made of paper or plastics {([B65D 41/17](#) takes precedence)}
- U B65D 41/32
- Caps or cap-like covers with lines of weakness, tearing-strips, tags, or like opening or removal devices, e.g. to facilitate formation of pouring openings
- U B65D 41/46
- • Snap-on caps or cap-like covers
- B65D 41/48
- • • non-metallic, e.g. made of paper, plastics {([B65D 41/47](#) takes precedence)}
- U B65D 43/00**
- Lids or covers for rigid or semi-rigid containers (for cooking vessels [A47J 36/06](#) ; covers for pressure vessels in general [F16J 13/00](#))**
- U B65D 43/02
- Removable lids or covers (with means for piercing, cutting, or tearing a frangible inner closure [B65D 51/22](#))
- B65D 43/08
- • having a peripheral flange fitting over the rim of the container {(not in use, covered by [B65D 43/0222](#) and [B65D 43/0274](#) + **L65D43** codes)}
- U B65D 43/14
- Non-removable lids or covers
- B65D 43/24
- • Devices for retaining in open position {(holding lids in open position in general [E05C 17/00](#) ; hinges with means for holding open [E05D 11/10](#))}

- B65D 43/26
- Mechanisms for opening or closing, e.g. pedal-operated [B65F 1/1623](#)}}
- U B65D 45/00**      **Clamping or other pressure-applying devices for securing or retaining closure members (screw-threaded or bayonet connections between stoppers or caps and containers [B65D 39/08](#) , [B65D 41/04](#) , [B65D 41/34](#) ; expansible stoppers [B65D 39/12](#) ; for pressure vessels in general [F16J 13/00](#))**
- U B65D 45/02
- for applying axial pressure to engage closure with sealing surface
- B65D 45/30
- • Annular members, e.g. with snap-over action, screw-threaded [B65D 45/32](#) takes precedence}}
- U B65D 47/00**      **Closures with filling and discharging, or with discharging, devices (dispensers for liquid soap [A47K 5/12](#) ; desk equipment for applying liquid by contact with surfaces [B43M 11/00](#) ; fluid delivery valves in general [F16K 21/00](#))**
- U B65D 47/04
- Closures with discharging devices other than pumps
- U B65D 47/06
- • with pouring spouts or tubes; with discharge nozzles or passages (with slidable spouts [B65D 47/26](#))
- B65D 47/08
- • • having articulated or hinged closures [B65D 55/16](#) takes precedence}}
- B65D 47/20
- • comprising hand-operated members for controlling discharge [B65D 55/16](#) takes precedence}}
- U B65D 51/00**      **Closures not otherwise provided for (covers or similar closures as engineering elements for pressure vessels in general [F16J 13/00](#))**
- U B65D 51/18
- Arrangements of closures with protective outer cap-like covers or of two or more co-operating closures (secondary protective cap-like outer covers for caps [B65D 41/62](#) ; [B65D 51/247](#) takes precedence )}
- B65D 51/20
- • Caps, lids, or covers co-operating with an inner closure arranged to be opened by piercing, cutting, or tearing [B65D 51/185](#) takes precedence; co-operating with an auxiliary container for additional articles or materials [B65D 51/28](#)}}
- U B65D 51/24
- combined {or co-operating}with auxiliary devices for non-closing purposes
- B65D 51/28
- • with auxiliary containers for additional articles or materials [B65D 51/247](#) takes precedence}}
- U B65D 55/00**      **Accessories for container closures not otherwise provided for**
- U 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](#) )}
- B65D 55/10
- • Locking pins [B65D 55/06](#)}}
- B65D 57/00**      **Internal frames or supports for flexible articles, e.g. stiffeners; Separators for articles packaged in stacks or groups, e.g. for preventing adhesion of sticky articles [B65D 71/70](#) takes precedence}}**
- B65D 59/00**      **Plugs, sleeves, caps, or like rigid or semi-rigid elements for protecting parts of articles or for bundling articles, e.g. protectors for screw-threads, end caps for tubes or for bundling rod-shaped articles [F16L 55/11](#) , by means of caps [F16L 55/115](#) ; protection of pipes or objects of similar shape against external or internal damage or wear [F16L 57/00](#))}**

- U B65D 65/00** **Wrappers or flexible covers; Packaging materials of special type or form (wrappers or envelopes with shock-absorbing properties [B65D 81/03](#) ; layered products per se [B32B](#) ; materials per se, see the relevant classes)**
- NOTE**  
Attention is drawn to the definition of "packaging element" in Note (5) following the title of this subclass
- U B65D 65/38** · Packaging materials of special type or form
- B65D 65/40** · · Applications of laminates for particular packaging purposes {([B65D 1/0215](#) , [B65D 1/28](#) , [B65D 3/22](#) , [B65D 5/0281](#) , [B65D 5/563](#) , [B65D 9/30](#) , [B65D 29/02](#) , [B65D 31/02](#) , [B65D 75/26](#) , [B65D 77/2024](#) , [B65D 81/1275](#) , [B65D 81/3811](#) , [B65D 81/3823](#) , [B65D 81/3834](#) , [B65D 81/3846](#) , [B65D 81/3858](#) , [B65D 81/3874](#) , [B65D 81/3886](#) , [B65D 81/3897](#) take precedence; laminates per se or laminated packages characterised by the composition or)}
- NOTE**  
A packaging purpose covered by another group of [B65D](#) should be classified in that group of [B65D](#) and in [B32B](#)]
- B65D 67/00** **Kinds or types of packaging elements not otherwise provided for** {([B65D 5/425](#) takes precedence)}
- U B65D 71/00** **Bundles of articles held together by packaging elements for convenience of storage or transport, e.g. portable segregating carrier for plural receptacles such as beer cans, pop bottles; Bales of material (binding of hay or straw [A01D](#) , [A01F 1/00](#) ; bundling or baling [B65B](#) , e.g. [B65D 13/00](#) , [B65D 27/00](#))**
- U B65D 71/06** · Packaging elements holding or encircling completely or almost completely the bundle of articles, e.g. wrappers
- B65D 71/08** · · Wrappers shrunk by heat {or under tension, e.g. stretch films, films tensioned by compressed articles (wrappers formed by folding a single blank [B65D 71/12](#) ; wrappers formed by folding two or more blanks [B65D 71/38](#))}
- U B65D 71/70** · Trays provided with projections or recesses in order to assemble multiple articles, e.g. intermediate elements for stacking
- B65D 71/72** · · formed by folding one or more blanks, the articles being inserted in openings in a wall {(trays with apertures located within an external paper container [B65D 5/5038](#))}
- U B65D 75/00** **Packages comprising articles or materials partially or wholly enclosed in strips, sheets, blanks, tubes, or webs of flexible sheet material, e.g. in folded wrappers ([B65D 71/00](#) takes precedence; wrapping [B65B 11/00](#))**
- U B65D 75/04** · Articles or materials wholly enclosed in single sheets or wrapper blanks
- U B65D 75/20** · · in sheets or blanks doubled around contents and having their opposed free margins united, e.g. by pressure-sensitive adhesive, crimping, heat-sealing, or welding
- B65D 75/22** · · · the sheet or blank being recessed to accommodate contents {(containers simulating a book [B65D 77/006](#))}
- U B65D 75/28** · Articles or materials wholly enclosed in composite wrappers, i.e. wrappers formed by associating or interconnecting two or more sheets or blanks
- U B65D 75/30** · · Articles or materials enclosed between two opposed sheets or blanks having their margins united, e.g. by pressure-sensitive adhesive, crimping, heat-sealing, or welding
- U B65D 75/32** · · · one or both sheets or blanks being recessed to accommodate contents

- B65D 75/34
- • • and having several recesses to accommodate a series of articles or quantities of material {(not used)}
- WARNING**  
Group [B65D 75/34](#) is no longer used for the classification of new documents. Documents of this group are in the process of being reclassified to groups [B65D 75/323](#) , [B65D 75/327](#) , and subgroups
- B65D 75/36
- • • one sheet or blank being recessed and the other formed of relatively stiff flat sheet material, e.g. blister packages, {the recess or recesses being preformed} ([B65D 73/0057](#) , [B65D 73/0092](#) take precedence)
- B65D 75/38
- Articles or materials enclosed in two or more wrappers disposed one inside the other {(for shock absorbing purposes [B65D 81/03](#) ; for thermal insulating purposes [B65D 81/3893](#))}
- U B65D 75/52
- Details
- B65D 75/58
- • Opening or contents-removing devices added or incorporated during package manufacture {([B65D 75/36](#) , [B65D 85/1027](#) take precedence)}
- U B65D 77/00 Packages formed by enclosing articles or materials in preformed containers, e.g. boxes, cartons, sacks, bags**
- U B65D 77/22
- Details
- U B65D 77/24
- • Inserts or accessories added or incorporated during filling of containers (opening devices [B65D 77/30](#))
- B65D 77/28
- • • Cards, coupons, or drinking straws {([B65D 5/4212](#) , [B65D 23/14](#) , [B65D 25/205](#) , [B65D 33/004](#) , [B65D 51/245](#) , [B65D 75/54](#) take precedence)}
- B65D 77/30
- • Opening or contents-removing devices added or incorporated during filling or closing of containers {([B65D 77/20](#) takes precedence)}
- U B65D 81/00 Containers, packaging elements, or packages, for contents presenting particular transport or storage problems, or adapted to be used for non-packaging purposes after removal of contents**
- B65D 81/02
- specially adapted to protect contents from mechanical damage {(containers of polygonal cross-section provided with internal protecting elements for contents [B65D 5/50](#) ; devices to locate articles in containers [B65D 25/10](#))}
- B65D 81/03
- • Wrappers or envelopes with shock-absorbing properties, e.g. bubble films {(for thermal insulating purposes [B65D 81/3888](#))}
- U B65D 81/05
- • maintaining contents at spaced relation from package walls, or from other contents {([B65D 81/022](#) , [B65D 81/025](#) , }[B65D 81/03](#) take precedence)
- B65D 81/07
- • • using resilient suspension means {([B65D 81/051](#) takes precedence)}
- B65D 81/09
- • • using flowable discrete elements of shock-absorbing material, e.g. pellets, popcorn {([B65D 81/051](#) takes precedence)}
- U B65D 81/107
- • • using blocks of shock-absorbing material
- B65D 81/113
- • • of a shape specially adapted to accommodate contents {([B65D 81/053](#) takes precedence)}
- B65D 81/127
- • • using rigid or semi-rigid sheets of shock-absorbing material {([B65D 81/025](#) takes precedence)}
- B65D 81/133
- • • of a shape specially adapted to accommodate contents, e.g. trays {([B65D 81/053](#) takes precedence; thermally insulated trays [B65D 81/3816](#) , [B65D 81/3827](#))}
- U B65D 81/18
- providing specific environment for contents, e.g. temperature above or below ambient (with thermal insulation [B65D 81/38](#) ; ice-boxes with cooling means [F25D](#))

- B65D 81/20
- under vacuum or superatmospheric pressure, or in a special atmosphere, e.g. of inert gas {{(B65D 81/28 takes precedence; containers with pressurising means for maintaining ball pressure [A63B 39/025](#))}}
- U B65D 81/24
- Adaptations for preventing deterioration or decay of contents; Applications to the container or packaging material of food preservatives, fungicides, pesticides or animal repellants (with thermal insulation [B65D 81/38](#))
- U B65D 81/26
- with provision for draining away, or absorbing, {or removing by ventilation,} fluids, e.g. exuded by contents; {{(B65D 33/01 takes precedence)}}; Applications of corrosion inhibitors or desiccators
- 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 19/026](#) } ; 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](#)})**
- WARNING
- Groups [B65D 83/75](#) to [B65D 83/759](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [B65D 83/75](#) to [B65D 83/759](#) : [B65D 83/14](#)
- 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](#) to [B65D 83/0894](#)
- B65D 83/14
- for delivery of liquid or semi-liquid contents by internal gaseous pressure, i.e. aerosol containers {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](#) ; spraying or atomizing apparatus in general [B05B](#); aerosol compositions, e.g. propellants [C09K 3/30](#) ; pumping of fluid by direct contact of another fluid, e.g. siphons [F04F](#); fluid-delivery valves in general [F16K 21/00](#) ; discharge nozzles in general [F16K 31/58](#) ; vessels for containing or storing compressed, liquefied, or solidified gases [F17C](#))}
- B65D 83/16
- characterised by the actuating means {{(actuation occurring by moving the aerosol container relative to an outer shell [B65D 83/386](#) ; involved in metering valve assemblies [B65D 83/546](#))}}
- B65D 83/20
- {operated by manual action, e.g. button-type actuator or} actuator cap {{(actuators formed as a rigid elongate spout [B65D 83/306](#))}}
- B65D 83/42
- Filling or charging means {{(Filling liquids into containers [B65B 3/12](#) ; Adding propellants to aerosol containers [B65B 31/003](#))}}
- B65D 83/56
- {with means for preventing delivery when the container is incorrectly oriented, e.g.} shut-off when inverted {{(for disabling actuation [B65D 83/22](#))}}
- B65D 83/60
- Product and propellant separated {{(portable fire extinguishers wherein extinguishing material and pressure gas are stored in separate containers [A62C 13/66](#))}}
- B65D 83/62
- by membrane, bag, or the like {{(containers in which the content is delivered by the contracting forces inherent in the bag [B65D 83/0061](#))}}
- B65D 83/66
- first separated, but finally mixed, {e.g. in a dispensing head (mixing in general [B01F](#))}}

- U B65D 85/00** Containers, packaging elements or packages specially adapted for particular articles or materials ([B65D 71/00](#) , [B65D 83/00](#) take precedence; hand implements, travelling equipment [A45C](#) ; cosmetic or toilet equipment [A45D](#) ; { for surgical instruments or appliances [A61B 19/026](#) } ; containers specially adapted for medical or pharmaceutical purposes [A61J 1/00](#) ; paint cans [B44D 3/12](#) ; oil cans [F16N 3/04](#) ; containers for carrying smallarms [F41C 33/06](#) ; packaging of ammunition or explosive charges [F42B 39/00](#) ; containers for record carriers, specially adapted for co-operation with the recording or reproducing apparatus [G11B 23/00](#))

NOTE

Attention is drawn to Note (4) following the title of this subclass

- B65D 85/08 · for compressible or flexible rod-shaped or tubular articles {(collapsible tubes per se [B65D 35/00](#))}
- B65D 85/67 · for other web or tape-like material {(with means for dispensing [B65D 83/08](#))}
- U B65D 85/70** · for materials not otherwise provided for
- B65D 85/804 · · Disposable containers or packages with contents which are {mixed,}infused or dissolved in situ {i.e. without having been previously removed from the package ([B65D 65/46](#) takes precedence; tea infusers [A47G 19/16](#) ; spoons or stirrers comprising beverage additives [A47G 21/04](#))}
- U B65D 85/808** · · · for immersion in the liquid {to release part or all of their contents}, e.g. tea bags
- B65D 85/812 · · · with features facilitating their {manipulation or}suspension {([B65D 85/8085](#) takes precedence)}
- U B65D 90/00** **Component parts, details or accessories for large containers ([B65D 88/34](#) to [B65D 88/78](#) take precedence)**
- U B65D 90/02** · Wall construction
- B65D 90/04 · · Linings {(for flexible containers [B65D 88/1606](#))}
- U B65D 2588/00** **Large container (not used)**
- U B65D 2588/16** · flexible (not used)
- B65D 2588/162 · · Flexible intermediate bulk containers (FIBC) (not used)

**Project: N/A (B65F)**

- U B65F 1/00** **Refuse receptacles; {Accessories therefor}(containers not specially adapted for refuse, features of refuse receptacles of general interest [B65D](#))**
- U B65F 1/0033** · {specially adapted for segregated refuse collecting, e.g. receptacles with several compartments; Combination of receptacles ([B65F 1/0093](#) takes precedence)}
- U B65F 1/0053** · · {Combination of several receptacles}
- B65F 1/0073 · · · {Flexible receptacles fixed on a frame or in an enclosure (sack holders per se [B65B 7/12](#))}

**Project: N/A (B65G)**

- U B65G 1/00** Storing articles, individually or in orderly arrangement, in warehouses or magazines (conveyer 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-freed apparatus [G07F](#){ pallets [B65D 19/00](#)})
- U B65G 1/04** • • mechanical
- U B65G 1/06** • • • with means for presenting articles for removal at predetermined position or level ([B65G 1/12](#) takes precedence)
- B65G 1/08** • • • • the articles being fed by gravity {(braking arrangements for roller-ways [B65G 13/075](#) ; separating or stopping elements [B65G 47/88](#))}
- B65G 1/10** • • • • with relatively movable racks to facilitate insertion or removal of articles {(cabinets with means for moving compartments up and down [A47B 51/00](#) ; cabinet system, e.g. consisting of cabinets arranged in a row with means to open or close passages between adjacent cabinets [A47B 53/02](#))}
- U B65G 7/00** **Devices for moving or tilting heavy loads (for tilting and emptying barrels or casks [B65G 65/24](#))**
- U B65G 7/02** • Devices adapted to be interposed between loads and the ground or floor, e.g. crowbars with means for assisting conveyance of loads (crowbars per se [B66F 15/00](#))
- B65G 7/06** • • using fluid at high pressure supplied from an independent source to provide a cushion between load and ground {(conveying articles over a flat surface by jets located in the surface [B65G 51/00](#))}
- U B65G 15/00** **Conveyers 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 15/22** • comprising a series of co-operating units
- B65G 15/26** • • extensible, e.g. telescopic {(adjustment of length or configuration of load-carrier [B65G 21/14](#))}
- U B65G 17/00** **Conveyers 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 conveyers 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 17/26** • comprising a series of co-operating units, e.g. inter-connected by pivots
- B65G 17/28** • • extensible, e.g. telescopic {(adjustment of length or configuration of traction element [B65G 21/14](#))}
- U B65G 17/30** • Details; Auxiliary devices (belts [B65G 15/30](#) ; framework [B65G 21/00](#))

- B65G 17/48
- Controlling attitudes of load-carriers during movement (B65G 17/18 takes precedence); (guides B65G 21/20 ; inverting or tilting load carriers to discharge contents B65G 47/38)
- U B65G 21/00** **Supporting or protective framework or housings for endless load-carriers or traction elements of belt or chain conveyers (for load-carriers in jiggling conveyers B65G 27/08) ; supporting framework or bases for conveyers as a whole B65G 41/00)**
- U 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 B65G 17/30 ; } rollers or roller arrangements B65G 39/00 ; F16G)
- U B65G 21/2009
- {Magnetic retaining means}
- B65G 21/2018
- {for retaining the load on the load-carrying surface, (retaining loads by magnetic load-carriers, e.g. belts B65G 15/58 , chains B65G 17/46 ; individual magnetic grippers B65G 17/323)}
- B65G 23/00** **Driving gear for endless conveyers {control devices (for conveyers in general B65G 43/00)}; Belt or chain tensioning arrangements**
- B65G 23/22
- Arrangements or mountings of driving motors {(B65G 23/08 takes precedence)}
- U B65G 27/00** **Jiggling conveyers (jigs for wet separation B03B; generating or transmitting mechanical vibrations B06; jiggers for screening, sifting or sorting B07B 1/28)**
- B65G 27/08
- Supports or mountings for load-carriers, e.g. framework, bases, spring arrangements {(spring arrangements as jiggling movement transmitting units B65G 27/10)}
- U B65G 27/10
- Applications of devices for generating or transmitting jiggling movements
- U B65G 27/16
- of vibrators, i.e. devices for producing movements of high frequency and small amplitude
- B65G 27/18
- Mechanical devices {(B65G 27/26 takes precedence)}
- U 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 43/04
- detecting slip between driving element and load-carrier, e.g. for interrupting the drive {(B65G 43/02 takes precedence)}
- B65G 43/08
- Control devices operated by article or material being fed, conveyed or discharged {(and controlling the discharging devices B65G 47/42)}
- U B65G 47/00** **Article or material handling devices associated with conveyers; Methods employing such devices (for sorting, e.g. postal B07C)**
- U B65G 47/22
- Devices influencing the relative position or the attitude of articles during transit by conveyers (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})
- B65G 47/28
- during transit by a single conveyer {(B65G 47/261 takes precedence)}
- B65G 47/29
- by temporarily stopping movement {(stopping elements B65G 47/88)}
- B65G 47/30
- during transit by a series of conveyers {(B65G 47/261 takes precedence)}
- B65G 47/32
- Applications of transfer devices {(such devices per se B65G 47/74)}

- U B65G 47/34 · Devices for discharging articles or materials from conveyers ([B65G 47/256](#) takes precedence; sorting in general [B07](#))
- B65G 47/42 · · operated by article or material being conveyed and discharged [{\(B65G 47/46 takes precedence\)}](#)
- U B65G 47/52 · Devices for transferring articles or materials between conveyers {or sections of one conveyer}, i.e. discharging and feeding devices (loading or unloading by means not incorporated in, or not operatively associated with, conveyers [B65G 65/00](#) ; transfer of workpieces during metal rolling [B21B 41/00](#))
- U B65G 47/68 · · adapted to receive articles arriving in one layer from one conveyer {lane} and to transfer them in individual layers to more than one conveyer {lane or to one broader conveyer lane}, or vice-versa, e.g. combining the flows of articles conveyed by more than one conveyer
- B65G 47/69 · · · the articles being accumulated temporarily [{\(accumulating articles during transit B65G 47/261\)}](#)
- U B65G 47/74 · Feeding, transfer, or discharging devices of particular kinds or types
- B65G 47/78 · · Troughs having discharge openings and closures [{\(in air-slides B65G 53/20\)}](#)
- B65G 47/82 · · Rotary or reciprocating members for direct action on articles or materials, e.g. pushers, rakes, shovels [{\(means for pushing glass articles onto a conveyor C03B 9/453\)}](#)
- B65G 47/84 · · Star-shaped wheels or devices having endless travelling belts or chains, the wheels or devices being equipped with article-engaging elements [{\(not used, see B65G 47/841 , B65G 47/846\)}](#)
- U B65G 47/94 · · Devices for flexing or tilting travelling structures; Throw-off carriages
- B65G 47/96 · · · Devices for tilting links or platform [{\(releasing load-carriers B65G 47/38\)}](#)
- U B65G 49/00 Conveying systems characterised by their application for specified purposes not otherwise provided for (for conveying sheet material [B65H](#))**
- U B65G 49/05 · for fragile or damageable materials or articles
- U 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 49/062 · · · {Easels, stands or shelves, e.g. castor-shelves, supporting means on vehicles; [\(vehicles adapted to carry glass sheets B60P 3/002](#) ; storing articles [B65G 1/00](#) or [A47B 53/02](#) ; packaging for glass sheets [B65D 85/48](#))}
- 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](#); [C13C](#);} 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](#)})**
- U B65G 53/34 · Details
- B65G 53/66 · · use of indicator or control devices, e.g. for controlling gas pressure, for controlling proportions of material and gas, for indicating or preventing jamming of material [{\(controlling the flow of coal firing systems C21B 5/003\)}](#)

- U 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](#))
- B65G 63/04 · with essentially horizontal transit by bridges equipped with conveyers {(cranes [B66C](#))}
- U B65G 65/00** **Loading or unloading (of vehicles [B65G 67/00](#))**
- 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
- U B65G 65/34** · · Emptying devices (conveyer constructions [B65G 15/00](#) to [B65G 35/00](#) ; devices similar to vehicle tipplers [B65G 67/48](#))
- U B65G 65/40** · · · Devices for emptying otherwise than from the top
- B65G 65/48** · · · · using other rotating means, e.g. rotating pressure sluices in pneumatic systems {([B65G 53/46](#) takes precedence)}
- U 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
- B65G 67/04** · · Loading land vehicles {(loading or unloading boats to or from land vehicles [B60P 3/10](#))}

**Project: N/A (B65H)**

- U B65H 1/00** **Supports or magazines for piles from which articles are to be separated (carriers used for associating, collating, or gathering articles [B65H 39/00](#))**
- B65H 1/08 · with means for advancing the articles to present the articles to the separating device {([B65H 1/02](#) takes precedence)}
- B65H 1/10 · · comprising weights {([B65H 1/022](#) takes precedence)}
- B65H 1/12 · · comprising spring {([B65H 1/022](#) takes precedence)}
- B65H 1/14 · · comprising positively-acting mechanical devices {([B65H 1/025](#) takes precedence)}
- B65H 1/16 · · comprising pneumatic or hydraulic means {([B65H 1/18](#) , [B65H 1/20](#) take precedence)}
- B65H 1/30 · with means for replenishing the pile during continuous separation of articles therefrom {([B65H 1/22](#) takes precedence)}
- U B65H 3/00** **Separating articles from piles (associating, collating, or gathering articles [B65H 39/00](#) ; machines for separating superposed webs [B65H 41/00](#) ; unpiling thin material combined with folding [B65H 45/26](#) ; combinations of piling and depiling operations, of interest apart from the single operation of piling or depiling [B65H 83/00](#) , {[B07C 1/02](#) , [G07D 11/0084](#))}**
- U B65H 3/02** · using friction forces between articles and separator

- B65H 3/06      · · Rollers or like rotary separators {(B65H 3/42 takes precedence)}
- B65H 3/08      · using pneumatic force {(B65H 3/40 , B65H 3/42 take precedence)}
- U B65H 3/46      · Supplementary devices or measures to assist separation or prevent double feed (control means comprising detectors responsive to double feed B65H 7/12)
- B65H 3/56      · · Elements, e.g. scrapers, fingers, needles, brushes, acting on separated article or on edge of the pile {(B65H 3/52 takes precedence)}
- 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 conveyers and grippers B65H 5/085 ; by suction belts B65H 5/224)}
- B65H 5/06      · by rollers {or balls e.g. between rollers (transport by suction rollers B65H 5/226)}
- B65H 16/00      Unwinding, paying-out webs {(reel-to-reel type web winding and unwinding mechanisms B65H 18/103 , B65H 18/145)}**
- U B65H 18/00      Winding webs**
- U B65H 18/08      · Web-winding mechanisms
- U B65H 18/14      · · Mechanisms in which power is applied to web roll, e.g. to effect continuous advancement of web
- U B65H 18/16      · · · by friction roller
- B65H 18/18      · · · · to effect step-by-step advancement of web {(not used)}
- U B65H 18/22      · · · by friction band
- B65H 18/24      · · · · to effect step-by-step advancement of web {(not used)}
- 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**
- B65H 29/16      · by contact of one face only with moving tapes, bands, or chains {(with suction belts B65H 29/242)}
- B65H 29/20      · by contact with rotating friction members, e.g. rollers, brushes, or cylinders {(with suction rollers B65H 29/243)}
- U B65H 29/54      · Article strippers, e.g. for stripping from advancing elements
- B65H 29/56      · · for stripping from elements or machines {(for electrographic machines G03G)}
- U B65H 29/66      · Advancing articles in overlapping streams
- B65H 29/6672      · · {dividing an overlapping stream into two or more streams; {(articles switches or diverters B65H 29/58)}
- U B65H 33/00      Forming counted batches in delivery pile or stream of articles**

- B65H 33/14
- by diverting batches to separate receivers {(B65H 33/16 takes precedence; article switches or diverters [B65H 29/58](#))}
- U B65H 39/00**      **Associating, collating or gathering articles or webs (machines for both collating or gathering and permanently attaching together sheets or signatures [B42C 1/00](#))**
- B65H 39/10
- Associating articles from a single source, to form e.g. a writing-pad {(laminating [B32B 37/00](#) , [B32B 38/00](#))}
- 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](#))**
- U B65H 45/12
- Folding articles or webs with application of pressure to define or form crease lines ([B65H 20/28](#) takes precedence; pleating, kilting or goffering textile fabrics [D06J](#))
- B65H 45/20
- · Zig-zag folders {(B65H 45/228 takes precedence)}
- U B65H 49/00**      **Unwinding or paying-out filamentary material; Supporting, storing or transporting packages from which filamentary material is to be withdrawn or paid-out (winding [B65H 54/00](#) ; bobbins, tubes or other cores for packages [B65H 75/00](#))**
- U B65H 49/18
- Methods or apparatus in which packages rotate (flyers or other guides assisting paying-out [B65H 57/00](#) ; supports or holders, for storing and repeatedly paying-out and rewinding lengths of material provided for particular purposes [B65H 75/34](#))
- U B65H 49/20
- · Package-supporting devices
- B65H 49/28
- · · Turntables {i.e. package resting on a table (having also means for clamping the package [B65H 49/30](#))}
- U B65H 51/00**      **Forwarding filamentary material (stretch-spinning methods [D01D 5/12](#) ; drawing or drafting rovings or the like [D01H 5/00](#))**
- U B65H 51/20
- Devices for temporarily storing filamentary material during forwarding, e.g. for buffer storage
- B65H 51/22
- · Reels or cages, e.g. cylindrical, with storing and forwarding surfaces provided by rollers or bars {(measuring and temporarily storing the weft in looms [D03D 47/36](#) ; thread feeding devices for weft knitting machines [D04B 15/48](#))}
- 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 54/64
- Winding of balls; {(Forming hollow objects by winding on to fusible or soluble cores, e.g. forming pressure vessels [B29C 53/56](#))}
- U B65H 67/00**      **Replacing or removing cores, receptacles, or completed packages at paying-out, winding, or depositing stations**
- B65H 67/04
- Arrangements for removing completed take-up packages and {or}replacing by cores, formers, or empty receptacles at winding or depositing stations; Transferring material between adjacent full and empty take-up elements {(arrangement of the service carriage [B65H 54/26](#))}

- 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 69/00**      **Methods of, or devices for, interconnecting successive lengths of material; Knot-tying devices; Control of the correct working of the interconnecting device}**
- B65H 69/06
- by splicing {(Grommets made by splicing [D07B 1/18](#) , auxiliary apparatus for splicing ropes or cables [D07B 7/16](#))}
- U B65H 75/00**      **Storing webs, tapes, or filamentary material, e.g. on reels (fishing reels [A01K 89/00](#) ; storing means for record carriers, specially adapted for cooperation with the recording or reproducing apparatus [G11B 23/02](#))**
- U B65H 75/02
- Cores, formers, supports, or holders for coiled, wound, or folded material, e.g. reels, spindles, bobbins, cop tubes, cans (packaging aspects [B65D 85/67](#))
- U B65H 75/18
- · Constructional details
- B65H 75/20
- · · Skeleton construction, e.g. formed of wire {(perforated supports for textile materials to be treated [D06B 23/042](#))}
- U B65H 75/34
- · specially adapted or mounted for storing and repeatedly paying-out and restoring lengths of material provided for particular purposes, e.g. anchored hoses, power cables (retractors for storing flexible hoses as accessories of dental work stands [A61G 15/18](#) ; vehicle safety belt retractors [B60R 22/34](#) ; hose-storing devices in apparatus or devices for transferring liquids from bulk storage containers or reservoirs into vehicles or portable containers [B67D 7/40](#) ; clothes-line supports [D06F 53/00](#) ; spring drums for liftable blinds with horizontal lamellae [E06B 9/322](#) ; spring drums or tape drums for roll-type closures or roller blinds [E06B 9/56](#) ; hauling- or hoisting-chains with arrangements for holding electric cables, hoses or the like [F16G 13/16](#) ; devices for guiding pipes, cables or protective tubing, between relatively movable points, e.g. movable channels, [F16L 3/01](#) ; flexible rulers or tapes with scales [G01B 3/10](#) ; electrical features of stored material, see the relevant subclasses, e.g. [H02G](#))
- U B65H 75/38
- · · involving the use of a core or former internal to, and supporting, a stored package of material
- U B65H 75/44
- · · · Constructional details
- B65H 75/48
- · · · · Automatic restoring devices {([B65H 75/4418](#) takes precedence)}

**Project: N/A (B66B)**

- U B66B 1/00**      **Control systems of elevators in general (safety devices [B66B 5/00](#) ; controlling door or gate operation [B66B 13/00](#) ; systems of general application [G05](#))**
- U B66B 1/02
- Control systems without regulation, i.e. without retroactive action
- U B66B 1/06
- · electric
- U B66B 1/14
- · · with devices, e.g. push-buttons, for indirect control of movements
- B66B 1/16
- · · · with means for storing pulses controlling the movements of a single car or cage {([B66B 1/2433](#) takes precedence)}
- B66B 1/18
- · · · with means for storing pulses controlling the movements of several cars or cages {([B66B 1/2458](#) takes precedence)}
- B66B 1/20
- · · · · and for varying the manner of operation to suit particular traffic conditions, e.g. "one-way rush-hour traffic", {([B66B 1/2466](#) takes precedence)}
- U B66B 1/24
- Control systems with regulation, i.e. with retroactive action, for influencing travelling speed, acceleration, or deceleration

- U B66B 1/28
  - • electrical (detecting excessive speed [B66B 5/04](#)); {(control of electrical motor [H02P](#))}
- U B66B 9/00
  - **Kinds or types of lifts in, or associated with, buildings or other structures (characterised by control systems [B66B 1/00](#) ; apparatus for raising or lowering persons on stages of theatres [A63J 5/12](#))**
- U B66B 9/06
  - inclined, e.g. serving blast furnaces
- B66B 9/08
  - • associated with stairways, e.g. for transporting disabled persons {(facilitating access of invalids to vehicles [A61G 3/02](#))}

**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
- U 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](#))}
- B66D 1/16
  - • • the drums or barrels being freely rotatable { e.g. having a clutch activated independently of a brake ([B66D 1/20](#), [B66D 1/22](#), [B66D 1/24](#) take precedence; clutches activated alternately with brakes [B66D 1/14](#), slip couplings [B66D 1/14](#))}
- B66D 1/24
  - • • for varying speed or reversing direction of rotation of drums or barrels {i.e. variable ratio or reversing gearing ([B66D 1/225](#) takes precedence)}

**Project: N/A (B66F)**

- U B66F 3/00
  - **Devices, e.g. jacks, adapted for uninterrupted lifting of loads (mobile jacks of the garage type [B66F 5/00](#))**
- B66F 3/22
  - Lazy-tongs mechanisms {([B66F 11/042](#) takes precedence)}

**Project: N/A (B67D)**

- U B67D 1/00
  - **Apparatus or devices for dispensing beverages on draught ([B67D 3/00](#) takes precedence; apparatus for making beverages [A47J 31/00](#))**
- U B67D 1/08
  - Details
- B67D 1/0855
  - • {concerning the used flowmeter (flowmeter per se [G01F 1/00](#), [G01F 3/00](#))}

**Project: N/A (B81B)****B81B**

**MICRO-STRUCTURAL DEVICES OR SYSTEMS, e.g. MICRO-MECHANICAL DEVICES (piezo-electric, electrostrictive or magnetostrictive elements per se [H01L 41/00](#))**

**NOTES**

1. This subclass does not cover:
  - purely electrical or electronic devices per se which are covered by section H, e.g. subclass [H01L](#);
  - purely optical devices per se which are covered by subclasses [G02B](#) or [G02F](#);
  - essentially two-dimensional structures, e.g. layered products which are covered by subclass [B32B](#);
  - chemical or biological structures per se which are covered by section C;

- structures in atomic scale produced by manipulation of single atoms or molecules, which are covered by group [B82B 1/00](#).
2. Devices or systems classified in this subclass are also classified in appropriate subclasses providing for their structural or functional features, if such features are of interest.
3. Attention is drawn to the following places:  
[A61K 9/50](#) Microcapsules for medicinal preparations [B25J 7/00](#)  
Micromanipulators [G02B 21/32](#) Micromanipulators combined with microscopes [G11B 5/127](#) Magnetic heads [H01P 3/08](#) Waveguide microstrips.
4. In this subclass, local "residual" subgroups, e.g. [B81B 7/0077](#), are used with the following purpose:  
When classifying a document which does not fit in any of a set of subgroups with the same dot-level, the document should be classified in the residual group, if present, and not in the group at the hierarchical level one dot above.

In the example, the document shall be classified in [B81B 7/0077](#) and not in [B81B 7/0032](#) as [B81B 7/0077](#) is "residual" to [B81B 7/0035-B81B 7/0074](#)

**Project: N/A (C01B)**

**U 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 3/02
- Production of hydrogen or of gaseous mixtures containing {a substantial proportion of}hydrogen
- C01B 3/04
- • by decomposition of inorganic compounds, e.g. ammonia {([C01B 3/0005](#) takes precedence)}
- U C01B 3/50
- Separation of hydrogen or hydrogen containing gases from gaseous mixtures, e.g. purification ([C01B 3/14](#) takes precedence)
- C01B 3/52
- • by contacting with liquids; Regeneration of used liquids {([C01B 3/508](#) takes precedence)}
- C01B 3/56
- • by contacting with solids; Regeneration of used solids {([C01B 3/508](#) takes precedence)}
- U C01B 13/00**
- Oxygen; Ozone; Oxides or hydroxides in general**
- U C01B 13/02
- Preparation of oxygen (by liquefying [F25J](#))
- C01B 13/08
- • from air with the aid of metal oxides, e.g. barium oxide, manganese oxide {([C01B 13/0292](#) takes precedence)}
- U 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)

- C01B 13/36
- • by precipitation reactions in {aqueous} solutions {{(C01B 13/328 takes precedence)}
- U C01B 21/00 Nitrogen; Compounds thereof**
- U C01B 21/20
- Nitrogen oxides; Oxyacids of nitrogen; Salts thereof
- C01B 21/206
- • {Nitric anhydride ( $N_2O_5$ )} {{(C01B 21/203 takes precedence)}
- C01B 21/22
- • Nitrous oxide ( $N_2O$ ) {{(C01B 21/203 takes precedence)}
- C01B 21/24
- • Nitric oxide (NO) {{(C01B 21/203 takes precedence)}
- C01B 21/30
- • • Preparation by oxidation of nitrogen {{(C01B 21/26 takes precedence)}
- C01B 21/34
- • Nitrogen trioxide ( $N_2O_3$ ) {{(C01B 21/203 takes precedence)}
- U C01B 21/38
- • Nitric acid
- C01B 21/40
- • • Preparation by absorption of oxides of nitrogen {{(C01B 21/26 takes precedence)}
- C01B 21/44
- • • Concentration {{(C01B 21/40 takes precedence)}
- 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 25/18
- • Phosphoric acid
- U C01B 25/234
- • • Purification; Stabilisation; Concentration (purification concomitant with preparation C01B 25/22 ; preparation involving solvent-solvent extraction C01B 25/46)
- C01B 25/237
- • • • Selective elimination of impurities {{(C01B 25/2343 takes precedence)}
- U C01B 25/26
- • Phosphates (perphosphates C01B 15/16)
- C01B 25/455
- • • containing halogen {{(completely halogenated alkali metal phosphates C01D , e.g. lithium hexafluorophosphate C01D 15/005)}
- 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 31/08
- Active carbon
- C01B 31/10
- • Preparation by using gaseous activating agents {{(C01B 31/086 , C01B 31/088 take precedence)}
- C01B 31/12
- • Preparation by using non-gaseous activating agents {{(C01B 31/086 , C01B 31/088 take precedence)}
- U C01B 33/00 Silicon; Compounds thereof ({C01B 6/00}, C01B 21/00, C01B 23/00 take precedence; persilicates C01B 15/14 ; carbides C01B 31/36)**
- C01B 33/113
- Silicon oxides; Hydrates thereof {{(preparing monoxide by reduction of siliceous material C01B 33/182)}
- U C01B 33/12
- • Silica; Hydrates thereof, e.g. lepidic silicic acid
- U C01B 33/14
- • • Colloidal silica, e.g. dispersions, gels, sols
- U C01B 33/146
- • • • After-treatment of sols {{preparation of hydrosols or aqueous dispersions from hydroorganosols, organosols or dispersions in an organic medium C01B 33/141}; preparation of hydroorganosols, organosols or dispersions in an organic medium from hydrosols{or aqueous dispersions}C01B 33/145)}
- C01B 33/148
- • • • • Concentration; Drying; Dehydration; Stabilisation; Purification {{(C01B 33/1465 takes precedence)}
- U C01B 33/20
- Silicates (persilicates C01B 15/14 ; { containing aluminium C01B 33/26})

- U C01B 33/36
- • having base-exchange properties but not having molecular sieve properties (regeneration thereof [B01J 49/00](#))
- C01B 33/38
- • • Layered base-exchange silicates, e.g. clays, micas or alkali metal silicates of kenyaite or magadiite type {(activation of naturally occurring clays [B01J 20/12](#) ; pillared layered base-exchange silicates [B01J 29/049](#))}
- C01B 33/46
- • • Amorphous silicates, e.g. so-called "amorphous zeolites" (crystalline zeolites [C01B 39/00](#))
- U C01B 35/00**
- Boron; Compounds thereof (monoborane, diborane, metal borohydrides or addition complexes thereof [C01B 6/00](#) ; perborates [C01B 15/12](#) ; binary compounds with nitrogen [C01B 21/06](#) ; { compounds of noble gases [C01B 23/0005](#) } ; phosphides [C01B 25/08](#) ; carbides [C01B 31/36](#) ; alloys containing boron [C22](#))**
- U C01B 35/08
- Compounds containing boron and nitrogen, phosphorus, oxygen, sulfur, selenium or tellurium
- U C01B 35/10
- • Compounds containing boron and oxygen ([C01B 35/06](#) takes precedence)
- C01B 35/12
- • • Borates {([C01B 35/1063](#) takes precedence)}
- 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

1. In this group, the following term is used with the meaning indicated:

- "zeolites" means:
  - i. crystalline aluminosilicates with base-exchange and molecular sieve properties, having three dimensional, microporous lattice framework structure of tetrahedral oxide units;
  - ii. 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.

2. 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
- U C01B 39/14
- • Type A
- C01B 39/16
- • • from aqueous solutions of an alkali metal aluminate and an alkali metal silicate excluding any other source of alumina or silica but seeds {([C01B 39/145](#) takes precedence)}
- C01B 39/18
- • • from a reaction mixture containing at least one aluminium silicate or aluminosilicate of a clay type, e.g. kaolin or metakaolin or its exotherm modification or allophane {([C01B 39/145](#) takes precedence)}
- U C01B 39/20
- • Faujasite type, e.g. type X or Y
- C01B 39/22
- • • Type X {([C01B 39/205](#) takes precedence)}
- C01B 39/24
- • • Type Y {([C01B 39/205](#) takes precedence)}

- C01B 39/26
  - • Mordenite type {(C01B 39/023 , C01B 39/026 , C01B 39/06 take precedence)}
- C01B 39/28
  - • Phillipsite or harmotome type {(C01B 39/023 , C01B 39/026 , C01B 39/06 take precedence)}
- C01B 39/46
  - • Other types characterised by their X-ray diffraction pattern and their defined composition {(C01B 39/023 , C01B 39/026 , C01B 39/06 take precedence)}
- C01B 39/50
  - Zeolites wherein inorganic bases or salts occlude channels in the lattice framework, e.g. sodalite, cancrinite, nosean, hauynite {(ultramarine C09C 1/32)}

**Project: N/A (C01F)****U C01F 7/00****Compounds of aluminium**

- U C01F 7/02
  - Aluminium oxide; Aluminium hydroxide; Aluminates
- U C01F 7/04
  - • Preparation of alkali metal aluminates; Aluminium oxide or hydroxide therefrom {(C01F 7/028 takes precedence)}
- C01F 7/06
  - • • by treating aluminous minerals {or waste-like raw materials} with alkali hydroxide, {e.g. leaching of bauxite according to the Bayer process} (obtaining aluminium oxide or hydroxide from the resulting aluminate solution C01F 7/14)}
- C01F 7/0666
  - • • • {Process control or regulation (control per se G05)}
- C01F 7/08
  - • • by treating aluminous minerals with sodium carbonate, {e.g. sinter processes (C01F 7/0613 and C01F 7/066 take precedence)}

**U C01F 17/00****Compounds of the rare earth metals, i.e. scandium, yttrium, lanthanum, or the group of the lanthanides**NOTE

In this group "rare earth metals" means one single element or a combination of elements taken from the group as specified above

- C01F 17/0043
  - {Oxides or hydroxides (ternary oxides or hydroxides, e.g. NaCeO<sub>2</sub> C01F 17/0018)}

**Project: N/A (C02F)****U C02F 1/00****Treatment of water, waste water, or sewage (C02F 3/00 to C02F 9/00 take precedence)**

- C02F 1/44
  - by dialysis, osmosis or reverse osmosis {(general membrane separation processes B01D 61/00 , membrane modules B01D 63/00 , electrodialysis C02F 1/4693 , combination of membrane modules and bioreactors C02F 3/1268)}
- C02F 1/52
  - by flocculation or precipitation of suspended impurities {(C02F 1/463 takes precedence)}
- U C02F 1/58
  - by removing specified dissolved compounds (using ion-exchange C02F 1/42 ; softening water C02F 5/00)
- C02F 1/60
  - • Silicon compounds {(C02F 1/583 takes precedence)}
- C02F 1/70
  - by reduction {(C02F 1/4676 takes precedence)}
- C02F 1/72
  - by oxidation {(C02F 1/4672 takes precedence)}
- C02F 1/76
  - • with halogens or compounds of halogens {(C02F 1/4674 takes precedence)}
- C02F 1/78
  - • with ozone {(C02F 1/4672 takes precedence)}

**C02F 3/00****Biological treatment of water, waste water, or sewage {(C02F 1/006 takes precedence)}**

**Project: N/A (C03B)**

- U C03B 5/00 Melting in furnaces; Furnaces so far as specially adapted for glass manufacture**
- C03B 5/04 · in tank furnaces [{\(C03B 5/02 takes precedence\)}](#)
  - C03B 5/06 · in pot furnaces [{\(C03B 5/02 takes precedence\)}](#)
  - C03B 5/10 · in combined tank furnaces and pots [{\(C03B 5/02 takes precedence\)}](#)
  - C03B 5/12 · in shaft furnaces [{\(C03B 5/02 takes precedence\)}](#)
  - C03B 5/14 · in revolving cylindrical furnaces [{\(C03B 5/02 takes precedence\)}](#)
- U C03B 5/16** · Special features of the melting process; Auxiliary means specially adapted for glass-melting furnaces
- C03B 5/18 · · Stirring devices; Homogenisation [{\(mixing in general B01F\)}](#)
- 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 [{\(C03B 7/08 , C03B 7/14 to C03B 7/22 take precedence\)}](#)
- U C03B 19/00 Other methods of shaping glass (manufacture or treatment of flakes, fibres or filaments from softened glass, minerals or slags [C03B 37/00](#))**
- C03B 19/04 · by centrifuging [{\(C03B 19/095 takes precedence\)}](#)
- U C03B 23/00 Re-forming shaped glass (re-forming fibres or filaments [C03B 37/14](#))**
- U C03B 23/04 · Re-forming tubes or rods
  - C03B 23/051 · · by gravity, e.g. sagging [{\(C03B 23/093 takes precedence\)}](#)
  - C03B 23/055 · · by rolling [{\(C03B 23/095 takes precedence\)}](#)
  - C03B 23/06 · · by bending [{\(C03B 23/096 takes precedence\)}](#)
  - C03B 23/07 · · by blowing, e.g. for making electric bulbs [{\(C03B 23/097 takes precedence\)}](#)
- U 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}**
- C03B 32/02 · Thermal crystallisation, e.g. for crystallising glass bodies into glass-ceramic articles [{\(C03B 27/012 takes precedence\)}](#)
- U C03B 33/00 Severing cooled glass (severing glass fibres [C03B 37/16](#))**
- U C03B 33/10 · Glass-cutting tools, e.g. scoring tools
  - U C03B 33/12 · · Hand tools (wheel design [C03B 33/107](#))
  - C03B 33/14 · · · specially adapted for cutting tubes, rods, or hollow products [{\(for cutting ampoules B67B 7/92\)}](#)
- U C03B 37/00 Manufacture or treatment of flakes, fibres, or filaments from softened glass, minerals, or slags**
- U C03B 37/01 · Manufacture of glass fibres or filaments
  - U C03B 37/012 · · Manufacture of preforms for drawing fibres or filaments
  - C03B 37/014 · · · made entirely or partially by chemical means, {e.g. vapour phase deposition of bulk porous glass either by outside vapour deposition (OVD), or by outside vapour phase oxidation (OVPO) or by vapour axial deposition (VAD)} [{\(C03C 17/02 takes precedence\)}](#)

- U C03B 37/02      • • by drawing or extruding, {e.g. direct drawing of molten glass from nozzles; Cooling fins therefor ([C03B 37/04](#) takes precedence; sizing of the fibres [C03C 25/00](#))}
- U C03B 37/025      • • • from reheated softened tubes, rods, fibres or filaments, {e.g. drawing fibres from preforms (draw-down of tubes, rods or preforms to reduced diameter preforms [C03B 37/0124](#))}
- C03B 37/028      • • • • Drawing fibre bundles, e.g. for making fibre bundles of multifibres, {image fibres; } (Drawing multicore or photonic crystal fibres [C03B 37/027](#))}

**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**

- 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.
- 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.
- 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.
- 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](#).
- 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](#).
- 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](#) to [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](#) to [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 2/00 Lime, magnesia or dolomite (hydraulic lime cements [C04B 7/34](#))**
- C04B 2/02 · Lime {(obtaining  $\text{Ca}(\text{OH})_2$  otherwise than by simple slaking of quick lime [C01F 11/02](#))}
- C04B 2/04 · · Slaking {(simultaneous dehydrating of gypsum and slaking of lime [C04B 11/022](#))}
- U C04B 7/00 Hydraulic cements (calcium sulfate cements [C04B 11/00](#))**
- U C04B 7/14 · Cements containing slag (slags from waste incineration [C04B 7/28](#))
- U C04B 7/147 · · Metallurgical slag
- U C04B 7/153 · · · Mixtures thereof with other inorganic cementitious materials or other activators
- C04B 7/17 · · · · with calcium oxide containing activators {([C04B 7/1535](#) takes precedence)}
- C04B 7/21 · · · · with calcium sulfate containing activators {([C04B 7/1535](#) takes precedence)}
- U C04B 7/24 · Cements from oil shales, residues or waste other than slag
- C04B 7/26 · · from raw materials containing flue dust, {i.e. fly ash ([C04B 7/243](#) takes precedence)}
- U C04B 7/36 · Manufacture of hydraulic cements in general
- C04B 7/38 · · Preparing or treating the raw materials individually or as batches, {e.g. mixing with fuel; ([C04B 7/362](#) takes precedence)}
- C04B 7/43 · · Heat treatment, e.g. precalcining, burning, melting; Cooling {(aspects only relating to the installation [F27B](#))}
- C04B 7/60 · · Methods for eliminating alkali metals or compounds thereof, {e.g. from the raw materials or during the burning process; methods for eliminating other harmful components (avoiding environmental pollution [C04B 7/364](#))}
- U C04B 11/00 Calcium sulfate cements**
- 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)}

- 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}
- U C04B 14/04 · · Silica-rich materials; Silicates
- C04B 14/10 · · · Clay {(sepiolite [C04B 14/042](#) ; grog [C04B 18/025](#))}
- C04B 14/14 · · · Minerals of vulcanic origin {(granite [C04B 14/048](#))}
- C04B 14/20 · · · Mica; Vermiculite {(Mechanical splitting [B28D](#))}
- C04B 14/30 · · Oxides other than silica {(ferrites [C04B 14/363](#))}
- U C04B 14/38 · Fibrous materials; Whiskers
- U C04B 14/42 · · Glass
- C04B 14/44 · · · Treatment for enhancing alkali resistance {(composition of alkali resistant glass fibres [C03C 13/00](#) ; coating of glass fibres [C03C 25/10](#))}
- C04B 14/46 · · Rock wool; {Ceramic or silicate fibres ([C04B 14/40](#) , [C04B 14/42](#) take precedence)}

- U C04B 16/00 Use of organic materials as fillers, e.g. pigments, for mortars, concrete or artificial stone; Treatment of organic materials specially adapted to enhance their filling properties in mortars, concrete or artificial stone**

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 16/04 · Macromolecular compounds ([C04B 16/02](#) takes precedence)
- C04B 16/10 · · Treatment for enhancing the mixability with the mortar {(coating [C04B 20/10](#))}

- U C04B 18/00 Use of agglomerated or waste materials or refuse as fillers for mortars, concrete or artificial stone (use of waste materials for the manufacture of cement [C04B 7/24](#)); Treatment of agglomerated or waste materials or refuse, specially adapted to enhance their filling properties in mortars, concrete or artificial stone**

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 18/04 · Waste materials; Refuse {([C04B 14/405](#) takes precedence)}
- C04B 18/16 · · from building or ceramic industry {(separating plants for waste concrete slurry [B03B 9/063](#))}
- U C04B 18/18 · · organic ([C04B 18/10](#) takes precedence)
- C04B 18/20 · · · from macromolecular compounds {(recycled expanded polystyrene [C04B 16/08](#))}
- C04B 18/30 · · Mixed waste; Waste of undefined composition, {([C04B 18/10](#) takes precedence)}

**U 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

- U C04B 20/02 · Treatment
- C04B 20/08 · · Defibrillating asbestos {(defibrillating other fibres [C04B 20/026](#))}
- C04B 20/10 · Coating or impregnating {(roofing granules [E04D 7/005](#))}

**U 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 24/12 · Nitrogen containing compounds {organic derivatives of hydrazine (hydrazine [C04B 22/00](#))}
- U C04B 24/24 · Macromolecular compounds ([C04B 24/14](#) takes precedence; macromolecular compounds comprising sulfonate or sulfate groups [C04B 24/16](#))
- C04B 24/26 · · obtained by reactions only involving carbon-to-carbon unsaturated bonds {([C04B 24/243](#) takes precedence)}
- C04B 24/28 · · obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds {([C04B 24/243](#) takes precedence)}
- C04B 24/34 · · Natural resins, e.g. rosin {([C04B 24/243](#) takes precedence)}
- C04B 24/36 · · Bituminous materials, e.g. tar, pitch {([C04B 24/243](#) takes precedence)}
- C04B 24/38 · · Polysaccharides or derivatives thereof {([C04B 24/243](#) takes precedence)}

**C04B 26/00** Compositions of mortars, concrete or artificial stone, containing only organic binders, {e.g. polymer or resin concrete (mechanical aspects moulding polymer or resin concrete [B29C 67/242](#))}

**U 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 28/14 · containing calcium sulfate cements {(gypsum-paper plates [E04C](#))}
  - C04B 28/24 · containing alkyl, ammonium or metal silicates; containing silica sols {(reaction mixtures resulting in mineral polymers [C04B 28/006](#); polymeric reaction products of alkali metal silicates with isocyanates [C08G 18/3895](#))}
- U C04B 32/00** Artificial stone not provided for in other groups of this subclass

- C04B 32/02      · with reinforcements {(contains no documents; reinforcing elements [E04C 5/00](#))}
- NOTE**  
This group is only used for indexing purposes
- U 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 [C04B2235/34H](#), [C04B2235/602N](#), [C04B 2235/604](#) and [C04B 2235/9661](#) ) to identify aspects relating to ceramic starting mixtures and sintered ceramic products
- U C04B 33/02      · Preparing or treating the raw materials individually or as batches
- U C04B 33/13      · · Compounding ingredients ([C04B 33/36](#) , [C04B 35/71](#) take precedence; { pigments for ceramics [C09C 1/0009](#)})
- U C04B 33/132      · · · Waste materials; Refuse;{Residues}{[C04B 33/16](#) takes precedence; { waste glass [C04B 33/13](#)})
- C04B 33/135      · · · · Combustion residues, e.g fly ash, incineration waste {(silica fume [C04B 33/132](#))}
- U 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
- C04B 35/16      · · based on silicates other than clay {(zircon [C04B 35/48](#))}
- C04B 35/20      · · · rich in magnesium oxide,{e.g. forsterite}{([C04B 35/195](#) takes precedence)}

- C04B 35/22      • • • rich in calcium oxide, {e.g. wollastonite ([C04B 35/195](#) takes precedence)}
- C04B 35/50      • based on rare-earth compounds {(non-oxide rare earth compounds [C04B 35/5156](#))}
- U C04B 35/515    • based on non-oxide ceramics
- C04B 35/56      • • based on carbides {or oxycarbides (containing free metal binder [C22C 29/00](#))}
- C04B 35/58      • • based on borides, nitrides, [i.e. nitrides, oxynitrides, carbonitrides or oxycarbonitrides] or silicides {(containing free binder metal [C22C 29/00](#))}
- U 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 **[C04B2235/66P](#)**

- 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](#)
- U C04B 35/64      • • Burning or sintering processes ([C04B 33/32](#) takes precedence; { powder metallurgy [B22F](#)})
- C04B 35/65      • • • Reaction sintering of free metal- or free silicon-containing compositions {([C04B 35/573](#) , [C04B 35/591](#) take precedence)}
- C04B 35/66      • Monolithic refractories or refractory mortars, including those whether or not containing clay {(making or repairing of linings [F27D 1/16](#))}
- 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](#)

- U C04B 35/78      • • containing non-metallic materials
- C04B 35/80      • • • Fibres, filaments, whiskers, platelets, or the like {(carbon reinforced with carbon fibres see [C04B 35/83](#))}

- U 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

- 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 41/46  
C04B 41/49

- • with organic materials
- • • Compounds having one or more carbon-to-metal or carbon-to-silicon linkages {Organo-clay compounds; Organo-silicates, i.e. ortho- or polysilicic acid esters (to obtain SiO<sub>2</sub> [C04B 41/5089](#) , [C04B 41/5035](#)); Organo-phosphorus compounds; Organo-inorganic complexes}

NOTE

As distinct from the general practice in [C04B 41/00](#) , classification in [C04B 41/49](#) and sub-groups is done according to the nature of the starting products, not according to the nature of the end products

U C04B 41/50  
C04B 41/51

- • with inorganic materials
- • • Metallising,{e.g. infiltration of sintered ceramic preforms with molten metal (covering materials with metals in general [C23C](#) ; ceramic 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](#) ; infiltration of preforms containing free metal, e.g. cermets [C22C](#))}

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 2111/00 Mortars, concrete or artificial stone or mixtures to prepare them, characterised by specific function, property or use**

U C04B 2111/00474

· Uses not provided for elsewhere in [C04B 2111/00](#)

U C04B 2111/0081

· · as catalysts or catalyst carriers

C04B 2111/00827

· · · Photocatalysts; (Materials containing photocatalysts to avoid staining by air pollutants [C04B 2111/2061](#))

**Project: N/A (C06B)**

**U C06B 23/00 Compositions characterised by non-explosive or non-thermic constituents {(in combination with specific explosives [C06B 25/20](#), [C06B 25/26](#), [C06B 29/04](#), [C06B 29/08](#), [C06B 31/06](#), [C06B 31/40](#), [C06B 33/02](#))}**

C06B 23/006

· {Stabilisers (e.g. thermal stabilisers)} (processes [C06B 21/0091](#); foam stabilisers [C06B 23/002](#))

**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](#)

#### **Project: N/A (C07D)**

- U [C07D 309/00](#) **Heterocyclic compounds containing six-membered rings having one oxygen atom as the only ring hetero atom, not condensed with other rings**
- U [C07D 309/02](#) • having no double bonds between ring members or between ring members and non-ring members
- U [C07D 309/08](#) • with hetero atoms or with carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals, directly attached to ring carbon atoms

- C07D 309/14
- • • Nitrogen atoms not forming part of a nitro radical [{\(nitro radical C07D 309/08\)}](#)

**Project: N/A (C07H)****U C07H 3/00**

**Compounds containing only hydrogen atoms and saccharide radicals having only carbon, hydrogen and oxygen atoms (preparation by hydrolysis of di- or polysaccharides [C13](#) and subgroups; separation and purification of sucrose, glucose, fructose, lactose or maltose [C13](#))**

- C07H 3/08
- Deoxysugars; Unsaturated sugars (1,2-dideoxy-1-enoses [C07D](#)); Osones [{\(C07H 3/04 , C07H 3/06 take precedence\)}](#)

- C07H 3/10
- Anhydrosugars, e.g. epoxides [{\(C07H 3/04 , C07H 3/06 take precedence\)}](#)

**C07H 5/00**

**Compounds containing saccharide radicals in which hetero bonds to oxygen have been replaced by the same number of hetero bonds to halogen, nitrogen, sulfur, selenium or tellurium [{\(when the hetero-atom is substituted C07H 11/00 , C07H 13/00 , C07H 15/00 , C07H 17/00 ; when the hetero-atom\(s\) form\(s\) part of a heteroring C07H 9/00 , C07H 19/00 , C07H 21/00 ; C07H 3/04 , C07H 3/06 , take precedence\)}](#)**

**U C07H 5/04**

- to nitrogen

**C07H 5/06**

- • Aminosugars [{\(NH-acyl C07H 11/00 , C07H 13/00 ; NHR or NR2 C07H 15/00\)}](#)

**C07H 7/00**

**Compounds containing non-saccharide radicals linked to saccharide radicals by a carbon-to-carbon bond [{\(C07H 3/04 , C07H 3/06 take precedence\)}](#)**

**C07H 7/02**

- Acyclic radicals, e.g. glycuronic acids {gamma-lactones of 2- or 3-ketohexanoic or -pentanoic acids and derivatives thereof, (e.g. enol forms [C07D 307/62](#)), e.g. ascorbic acid (1); D-galacturono-gamma-lactone (2); D-glucono-gamma-lactone (3); saccharosonic acid (4); D-gulono-gammalactone (5) Images}

**C07H 13/00**

**Compounds containing saccharide radicals esterified by carbonic acid or derivatives thereof, or by organic acids, e.g. phosphonic acids [{\(acetals C07H9/04D ; C07H 3/04 , C07H 3/06 , C07H13/12U take precedence; C07H 9/00 takes precedence when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides C07H 19/00\)}](#)**

**C07H 13/02**

- by carboxylic acids [{\(C07H 3/04 , C07H 3/06 take precedence\)}](#)

**C07H 13/04**

- • having the esterifying carboxyl radicals attached to acyclic carbon atoms [{\(C07H 3/04 , C07H 3/06 take precedence\)}](#)

**C07H 13/08**

- • having the esterifying carboxyl radicals directly attached to carbocyclic rings [{\(C07H 3/04 , C07H 3/06 take precedence\)}](#)

**C07H 13/10**

- • having the esterifying carboxyl radicals directly attached to heterocyclic rings [{\(C07H 3/04 , C07H 3/06 take precedence\)}](#)

**C07H 13/12**

- by acids having the group -X-C(=X)-X-, or halides thereof, in which each X means nitrogen, oxygen, sulfur, selenium or tellurium, e.g. carbonic acid, carbamic acid [{\(C07H 3/04 , C07H 3/06 take precedence\)}](#)

- C07H 15/00** Compounds containing hydrocarbon or substituted hydrocarbon radicals directly attached to hetero atoms of saccharide radicals {(acylated on hetero atoms of the saccharide radical [C07H 13/00](#) ; derivatives of bis methylen dioxy carbohydrates [C07H9/04D](#) ; [C07H 3/04](#) , [C07H 3/06](#) , take precedence; [C07H 9/00](#) takes precedence when at least one ring heteroatom is different from oxygen, however anhydro derivatives of nucleosides and nucleotides [C07H 19/00](#))}
- NOTE  
In this group, acyl radicals directly attached to hetero atoms of the saccharide radicals are not considered as substituted hydrocarbon radicals.
- C07H 15/02 • Acyclic radicals, not substituted by cyclic structures {([C07H 3/04](#) , [C07H 3/06](#) , [C07H15/00F](#) take precedence)}
- C07H 15/04 • • attached to an oxygen atom of the saccharide radical {([C07H 3/04](#) , [C07H 3/06](#) take precedence)}
- C07H 15/10 • • containing unsaturated carbon-to-carbon bonds {([C07H 3/04](#) , [C07H 3/06](#) take precedence)}
- C07H 15/12 • • attached to a nitrogen atom of the saccharide radical {([C07H 3/04](#) , [C07H 3/06](#) , [C07H15/10D2](#) take precedence)}
- C07H 15/14 • • attached to a sulfur, selenium or tellurium atom of a saccharide radical {([C07H 3/04](#) , [C07H 3/06](#) , [C07H15/10D2](#) take precedence)}
- C07H 15/18 • Acyclic radicals, substituted by carbocyclic rings {(chalcones and hydrogenated chalcones derived from saccharides substituted by 1-benzopyran-4-one radicals are to be classified in [C07H 17/07](#) ; [C07H 3/04](#) , [C07H 3/06](#) , [C07H15/00F](#) , [C07H15/10D2](#) take precedence)}
- C07H 15/20 • Carbocyclic rings {([C07H15/00F](#) , [C07H15/10D2](#) take precedence)}
- U C07H 15/22 • • Cyclohexane rings, substituted by nitrogen atoms
- NOTE  
- for this two dot subdivision:  
Image  
- for the three dot subdivisions: ( [C07H15/22B](#) and [C07H 15/222](#) )
- C07H 15/222 • • Cyclohexane rings substituted by at least two nitrogen atoms {(at least two guanidine radicals [C07H 15/238](#))}
- C07H 17/00** Compounds containing heterocyclic radicals directly attached to hetero atoms of saccharide radicals {([C07H15/10D2](#) , [C07H 15/22](#) , [C07H 15/238](#) take precedence; [C07H 15/252](#) takes precedence when the naphthalene ring is further condensed to a heteroring)}
- C07H 19/00** Compounds containing a hetero ring sharing {only}one ring hetero atom with the saccharide radical{the ring-heteroatom of the saccharide radical is not to be taken into consideration}; Nucleosides; Mononucleotides {or mononucleosides}; Anhydro-derivatives thereof {([C07H15/10D2](#) takes precedence; intermediate for methods of chemical engineering [C07H21/00C4](#))}
- U C07H 19/02 • sharing nitrogen
- C07H 19/04 • • Heterocyclic radicals containing only nitrogen atoms as ring hetero atoms {([C07H19/02B](#) , [C07H19/02D](#) take precedence)}
- C07H 19/044 • • Pyrrole radicals {(Pyrrolo-pyrimidines [C07H 19/14](#))}
- C07H 19/048 • • Pyridine radicals {(Pyridino-pyrimidine [C07H19/06F](#) , [C07H19/10F](#))}
- C07H 19/052 • • Imidazole radicals {(Purines [C07H 19/16](#))}

- C07H 19/06
- • • Pyrimidine radicals {(purine [C07H 19/16](#) ; pyrimidino-triazines [C07H 19/12](#) ; pteridines [C07H 19/22](#) ; pyrrolo-pyrimidines [C07H 19/24](#))}

**Project: N/A (C07J)**

- C07J 13/00
- Normal steroids containing carbon, hydrogen, halogen or oxygen having a carbon-to-carbon double bond from or to position 17 {(for carbonyl groups [C07J 1/00](#))}**

**Project: N/A (C07K)**

- U C07K 1/00** **General methods for the preparation of peptides {i.e. processes for the organic chemical preparation of peptides or proteins of any length}**
- C07K 1/02
- in solution {([C07K 1/003](#) , [C07K 1/006](#) take precedence)}
- C07K 1/04
- on carriers {([C07K 1/003](#) , [C07K 1/006](#) take precedence)}
- C07K 1/06
- using protecting groups or activating agents {([C07K 1/003](#) , [C07K 1/006](#) take precedence)}
- C07K 1/08
- • using activating agents {([C07K 1/003](#) , [C07K 1/006](#) take precedence)}
- C07K 1/10
- using coupling agents {([C07K 1/006](#) takes precedence)}
- U C07K 14/00** **Peptides having more than 20 amino acids; Gastrins; Somatostatins; Melanotropins; Derivatives thereof**
- U 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.
- U C07K 14/315**
- • from Streptococcus (G), e.g. Enterococci
- C07K 14/3156**
- • • {from Streptococcus pneumoniae (Pneumococcus) ([Streptokinase C07K 14/3153](#))}
- U C07K 14/435**
- from animals; from humans
- C07K 14/705**
- • Receptors; Cell surface antigens; Cell surface determinants {(tumour specific antigens [C07K 14/4748](#))}
- C07K 14/72**
- • • for hormones {(for neuromediators [C07K 14/70571](#))}
- 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)**
- U C08B 1/00** **{Preparatory treatment of cellulose for making derivatives thereof, e.g. pre-treatment, pre-soaking, activation}**
- C08B 1/02
- Rendering cellulose suitable for esterification {(esterification per se, [C08B 3/00](#) , [C08B 5/00](#) , [C08B 7/00](#) or [C08B 9/00](#))}

- C08B 1/06 · Rendering cellulose suitable for etherification [{\(etherification per se C08B 11/00\)}](#)
- C08B 3/00 Preparation of cellulose esters of organic acids [{\(rendering cellulose suitable for esterification C08B 1/02\)}](#)**
- C08B 5/00 Preparation of cellulose esters of inorganic acids, {e.g. phosphates} [\(rendering cellulose suitable for esterification C08B 1/02\)}](#)**
- C08B 5/02 · Cellulose nitrate, {i.e. nitrocellulose} [\(rendering cellulose suitable for the preparation of cellulose nitrate C08B 1/04\)}](#)
- C08B 7/00 Preparation of cellulose esters of both organic and inorganic acids [{\(rendering cellulose suitable for esterification C08B 1/02\)}](#)**
- C08B 9/00 Cellulose xanthate; Viscose [{\(formation of films C08J 5/18 ; formation of fibres D01F; rendering cellulose suitable for esterification C08B 1/02\)}](#)**
- C08B 11/00 Preparation of cellulose ethers [{\(rendering cellulose suitable for etherification C08B 1/06\)}](#)**
- U C08B 30/00 Preparation of starch, degraded or non-chemically modified starch, amylose, or amylopectin**
- C08B 30/02 · Preparatory treatment, e.g. crushing of raw materials {or steeping process} [\(machines for preliminary washing A23N\)}](#)
- C08B 30/12 · Degraded, {destructured} or non-chemically modified starch {e.g. mechanically, enzymatically or by irradiation; Bleaching of starch} [\(preparation of chemical derivatives of starch C08B 31/00\)}](#)

**Project: N/A (C08F)**

- 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
- U C08F 4/46 · · · selected from alkali metals
- C08F 4/48 · · · · selected from lithium, rubidium, caesium or francium [{\(C08F 4/461 takes precedence\)}](#)

- U C08F 6/00** **Post-polymerisation treatments (C08F 8/00 takes precedence; of conjugated diene rubbers C08C)**
- NOTES**
1. 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](#) )
  2. Groups [C08F 6/001](#), [C08F 6/006](#), [C08F 6/008](#), [C08F 6/02](#) , [C08F 6/04](#) take precedence over the other groups.
- U C08F 6/06**      · Treatment of polymer solutions
- C08F 6/08**      · · Removal of catalyst residues {(not used, see [C08F 6/02](#))}
- U C08F 22/00** **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 carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof**
- U C08F 22/10**      · Esters
- C08F 22/12**      · · of phenols or saturated alcohols {([C08F 22/105](#) takes precedence)}
- C08F 22/26**      · · of unsaturated alcohols {([C08F 22/105](#) takes precedence)}
- U C08F 122/00** **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 carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof**
- U C08F 122/10**      · Esters
- C08F 122/12**      · · of phenols or saturated alcohols {([C08F 122/105](#) takes precedence)}
- C08F 122/26**      · · of unsaturated alcohols {([C08F 122/105](#) takes precedence)}
- U C08F 222/00** **Copolymers of compounds having one or more unsaturated aliphatic radicals each having only one carbon-to-carbon double bond, at least one being terminated by a carboxyl radical and containing at least one other carboxyl radical in the molecule; Salts, anhydrides, esters, amides, imides or nitriles thereof**
- U C08F 222/10**      · Esters
- C08F 222/12**      · · of phenols or saturated alcohols {([C08F 222/1006](#) takes precedence)}
- C08F 222/26**      · · of unsaturated alcohols {([C08F 222/1006](#) takes precedence)}
- U C08F 255/00** **Macromolecular compounds obtained by polymerising monomers on to polymers of hydrocarbons as defined in group C08F 10/00**
- U C08F 255/02**      · on to polymers of olefins having two or three carbon atoms
- C08F 255/04**      · · on to ethene-propene copolymers {([C08F 255/023](#) takes precedence)}
- C08F 255/06**      · · on to ethene-propene-diene terpolymers {([C08F 255/023](#) takes precedence)}
- U C08F 283/00** **Macromolecular compounds obtained by polymerising monomers on to polymers provided for in subclass C08G{(on to polymers modified by introduction of aliphatic unsaturated end or side groups C08F 290/00)}**
- C08F 283/01**      · on to unsaturated polyesters {([C08F 283/004](#) takes precedence)}
- NOTE**
- After the symbol of group [C08F 283/01](#) - [C08F 283/14](#) and using the C-Sets, notations concerning the method of polymerisation or the nature of the catalyst can be indicated. These notations are selected from groups [C08F 2/00](#) ,

[C08F 2/16](#) , [C08F 2/46](#) , [C08F 2/48](#) , [C08F 2/50](#) , [C08F 4/00](#) , [C08F 4/04](#) ,  
[C08F 4/06](#) , [C08F 4/28](#) and [C08F 4/42](#) . Example: ( [C08F 283/01](#) , [C08F 2/16](#) )

- C08F 283/02      · on to polycarbonates or saturated polyesters [{\(C08F 283/004 takes precedence\)}](#)
- C08F 283/04      · on to polycarbonamides, polyesteramides or polyimides [{\(C08F 283/004 takes precedence\)}](#)
- C08F 283/06      · on to polyethers, polyoxymethylenes or polyacetals [{\(C08F 283/004 takes precedence\)}](#)
- C08F 283/10      · on to polymers containing more than one epoxy radical per molecule [{\(C08F 283/004 takes precedence\)}](#)
- C08F 283/14      · on to polymers obtained by ring-opening polymerisation of carbocyclic compounds having one or more carbon-to-carbon double bonds in the carbocyclic ring, i.e. polyalkeneamers [{\(C08F 283/004 takes precedence\)}](#)
- C08F 285/00      Macromolecular compounds obtained by polymerising monomers on to preformed graft polymers [{\(C08F 283/00 takes precedence\)}](#)**
- C08F 287/00      Macromolecular compounds obtained by polymerising monomers on to block polymers [{\(C08F 283/00 takes precedence\)}](#)**

**Project: N/A (C08J)**

- U    C08J 3/00      Processes of treating or compounding macromolecular substances**
- C08J 3/12      · Powdering or granulating [{\(preparation of active ingredients, e.g. medical preparations in form of capsules \[A61K 9/51\]\(#\) ; making granules \[B29B 9/00\]\(#\)\)}](#)
- C08J 3/14      · · by precipitation from solutions [{\(C08J 3/122 takes precedence\)}](#)
- C08J 3/16      · · by coagulating dispersions [{\(C08J 3/122 takes precedence; treatment of polymer emulsion, e.g. coagulation \[C08F 6/22\]\(#\)\)}](#)
- U    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](#))**
- 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 5/18      · Manufacture of films or sheets [{\(Producing films or sheets \[B29D 7/01\]\(#\) ; wrappers or flexible covers, packaging materials of special type or form \[B65D 65/00\]\(#\) - \[B65D 65/466\]\(#\) ; shaping by stretching characterized by the choice of materials \[B29C 55/005\]\(#\) ; layered products essentially comprising synthetic resin \[B32B 27/00\]\(#\) - \[B32B 27/42\]\(#\)\)}](#)
- U    C08J 5/20      · Manufacture of shaped of ion-exchange resins [Use of macromolecular compounds as anion [B01J 41/14](#) or cation [B01J 39/20](#) exchangers]
- C08J 5/22      · · Films, membranes, or diaphragms [{\(ion-exchange in general, \[B01J 39/18\]\(#\) - \[B01J 39/22\]\(#\) , \[B01J 41/12\]\(#\) - \[B01J 41/16\]\(#\) , \[B01J 43/00\]\(#\) , \[B01J 45/00\]\(#\) , \[B01J 47/12\]\(#\) - \[B01J 49/00\]\(#\) ; fuel cells with polymeric electrolyte material \[H01M 8/1018\]\(#\)\)}](#)

**NOTES**

1. [N: Membranes of which at least the ion-exchanging parts are inorganic, i.e. mixtures of non polymeric ion exchange compounds, e.g. inorganic salts,

and at least one polymer are classified in [C08J 5/22](#) ; membranes based on cellulose are classified in [C08J 5/2212](#) .

2. Methods for incorporating reinforcement supports or filling bodies are classified in [C08J 5/2206](#) (the support or filling body has no ion exchange activity).

3. Groups, e.g. SO<sub>2</sub>F, which do not have ion-exchanging properties, but which may, by simple hydrolysis in an alkaline, neutral or acid medium, be transformed into ion-exchanging groups, e.g. SO<sub>2</sub>H, are considered as such.

4. Ion-exchanging fibrous fabrics are considered as heterogeneous membranes and are classified in [C08J 5/2275](#) ; they include composite membranes, mixtures of two or more (ion exchange) polymers.

5. Membranes obtained by homogeneous melting or from a solution are considered as homogeneous, even if the membrane contains (after solidification of the melt or the solution) heterogeneous elements, e.g. filling bodies, supports e.g. in the form of fabrics, or the like, i.e. the ion exchange resin forms the membrane.

6. Reactions which change the nature of the ion-exchanging groups, introduction of ion-exchanging groups, after-treatment (membrane has already been formed) are classified in [C08J 5/2287](#).

7. Quaternising reactions are not considered as after-treatments.

**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 [C08J 7/04](#) {(Coating compositions per se [C09D 4/00](#) , [C09D 101/00](#) to [C09D 201/00](#))}

**U C08J 2367/00** **Characterised by the use of polyesters obtained by reactions forming a carboxylic ester link in the main chain (of polyester-amides [C08J 2377/12](#) ; of polyester-imides [C08J 2379/08](#)); Derivatives of such polymers**

C08J 2367/02 · Polyesters derived from dicarboxylic acids and dihydroxy compounds; [C08J 2367/06](#) takes precedence)

## Project: N/A (C08L)

**U C08L 1/00** **Compositions of cellulose, modified cellulose or cellulose derivatives**

U C08L 1/08 · Cellulose derivatives

U C08L 1/26 · · Cellulose ethers

U C08L 1/28 · · · Alkyl ethers

C08L 1/286 · · · {substituted with acid radicals, e.g. carboxymethyl cellulose [CMC]} ([C08L 1/282](#) takes precedence)

**U C08L 33/00** **Compositions 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; Compositions of derivatives of such polymers**

C08L 33/04 · Homopolymers or copolymers of esters [C08L 43/04](#) takes precedence)

**U C08L 97/00** **Compositions of lignin-containing materials**

C08L 97/02 · Lignocellulosic material, e.g. wood, straw or bagasse {(manufacture of articles made from lignocellulosic material by dry processes [B27N](#))}

**U C08L 101/00** **Compositions of unspecified macromolecular compounds**

- U C08L 101/02 · characterised by the presence of specified groups, {e.g. terminal or pendant functional groups}
- C08L 101/06 · · containing oxygen atoms [{\(C08L 101/025 takes precedence\)}](#)

**Project: N/A (C09B)**

- U C09B 1/00 Dyes with anthracene nucleus not condensed with any other ring**
- C09B 1/02 · Hydroxy-anthraquinones; Ethers or esters thereof [{\(C09B 1/007 takes precedence\)}](#)
- C09B 1/16 · Amino-anthraquinones [{\(C09B 1/007 takes precedence\)}](#)
- C09B 1/50 · Amino-hydroxy-anthraquinones; Ethers and esters thereof [{\(C09B 1/007 takes precedence\)}](#)
- C09B 1/56 · Mercapto-anthraquinones [{\(C09B 1/007 takes precedence\)}](#)
- U C09B 11/00 Diaryl- or thriarylmethane dyes**
- U C09B 11/04 · derived from triarylmethanes, {i.e. central C-atom is substituted by amino, cyano, alkyl}
- U C09B 11/10 · · Amino derivatives of triarylmethanes
- U C09B 11/12 · · · without any OH group bound to an aryl nucleus
- C09B 11/20 · · · · Preparation from other triarylmethane derivatives, {e.g. by substitution, by replacement of substituents (for dyesalts of triarylmethane dyes [C09B 69/06](#))}
- C09B 11/26 · · Triarylmethane dyes in which at least one of the aromatic nuclei is heterocyclic [{\(phthaleins C09B 11/24\)}](#)
- U C09B 29/00 Monoazo dyes prepared by diazotising and coupling**
- U C09B 29/06 · from coupling components containing amino as the only directing group
- U C09B 29/08 · · Amino benzenes
- U C09B 29/0833 · · · {characterised by the substituent on the benzene ring excepted the substituents: CH<sub>3</sub>, C<sub>2</sub>H<sub>5</sub>, O-alkyl, NHCO-alkyl, NHCOO-alkyl, NHCO-C<sub>6</sub>H<sub>5</sub>, NHCOO-C<sub>6</sub>H<sub>5</sub>}
- C09B 29/0834 · · · · {linked through -O- (for OH see [C09B 29/24](#) , [C09B 29/26](#))}
- U C09B 35/00 Disazo and polyazo dyes of the type A<-D->B prepared by diazotising and coupling**
- U C09B 35/02 · Disazo dyes
- U C09B 35/039 · · characterised by the tetrazo component
- U C09B 35/205 · · · the tetrazo component being a derivative of a diaryl- or triaryl- alkane or alkene
- C09B 35/215 · · · · of diarylethane or diarylethene [{\(other stilbene-azo dyes, C09B 56/04 , C09B 56/06\)}](#)
- C09B 41/00 Special methods of performing the coupling reaction [{\(reaction of mixtures of diazo and coupling components, C09B 67/0033\)}](#)**
- U C09B 43/00 Preparation of azo dyes from other azo compounds**
- C09B 43/18 · by acylation of hydroxyl group {or of mercapto group; [{\(OPO3H2 and OP\(X\)\(XR\)2 with X=O,S,NH and R being hydrocarbon, C09B 69/007\)}](#)}
- C09B 47/00 Porphines; Azaporphines [{\(non-dyeing compounds C07D 487/22\)}](#)**
- U C09B 56/00 Azo dyes containing other chromophoric systems**
- C09B 56/02 · Azomethine-azo dyes [{\(1,2-Complex dyes of AZOMETHINE and AZO dyes, C09B 55/001\)}](#)

- C09B 56/04      · Stilbene-azo dyes {(disazo dyes from diaminostilbene, [C09B 35/215](#))}
- C09B 56/12      · Anthraquinone-azo dyes {(from diazotised aminoanthracene [C09B 29/0022](#), azo dyes containing hydroxyl groups acylated with polyfunctional anthraquinone derivatives [C09B 43/26](#))}
- U C09B 62/00      Reactive dyes, i.e. dyes which form covalent bonds with the substrates or which polymerise with themselves**
- U C09B 62/44      · with the reactive group not directly attached to a heterocyclic ring
- U C09B 62/503      · · the reactive group being an esterified or non-esterified hydroxyalkyl sulfonyl or mercaptoalkyl sulfonyl group, a quaternised or non-quaternised aminoalkyl sulfonyl group, a heterylmercapto alkyl sulfonyl group, a vinyl sulfonyl or a substituted vinyl sulfonyl group, or a thiophene-dioxide group
- C09B 62/505      · · · Anthracene dyes {([C09B 62/5033](#), [C09B 62/5036](#) take precedence)}
- C09B 62/507      · · · Azo dyes {([C09B 62/5033](#), [C09B 62/5036](#) take precedence)}
- C09B 62/517      · · · Porphines; Azaporphines {([C09B 62/5033](#), [C09B 62/5036](#) take precedence)}
- 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](#); **C09B69/00B - C09B69/00B6** )}
- C09B 69/10      · Polymeric dyes; Reaction products of dyes with monomers or with macromolecular compounds {(addition products of alkylene oxide to dyes, [C09B 69/00](#); dyeing with polymeric dyes [D06P 1/0056](#))}

**Project: N/A (C09C)**

- U C09C 1/00      Treatment of specific inorganic materials other than fibrous fillers (luminescent or tenebrescent materials [C09K](#)); Preparation of carbon black**
- U C09C 1/44      · Carbon
- U C09C 1/48      · · Carbon black
- C09C 1/50      · · · Furnace black; {Preparation thereof (separation or recovery [C09C 1/487](#))}
- C09C 1/52      · · · Channel black; {Preparation thereof (separation or recovery [C09C 1/487](#))}
- C09C 1/54      · · · Acetylene black; Thermal black; {Preparation thereof (separation or recovery [C09C 1/487](#))}

**Project: N/A (C09D)**

- 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 5/22      · Luminous paints {(luminescent compositions [C09K 11/00](#))}
- C09D 5/24      · Electrically-conducting paints {(conductive materials [H01B 1/00](#))}
- C09D 5/32      · Radiation-absorbing paints {(protection against X-, gamma- or corpuscular radiation [G21F](#))}
- C09D 10/00      Correcting fluids, e.g. fluid media for correction of typographical errors by coating {(correcting errors by overprinting [B41J 29/36](#))}**
- U C09D 201/00      Coating compositions based on unspecified macromolecular compounds**
- U C09D 201/02      · characterised by the presence of specified groups, {e.g. terminal or pendant functional groups}

- C09D 201/06
- containing oxygen atoms [{\(C09D 201/025 takes precedence\)}](#)

**Project: N/A (C09J)****U C09J 201/00****Adhesives based on unspecified macromolecular compounds**

U C09J 201/02

- characterised by the presence of specified groups, {e.g. terminal or pendant functional groups}

C09J 201/06

- containing oxygen atoms [{\(C09J 201/025 takes precedence\)}](#)

**Project: N/A (C09K)****U 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](#)

C09K 3/14

- Anti-slip materials; Abrasives [{\(products specifically intended for the fabrication of abrasive tools, blocks or papers, or for operations of the kind of sand-blasting and barrelling \[B24B 31/14\]\(#\) , \[B24C 1/00\]\(#\) ; polishing compositions containing abrasive or grinding agents \[C09G 1/02\]\(#\) ; polishing of semi-conductors \[H01L\]\(#\); friction compositions for brakes or clutches \[F16D 69/02\]\(#\)\)}](#)

NOTE

In this group, boron and silicon are considered as being metals. Likewise for associations of carbon with metals, e.g. carbides.

**U C09K 8/00****Compositions for drilling of boreholes or wells; Compositions for treating boreholes or wells, e.g. for completion or for remedial operations**NOTE

In groups [C09K 8/00](#) to [C09K 8/94](#) it is desirable to add indexing codes for aspects relating to compositions for drilling or treating boreholes or wells. The indexing codes are chosen from groups [C09K 2208/00](#) to [C09K 2208/32](#)

U C09K 8/50

- Compositions for plastering borehole walls, i.e. compositions for temporary consolidation of borehole walls (compositions for consolidating loose sand or the like around wells [C09K 8/56](#))

U C09K 8/504

- containing water or polar solvents [\(C09K 8/502 takes precedence\)](#)

U C09K 8/506

- containing organic compounds

C09K 8/508

- macromolecular compounds [{\(C09K 8/512 takes precedence\)}](#)

U C09K 8/58

- Compositions for enhanced recovery methods for obtaining hydrocarbons, i.e. for improving the mobility of the oil, e.g. displacing fluids

C09K 8/588

- characterised by the use of specific polymers [{\(polymeric surfactants \[C09K 8/584\]\(#\)\)}](#)

**Project: N/A (C10G)****U C10G 35/00****Reforming naphtha**NOTE

By reforming is meant the treatment of naphtha, in order to improve the octane number or its aromatic content.

U C10G 35/04

- Catalytic reforming

- U C10G 35/06      · · characterised by the catalyst used
- C10G 35/095      · · · containing crystalline alumino-silicates, e.g. molecular sieves [{\(C10G 35/065 takes precedence\)}](#)
- C10G 47/00**      **Cracking of hydrocarbon oils in the presence of hydrogen or hydrogen generating compounds, to obtain lower boiling fractions, [\(C10G 15/00 takes precedence\)](#); destructive hydrogenation of non-melting solid carbonaceous or similar materials [C10G 1/06](#)**

**Project: N/A (C10J)**

- U C10J 2300/00**      **Details of gasification processes**
- U C10J 2300/16      · Integration of gasification processes with another plant or parts within the plant
- U C10J 2300/164      · · with conversion of synthesis gas
- U C10J 2300/1643      · · · Conversion of synthesis gas to energy
- C10J 2300/1653      · · · · integrated in an gasification combined cycle (IGCC) [\(engines driven by heat coming from a gasification or pyrolysis unit \[F01K 23/067\]\(#\)\)](#)
- U C10J 2300/1656      · · · Conversion of synthesis gas to chemicals
- C10J 2300/1662      · · · · to methane (SNG) [\(production of synthetic natural gas \[C10L 3/08\]\(#\)\)](#)

**Project: N/A (C10L)**

- U C10L 1/00**      **Liquid carbonaceous fuels**
- U C10L 1/10      · containing additives
- U C10L 1/14      · · Organic compounds
- U C10L 1/18      · · · Containing oxygen
- C10L 1/182      · · · · containing hydroxy groups; Salts thereof [{\(C10L 1/1802 , C10L 1/1805 , C10L 1/1808 , C10L 1/1811 , C10L 1/1814 , C10L 1/1817 take precedence\)}](#)
- C10L 1/183      · · · · · at least one hydroxy group bound to an aromatic carbon atom [{\(C10L 1/1802 , C10L 1/1805 , C10L 1/1808 , C10L 1/1811 , C10L 1/1814 , C10L 1/1817 , C10L 1/1828 take precedence\)}](#)
- C10L 1/185      · · · · Ethers; Acetals; Ketals; Aldehydes; Ketones [{\(C10L 1/1802 , C10L 1/1805 , C10L 1/1808 , C10L 1/1811 , C10L 1/1814 , C10L 1/1817 take precedence\)}](#)
- C10L 1/188      · · · · Carboxylic acids; {metal}salts thereof [{\(C10L 1/1802 , C10L 1/1805 , C10L 1/1808 , C10L 1/1811 , C10L 1/1814 , C10L 1/1817 take precedence\)}](#)
- C10L 1/189      · · · · · having at least one carboxyl group bound to an aromatic carbon atom [{\(C10L 1/1802 , C10L 1/1805 , C10L 1/1808 , C10L 1/1811 , C10L 1/1814 , C10L 1/1817 , C10L 1/1885 , C10L 1/1886 , C10L 1/1888 take precedence\)}](#)
- C10L 1/19      · · · · Esters {ester radical containing compounds; ester ethers; carbonic acid esters [\(C10L 1/1802 , C10L 1/1805 , C10L 1/1808 , C10L 1/1811 , C10L 1/1814 , C10L 1/1817 take precedence\)}](#)
- U C10L 1/22      · · · containing nitrogen
- C10L 1/222      · · · · containing at least one carbon-to-nitrogen single bond [{\(C10L 1/221 takes precedence\)}](#)
- C10L 1/223      · · · · · having at least one amino group bound to an aromatic carbon atom [{\(C10L 1/221 , C10L 1/2227 take precedence\)}](#)
- C10L 1/224      · · · · · Amides; Imides {carboxylic acid amides, imides [\(C10L 1/221 , C10L 1/2227 take precedence\)}](#)

- C10L 1/226 . . . . containing at least one nitrogen-to-nitrogen bond, e.g. azo compounds, azides, hydrazines {(C10L 1/221 takes precedence)}
- C10L 1/228 . . . . containing at least one carbon-to-nitrogen double bond, e.g. guanidines, hydrazones, semicarbazones, imines; containing at least one carbon-to-nitrogen triple bond, e.g. nitriles {(C10L 1/221 , C10L 1/226 take precedence)}
- C10L 1/23 . . . . containing at least one nitrogen-to-oxygen bond, e.g. nitro-compounds, nitrates, nitrites {(C10L 1/221 takes precedence)}
- C10L 1/232 . . . . containing nitrogen in a heterocyclic ring {(C10L 1/221 takes precedence)}
- C10L 1/233 . . . . . containing nitrogen and oxygen in the ring, e.g. oxazoles {(C10L 1/221 takes precedence)}
- C10L 1/234 . . . . . Macromolecular compounds {(C10L 1/221 takes precedence)}
- C10L 1/236 . . . . . obtained by reactions involving only carbon-to-carbon unsaturated bonds {derivatives thereof (C10L 1/221 takes precedence)}
- C10L 1/238 . . . . . obtained otherwise than by reactions involving only carbon-to-carbon unsaturated bonds {(C10L 1/221 takes precedence)}
- C10L 1/2383 . . . . . Polyamines or polyimines, or derivatives thereof {(poly)amines and imines; derivatives thereof (substituted by a macromolecular group containing 30C)} (C10L 1/221 takes precedence)}
- C10L 1/2387 . . . . . . Polyoxyalkyleneamines {(poly)oxyalkylene amines and derivatives thereof (substituted by a macromolecular group containing 30C)} (C10L 1/221 takes precedence)}
- U C10L 3/00 Gaseous fuels; Natural gas; Synthetic natural gas obtained by processes not covered by subclass C10G , C10K; Liquefied petroleum gas**
- C10L 3/12 . Liquefied petroleum gas {(liquefying by pressure and cold treatment F25J)}
- U C10L 5/00 Solid fuels (produced by solidifying fluid fuels C10L 7/00)**
- U C10L 5/02 . {Solid fuels such as} briquettes consisting mainly of carbonaceous materials of mineral {or non-mineral} origin (peat briquettes C10F)
- C10L 5/04 . . Raw material {of mineral origin} to be used; Pretreatment thereof {(pretreatment of fuels of non-mineral origin C10L 5/40)}
- U C10L 5/40 . essentially based on materials of non-mineral origin
- C10L 5/46 . . on sewage, house, or town refuse {(C10L 5/403 , C10L 5/406 take precedence)}
- C10L 5/48 . . on industrial residues and waste materials {(C10L 5/403 , C10L 5/406 take precedence)}

**Project: N/A (C10M)**

- C10M 175/00 Working-up used lubricants to recover useful products {(destructive distillation C10B; extraction and elimination of PCBs C10G 7/006 , C10G 21/006 , C10G 25/006 ; combustion processes F23G; Filtration, filters in general B01D); Cleaning (in a mechanical way B08B; integrated processes C23; solid waste B09B)}**

**Project: N/A (C11B)**

- U C11B 1/00 Production of fats or fatty oils from raw materials**
- U C11B 1/02 . Pretreatment
- C11B 1/04 . . of vegetable raw material {(C11B 1/025 takes precedence)}
- U C11B 3/00 Refining fats or fatty oils**

C11B 3/02 · by chemical reaction [{\(C11B 3/003 takes precedence\)}](#)

**U 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

C11B 7/0083 · {with addition of auxiliary substances, e.g. crystallisation promoters, filter aids, melting point depressors, [\(if a characterised solution is formed C11B 7/0008\)}](#)

**Project: N/A (C12C)**

**U C12C 12/00 Processes specially adapted for making special kinds of beer**

C12C 12/04 · Beer with low alcohol content [{\(removal of alcohol after fermentation C12G 3/08\)}](#)

**U C12C 13/00 Brewing devices, not covered by a single group of [C12C 1/00](#) to [C12C 12/04](#)**

C12C 13/02 · Brew kettles [{\(C12C 11/075 takes precedence\)}](#)

**Project: N/A (C12N)**

**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 1/20 · Bacteria [{\(bacteria per se C12R 1/01 to C12R 1/64\)}](#); Culture media therefor

**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.

C12N 5/04 · Plant cells or tissues [{\(culture media C12N 5/0025\)}](#)

**U C12N 5/06 · Animal cells or tissues; {Human cells or tissues (preservation of living cells or tissues [A01N 1/02](#)); Not used, see subgroups}**

**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

U C12N 5/0602

- {Vertebrate cells}

NOTE

Three-dimensional culture, tissue culture or organ culture are classified with the corresponding cells, if not specially provided for

U C12N 5/0603

- • {Embryonic cells (production of embryos, nuclear transfer [A01K 67/027](#)); Embryoid bodies}

C12N 5/0606

- • • {Pluripotent embryonic cells, e.g. embryonic stem cells [ES] (embryonic germ cells [C12N 5/0611](#) , induced pluripotent stem cells [C12N 5/0696](#))}

U C12N 9/00

**Enzymes; Proenzymes; Compositions thereof (preparations containing enzymes for cleaning teeth [A61K 8/66](#) , [A61Q 11/00](#) ; medicinal preparations containing enzymes or pro-enzymes [A61K 38/43](#) ; enzyme containing detergent compositions [C11D](#) ; { enzymes with nucleic acid structure, e.g. ribozymes, [C12N 15/113](#)}); Processes for preparing, activating, inhibiting, separating or purifying enzymes (preparation of malt [C12C 1/00](#))**

NOTE

Enzymes are generally categorized below according to the "Nomenclature and Classification of Enzymes" of the International Commission on Enzymes. Where appropriate, this designation appears in the groups below in parenthesis.

C12N 9/10

- Transferases (2.) (ribonucleases [C12N 9/22](#))

U C12N 9/14

- Hydrolases (3)

U C12N 9/16

- • acting on ester bonds (3.1)

C12N 9/22

- • • Ribonucleases {RNAses, DNAses} (catalytic nucleic acids [C12N 15/113](#))

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](#))**

C12N 15/02

- Preparation of hybrid cells by fusion of two or more cells, e.g. protoplast fusion {(monoclonal antibodies [C07K 16/00](#) ; apparatus for cell fusion [C12M](#))}

U C12N 15/09

- Recombinant DNA-technology

U 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 [C12N2300/00](#) 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 15/113
- • Non-coding nucleic acids modulating the expression of genes, e.g. antisense oligonucleotides; {Antisense DNA or RNA; Triplex-forming oligonucleotides; Catalytic nucleic acids, e.g. ribozymes; Nucleic acids used in co-suppression or gene silencing (when used in plants [C12N 15/8218](#))}

**U C12N 2501/00 Active agents used in cell culture processes, e.g. differentiation**

NOTE

Whenever possible, indexation is done by signalling pathway and not by chemical structure, e.g. the group of a protein covers not only peptide analogs of it and the corresponding nucleic acids, as in [C07K 14/00](#), but also antibodies, anti-idiotypic antibodies, non-peptide ligands of the receptor, the receptor itself, antibodies against the receptor or inhibitors of the conversion enzyme which processes the protein precursor. Unless otherwise provided for, ligands and substrates take precedence over receptors and enzymes.

- U C12N 2501/70
- Enzymes
- C12N 2501/72
- • Transferases (EC 2.) (acetylation of histones [C12N 2501/065](#))

**Project: N/A (C12P)**

**C12P 3/00 Preparation of elements or inorganic compounds except carbon dioxide {(Recovery of carbon dioxides as by-products [C12F 3/02](#))}**

**U C12P 5/00 Preparation of hydrocarbons {or halogenated hydrocarbons}**

C12P 5/02

- acyclic {([C12P 5/007](#) takes precedence)}

**U C12P 7/00 Preparation of oxygen-containing organic compounds**

C12P 7/62

- Carboxylic acid esters {(fatty acid esters [C12P 7/6436](#))}

**C12P 9/00 Preparation of organic compounds containing a metal or atom other than H, N, C, O, S or halogen {(phosphoglycerides, [C12P 7/6481](#))}**

**U C12P 13/00 Preparation of nitrogen-containing organic compounds**

C12P 13/04

- Alpha- or beta- amino acids {(other amino acids [C12P 13/005](#))}

**C12P 15/00 Preparation of compounds containing at least three condensed carbocyclic rings {(Gibbanes [C12P 27/00](#) ; naphthalenes [C12P 29/00](#))}**

**U 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 17/16

- containing two or more hetero rings {(Thiamine open chain analogs [C12P 17/167](#) ; i.e. not condensed among themselves or through a common carbocyclic ring system)}

C12P 17/18

- containing at least two hetero rings condensed among themselves or condensed with a common carbocyclic ring system, e.g. rifamycin, {(e.g. Rifamycin [C12P 17/189](#))}

**U C12P 19/00 Preparation of compounds containing saccharide radicals (keto-aldehydic acids [C12P 7/58](#))**

NOTE

Attention is drawn to the term "saccharide radical" in the first Note following the title of subclass [C07H](#) .

- C12P 19/44 · Preparation of O-glycosides, e.g. glucosides {{Polysaccharides and not substituted disaccharides [C12P 19/04](#) , [C12P 19/12](#)}}
- C12P 19/60 · · having an oxygen of the saccharide radical directly bound to a non-saccharide heterocyclic ring or a condensed ring system containing a non-saccharide heterocyclic ring, e.g. coumermycin, novobiocin {{[C12P 19/605](#)}}

**U 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 33/12 · Acting on D ring {{(carbons 13 and 14 belong to the C ring; degradation of lateral chains [C12P 33/005](#))}}
- C12P 33/20 · containing heterocyclic rings {{(reactions are also classified in groups [C12P 33/00](#) to [C12P 33/18](#))}}

**Project: N/A (C12Q)****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**

- U C12Q 1/02 · involving viable micro-organisms
- C12Q 1/04 · · Determining presence or kind of micro-organism; Use of selective media for testing antibiotics or bacteriocides; Compositions containing a chemical indicator therefor {{[C12Q 1/6897](#) takes precedence}}

**U C12Q 2535/00**

**{Reactions characterised by the assay type for determining the identity of a nucleotide base}**

- U C12Q 2535/10 · the purpose being to determine the identity or sequence oligonucleotides characterised by (Not used)
- C12Q 2535/139 · · Random amplification polymorphism detection (RAPD) (not to be used with [C12Q 2525/179](#))

**Project: N/A (C12Y)****U C12Y 101/00**

**Oxidoreductases acting on the CH-OH group of donors (1.1)**

- U C12Y 101/01 · with NAD+ or NADP+ as acceptor (1.1.1)
- C12Y 101/01005 · · Acetoin dehydrogenase (1.1.1.5) {{[C12Y 101/01303](#) , [C12Y 101/01304](#) takes precedence}}
- C12Y 101/01182 · · Fenchol dehydrogenase (1.1.1.182) {{[C12Y 101/01198](#) , [C12Y 101/01227](#) , [C12Y 101/01228](#) take precedence}}
- U C12Y 101/99 · with other acceptors (1.1.99)
- C12Y 101/99008 · · Alcohol dehydrogenase (acceptor) (1.1.99.8) {{[C12Y 101/02007](#) , [C12Y 101/02008](#) take precedence}}

**U C12Y 102/00**

**Oxidoreductases acting on the aldehyde or oxo group of donors (1.2)**

- U C12Y 102/01 · with NAD+ or NADP+ as acceptor (1.2.1)
- C12Y 102/01001 · · Formaldehyde dehydrogenase (glutathione) (1.2.1.1) {{[C12Y 101/01284](#) , [C12Y 404/01022](#) take precedence}}

**U C12Y 104/00**

**Oxidoreductases acting on the CH-NH2 group of donors (1.4)**

- U C12Y 104/03                   · with oxygen as acceptor (1.4.3)  
C12Y 104/03006               · · Amine oxidase (copper-containing)(1.4.3.6) ([C12Y 104/03021](#) or [C12Y 104/03022](#) takes precedence)
- U C12Y 105/00                   Oxidoreductases acting on the CH-NH group of donors (1.5)**
- U C12Y 105/03                   · with oxygen as acceptor (1.5.3)  
C12Y 105/03011               · · Polyamine oxidase (1.5.3.11) ([C12Y 105/03013](#) - [C12Y 105/03017](#) take precedence)
- U C12Y 108/00                   Oxidoreductases acting on sulfur groups as donors (1.8)**
- U C12Y 108/04                   · with a disulfide as acceptor (1.8.4)  
C12Y 108/04005               · · Methionine-S-oxide reductase (1.8.4.5) ([C12Y 108/04013](#) or [C12Y 108/04014](#) takes precedence)
- U C12Y 113/00                   Oxidoreductases acting on single donors with incorporation of molecular oxygen (oxygenases) (1.13)**
- U C12Y 113/11                   · with incorporation of two atoms of oxygen (1.13.11)  
C12Y 113/11044               · · Linoleate diol synthase (1.13.11.44) ([C12Y 113/1106](#) , [C12Y 504/04006](#) take precedence)
- U C12Y 201/00                   Transferases transferring one-carbon groups (2.1)**
- U C12Y 201/01                   · Methyltransferases (2.1.1)  
C12Y 201/01023               · · Protein-arginine N-methyltransferase (2.1.1.23) ([C12Y 201/01124](#) - [C12Y 201/01126](#) take precedence)  
C12Y 201/01024               · · Protein-gamma-glutamate O-methyltransferase (2.1.1.24) ([C12Y 201/01077](#) , [C12Y 201/0108](#) , [C12Y 201/011](#) take precedence)  
C12Y 201/01029               · · tRNA (cytosine-5-)-methyltransferase (2.1.1.29) ([C12Y 201/01202](#) - [C12Y 201/01204](#) take precedence)  
C12Y 201/01031               · · tRNA (guanine-N1-)-methyltransferase (2.1.1.31) ([C12Y 201/01221](#) , [C12Y 201/01228](#) take precedence)  
C12Y 201/01032               · · tRNA (guanine-N2-)-methyltransferase (2.1.1.32) ([C12Y 201/01213](#) - [C12Y 201/01216](#) take precedence)  
C12Y 201/01036               · · tRNA (adenine-N1-)-methyltransferase (2.1.1.36) ([C12Y 201/01217](#) - [C12Y 201/0122](#) take precedence)  
C12Y 201/01048               · · rRNA (adenine-N6-)-methyltransferase (2.1.1.48) ([C12Y 201/01181](#) - [C12Y 201/01184](#) take precedence)  
C12Y 201/01051               · · rRNA (guanine-N1-)-methyltransferase (2.1.1.51) ([C12Y 201/01187](#) , [C12Y 201/01188](#) take precedence)  
C12Y 201/01052               · · rRNA (guanine-N2-)-methyltransferase (2.1.1.52) ([C12Y 201/01171](#) - [C12Y 201/01174](#) take precedence)  
C12Y 201/01194               · · 23S rRNA (adenine2503-C2,C8)-dimethyltransferase (2.1.1.194) ([C12Y 201/01192](#) , [C12Y 201/01224](#) take precedence)
- U C12Y 204/00                   Glycosyltransferases (2.4)**
- U C12Y 204/01                   · Hexosyltransferases (2.4.1)  
C12Y 204/01051               · · UDP-N-acetylglucosamine-glycoprotein N-acetylglucosaminyltransferase (2.4.1.51) ([C12Y 204/01101](#) , [C12Y 204/01143](#) - [C12Y 204/01145](#) take precedence)  
C12Y 204/0113               · · Dolichyl-phosphate-mannose-glycolipid alpha-mannosyltransferase (2.4.1.130) ([C12Y 204/01258](#) - [C12Y 204/01261](#) take precedence)
- U C12Y 205/00                   Transferases transferring alkyl or aryl groups, other than methyl groups (2.5)**

- U C12Y 205/01      • transferring alkyl or aryl groups, other than methyl groups (2.5.1)
- C12Y 205/01011      • • Trans-octaprenyltranstransferase (2.5.1.11) ([C12Y 205/01084](#) ,  
[C12Y 205/01085](#) take precedence)
- C12Y 205/01033      • • Trans-pentaprenyltranstransferase (2.5.1.33) ([C12Y 205/01082](#) ,  
[C12Y 205/01083](#) take precedence)
- C12Y 205/01064      • • 2-Succinyl-6-hydroxy-2,4-cyclohexadiene-1-carboxylate synthase  
(2.5.1.64) ([C12Y 202/01009](#) , [C12Y 402/9902](#) take precedence)
- U C12Y 207/00      Transferases transferring phosphorus-containing groups (2.7)**
- U C12Y 207/01      • Phosphotransferases with an alcohol group as acceptor (2.7.1)
- C12Y 207/01037      • • Protein kinase (2.7.1.37) ([C12Y 207/11001](#) , [C12Y 207/11008](#) -  
[C12Y 207/11013](#) , [C12Y 207/11021](#) , [C12Y 207/11022](#) , [C12Y 207/11024](#) ,  
[C12Y 207/11025](#) , [C12Y 207/1103](#) or [C12Y 207/12001](#) takes precedence)
- C12Y 207/01112      • • Protein-tyrosine kinase (2.7.1.112) ([C12Y 207/10001](#) , [C12Y 207/10002](#) take  
precedence)
- U C12Y 301/00      Hydrolases acting on ester bonds (3.1)**
- U C12Y 301/01      • Carboxylic ester hydrolases (3.1.1)
- C12Y 301/01016      • • 4-Carboxymethyl-4-hydroxyisocrotonolactonase (3.1.1.16) ([C12Y 301/01024](#) ,  
[C12Y 503/03004](#) take precedence)
- C12Y 301/01021      • • Retinyl-palmitate esterase (3.1.1.21) ([C12Y 301/01001](#) , [C12Y 301/01003](#)  
take precedence)
- U C12Y 303/00      Hydrolases acting on ether bonds (3.3)**
- U C12Y 303/02      • Ether hydrolases (3.3.2)
- C12Y 303/02003      • • Epoxide hydrolase (3.3.2.3) ([C12Y 303/02009](#) or [C12Y 303/0201](#) takes  
precedence)
- U C12Y 304/00      Hydrolases acting on peptide bonds i.e. peptidases (3.4)**
- U C12Y 304/13      • Dipeptidases (3.4.13)
- C12Y 304/13003      • • Xaa-His dipeptidase (3.4.13.3) ([C12Y 304/13018](#) , [C12Y 304/1302](#) take  
precedence)
- C12Y 304/13011      • • Dipeptidase (3.4.13.11) ([C12Y 304/13018](#) or [C12Y 304/13019](#) takes  
precedence)
- U C12Y 304/14      • Dipeptidyl-peptidases and tripeptidyl-peptidases (3.4.14)
- C12Y 304/14008      • • Tripeptidyl peptidase (3.4.14.8) ([C12Y 304/14009](#) , [C12Y 304/1401](#) take  
precedence)
- U C12Y 304/16      • Serine-type carboxypeptidases (3.4.16)
- C12Y 304/16001      • • Serine carboxypeptidase (3.4.16.1) ([C12Y 304/16005](#) , [C12Y 304/16006](#) take  
precedence)
- U C12Y 304/21      • Serine endopeptidases (3.4.21)
- C12Y 304/21008      • • Kallikrein (3.4.21.8) ([C12Y 304/21034](#) , [C12Y 304/21035](#) take precedence)
- C12Y 304/21011      • • Elastase (3.4.21.11) ([C12Y 304/21036](#) or [C12Y 304/21037](#) takes  
precedence)
- C12Y 304/21014      • • Microbial serine proteases (3.4.21.14) ([C12Y 304/21062](#) - **C12Y304/67** takes  
precedence)
- C12Y 304/21031      • • Urokinase (3.4.21.31) ([C12Y 304/21068](#) or [C12Y 304/21073](#) takes  
precedence)
- U C12Y 304/22      • Cysteine endopeptidases (3.4.22)
- C12Y 304/22004      • • Bromelain (3.4.22.4) ([C12Y 304/22032](#) or [C12Y 304/22033](#) takes  
precedence)

- C12Y 304/22017
- Calpain (3.4.22.17) ([C12Y 304/22052](#) , [C12Y 304/22053](#) take precedence)
- U C12Y 304/23
- Aspartic endopeptidases (3.4.23)
- C12Y 304/23006
- Microbial carboxyl proteinases (3.4.23.6) ([C12Y 304/23018](#) - [C12Y 304/23028](#) or [C12Y 304/2303](#) takes precedence)
- U C12Y 304/24
- Metalloendopeptidases (3.4.24)
- C12Y 304/24004
- Microbial metalloproteinases (3.4.24.4) ([C12Y 304/24025](#) - [C12Y 304/24032](#) , [C12Y 304/24039](#) or [C12Y 304/2404](#) takes precedence)
- C12Y 304/24005
- Lens neutral proteinase (3.4.24.5) ([C12Y 304/22052](#) , [C12Y 304/22053](#) ,, [C12Y 304/25001](#) take precedence)
- U C12Y 401/00 Carbon-carbon lyases (4.1)**
- U C12Y 401/02
- Aldehyde-lyases (4.1.2)
- C12Y 401/02037
- Hydroxynitrilase (4.1.2.37) ([C12Y 401/02046](#) , [C12Y 401/02047](#) take precedence)
- U C12Y 402/00 Carbon-oxygen lyases (4.2)**
- U C12Y 402/99
- Other carbon-oxygen lyases (4.2.99)
- C12Y 402/99006
- Chondroitin sulfate lyase (4.2.99.6) ([C12Y 402/02005](#) , [C12Y 402/0202](#) , [C12Y 402/02021](#) take precedence)
- U C12Y 403/00 Carbon-nitrogen lyases (4.3)**
- U C12Y 403/01
- Ammonia-lyases (4.3.1)
- C12Y 403/01005
- Phenylalanine ammonia-lyase (4.3.1.5) ([C12Y 403/01023](#) - [C12Y 403/01025](#) takes precedence)
- U C12Y 502/00 Cis-trans-isomerases (5.2)**
- U C12Y 502/01
- Cis-trans-Isomerases (5.2.1)
- C12Y 502/01003
- Retinal isomerase (5.2.1.3) ([C12Y 101/013](#) , [C12Y 101/01315](#) , [C12Y 203/01135](#) , [C12Y 301/01064](#) take precedence)

**Project: N/A (C13)**

C13

**SUGAR INDUSTRY (polysaccharides, e.g. starch, derivatives thereof [C08B](#); malt [C12C](#))**

**NOTES**

1. In class [C13](#) , the following terms or expressions are used with the meanings indicated:
  - "sugars" are a class of edible, water-soluble crystalline carbohydrates, having a characteristic sweet taste, including mono-, di- and oligosaccharides, e.g. sucrose, lactose and fructose. A more specific meaning of the term "sugar" is defined in the note of subclass [C13B](#).
2. Processes using enzymes or micro-organisms in order to :
  - i. to liberate, separate or purify a pre-existing compound or composition, or to
  - ii. to treat textiles or clean solid surfaces of materials are further classified in subclass [C12S](#) .

**Project: N/A (C22B)**

U C22B 4/00

**Electrothermal treatment of ores or metallurgical products for obtaining metals or alloys (obtaining iron or steel [C21B](#) , [C21C](#))**

C22B 4/02

- Light metals {([C22B 4/005](#) takes precedence)}

C22B 4/04

- Heavy metals {([C22B 4/005](#) takes precedence)}

C22B 4/06

- Alloys {([C22B 4/005](#) takes precedence)}

- U C22B 9/00** **General processes of refining or remelting of metals; Apparatus for electroslag or arc remelting of metals**
- C22B 9/02 · Refining by liquating, filtering, centrifuging, distilling, or supersonic wave action {including acoustic waves; [\(C22B 9/003](#) , [C22B 9/006](#) , [C22B 9/05](#) , [C22B 9/22](#) take precedence)}
- U C22B 9/16 · Remelting metals (liquating [C22B 9/02](#))
- C22B 9/18 · · Electroslag remelting {(electroslag casting [B22D 23/10](#))}
- U C22B 11/00** **Obtaining noble metals**
- C22B 11/04 · by wet processes {([C22B 3/16](#) takes precedence; treatment or purification of solutions by liquid-liquid extraction [C22B 3/0005](#) , by ion exchange or by adsorption [C22B 3/00](#) , [C01G](#); [C22B 3/16](#) , [C22B 3/0005](#))}
- U C22B 21/00** **Obtaining aluminium**
- C22B 21/02 · with reducing {([C22B 21/04](#) takes precedence)}
- U C22B 30/00** **Obtaining antimony, arsenic or bismuth**
- C22B 30/04 · Obtaining arsenic {([C22B 3/16](#) , [C22B 3/0005](#) and [C22B 3/0098](#) take precedence)}
- U C22B 34/00** **Obtaining refractory metals**
- U C22B 34/10 · Obtaining titanium, zirconium or hafnium
- C22B 34/14 · · Obtaining zirconium or hafnium {(Treatment or purification of solutions by liquid-liquid extraction, by ion exchange or by adsorption [C22B 3/00](#) , [C01G 25/003](#) , [C01G 27/003](#))}
- U C22B 34/30 · Obtaining chromium, molybdenum or tungsten
- C22B 34/34 · · Obtaining molybdenum {([C22B 3/0005](#) , [C22B 3/0098](#) and [C01G 39/003](#) take precedence; from catalyst or superalloy scrap : see also [C22B 7/00](#))}
- C22B 41/00** **Obtaining germanium** {([C22B 3/0005](#) and [C22B 3/0098](#) takes precedence)}
- C22B 58/00** **Obtaining gallium or indium** {(treatment or purification of solutions by liquid-liquid extraction, by ion exchange or by adsorption [C22B 3/0004](#))}

**Project: N/A (C23)**

C23

**COATING METALLIC MATERIAL; COATING MATERIAL WITH METALLIC MATERIAL (by metallising textiles [D06M 11/83](#); decorating textiles by locally metallising [D06Q 1/04](#)); CHEMICAL SURFACE TREATMENT; DIFFUSION TREATMENT OF METALLIC MATERIAL; COATING BY VACUUM EVAPORATION, BY SPUTTERING, BY ION IMPLANTATION OR BY CHEMICAL VAPOUR DEPOSITION, IN GENERAL (for specific applications, see the relevant places, e.g. for manufacturing resistors [H01C 17/06](#)); INHIBITING CORROSION OF METALLIC MATERIAL OR INCRUSTATION IN GENERAL (treating metal surfaces or coating of metals by electrolysis or electrophoresis [C25D](#), [C25F](#))**

NOTE

In this class, the following expression is used with the meaning indicated:

- "metallic material" covers:
  - a. metals;
  - b. alloys (attention is drawn to the Note following the title of subclass [C22C](#)):
    - alloys containing at least 50 % by weight of one or more of borides, carbides, nitrides, oxides or silicides and binding metal;
    - non-ferrous alloys containing at least 5 % by weight but less than 50 % by weight of borides, carbides, nitrides, oxides or

silicides of refractory metals, whether added as such or formed in situ.

**Project: N/A (C23C)**

- U C23C 4/00** **Coating by spraying the coating material in the molten state, e.g. by flame, plasma or electric discharge (spraying guns [B05B](#) ; making alloys containing fibres or filaments by thermal spraying of metal [C23C 47/16](#) ; plasma guns [H05H](#))**
- U C23C 4/04 · characterised by the coating material
- C23C 4/06 · · Metallic material {e.g. mixture of metallic alloys and hard particles like SiC and WC ([C23C 4/085](#) takes precedence)}
- 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 14/34 · · Sputtering
- C23C 14/35 · · · by application of a magnetic field, e.g. magnetron sputtering {([C23C 14/3457](#) takes precedence)}
- U C23C 16/00** **Chemical coating by decomposition of gaseous compounds, without leaving reaction products of surface material in the coating, i.e. chemical vapour deposition (CVD) processes (reactive sputtering or vacuum evaporation [C23C 14/00](#))**
- U C23C 16/22 · characterised by the deposition of inorganic material, other than metallic material
- U C23C 16/30 · · Deposition of compounds, mixtures or solid solutions, e.g. borides, carbides, nitrides
- C23C 16/34 · · · Nitrides {([C23C 16/303](#) takes precedence)}
- U C23C 16/44 · characterised by the method of coating ([C23C 16/04](#) takes precedence)
- C23C 16/50 · · using electric discharges {(generation and control of plasma in discharge tubes for surface treatment [H01J 37/32](#) , [H01J 37/34](#))}
- U C23C 18/00** **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 [C23C 8/00](#) , [C23C 22/00](#)); Contact plating**
- NOTE  
This groups covers also suspensions containing reactive liquids and non-reactive solid particles.
- U C23C 18/16 · by reduction or substitution, e.g. electroless plating ([C23C 18/54](#) takes precedence)
- U C23C 18/18 · · Pre-treatment of the material to be coated
- U C23C 18/20 · · · of organic surfaces, e.g. resins
- C23C 18/28 · · · · Sensitising or activating {(not used, see subgroups)}

**Project: N/A (C23D)**

- C23D 5/00** **Coating with enamels or vitreous layers {(including applying fused refractory layers [C23C 4/10](#) , [C23C 24/10](#))}**

**Project: N/A (C25D)**

- U C25D 11/00** **Electrolytic coating by surface reaction, i.e. forming conversion layers**  
C25D 11/36 · Phosphatising {, e.g. NiP, CoP, FeP (bath solutions of NiP, CoP, FeP [C25D 3/562](#))}
- U C25D 21/00** **Processes for servicing or operating cells for electrolytic coating**  
C25D 21/04 · Removal of gases or vapours {; gas or pressure control (electroplating characterized by the use of gases [C25D 5/003](#))}  
C25D 21/06 · Filtering { particles other than ions (filtering ions [C25D 21/22](#))}

**Project: N/A (D01C)**

- D01C 5/00** **Carbonising rags, { threads or fabrics} to recover animal fibres, { i.e. chemical removal of vegetable impurities (treatment of threads or fabrics of animal fibres for other purposes than removal of vegetable impurities [D06L](#) or [D06M](#))}**

**Project: N/A (D01H)**

- U D01H 1/00** **Spinning or twisting machines in which the product is wound-up continuously (open-end spinning machines [D01H 4/00](#); {doubling of yarns [B65H 54/00+T](#); doubled, plied or cabled threads [D02G 3/28](#), e.g. using hollow spindles [D02G 3/283](#); spin-twisting [D02G 3/281](#); threads with alternately "S" and "Z" direction of twist, e.g. self-twist process, [D02G 3/286](#); wrapping strands of filaments or staple fibres by a binder yarn [D02G 3/38](#))}**
- U D01H 1/14** · Details (drafting arrangements [D01H 5/00](#); twisting arrangements [D01H 7/00](#))
- U D01H 1/20** · · Driving or stopping arrangements (for open-end spinning machines [D01H 4/12](#), [D01H 4/20](#), [D01H 4/42](#); safety devices [D01H 13/14](#))
- U D01H 1/32** · · · for complete machines
- D01H 1/34** · · · · with two or more speeds; with variable-speed arrangements {e.g. variation of machine speed according to growing bobbin diameter (responsive to reduction in material tension [D01H 13/16](#))}
- U 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 5/60** · · Arrangements maintaining drafting elements free of fibre accumulations
- D01H 5/66** · · · Suction devices {exclusively; ( [D01H 5/625](#) and [D01H 5/645](#) take precedence; in cooperation with thread breakage detecting means [D01H 13/1691](#))}
- U D01H 7/00** **Spinning or twisting arrangements (for open-end spinning [D01H 4/00](#))**  
**D01H 7/92** · for imparting transient twist {i.e. false twist ( [D01H 1/11](#) takes precedence)}
- U D01H 9/00** **Arrangements for replacing or removing bobbins, cores, receptacles, or completed packages at paying-out or take-up stations (arrangements of general interest in the winding of filamentary material {[B65H 67/00](#)}){ ; Combination of spinning-winding machine}**

- D01H 9/18
- for supplying bobbins, cores, receptacles, or completed packages to, or transporting from, paying-out or take-up stations ([D01H 9/10](#) takes precedence); {Arrangements to prevent unwinding of roving from roving bobbins (transporting full yarn bobbins to subsequent machines [B65H 67/06+T](#))}

**U D01H 13/00 Other common constructional features, details or accessories (for open-end spinning [D01H 4/00](#))**

- D01H 13/28
- Heating or cooling arrangements {for yarns (removal of heat from machines [D01H 1/16](#))}

- D01H 15/00
- Piecing arrangements (for open-end spinning machines [D01H 4/48](#); in machines for producing textile fabrics, see the appropriate subclasses); {Automatic end-finding, e.g. by suction and reverse package rotation; Devices for temporarily storing yarn during piecing (piecing of rovings in combination with replacing of completed packages or cans [D01H 9/005](#))}**

**Project: N/A (D02G)**

**U D02G 3/00 Yarns or threads, e.g. fancy yarns; Processes or apparatus for the production thereof, not otherwise provided for (for producing crimped or curled yarns [D02G 1/00](#))**

- D02G 3/22
- Yarns or threads characterised by constructional features, {e.g. blending, filament/fibre (piecing of yarns or threads [D01H 15/00](#))}

**Project: N/A (D04B)**

**U D04B 15/00 Details of, or auxiliary devices incorporated in, weft knitting machines, restricted to machines of this kind (details or auxiliary devices not so restricted [D04B 35/00](#))**

- U D04B 15/66
- Devices for determining or controlling patterns; {Programme-control arrangements}
- U D04B 15/68
- · characterised by the knitting instruments used
- D04B 15/74
- · · Pattern drums {(driving-gear therefor [D04B 15/665](#))}

**Project: N/A (D04H)**

**U D04H 1/00 Non-woven fabrics formed wholly or mainly of staple fibres or like relatively short fibres**

- U D04H 1/04
- from fleeces or layers composed of fibres having existing or potential cohesive properties, e.g. natural fibres, prestretched or fibrillated artificial fibres (felting apparatus [D04H 17/00](#))

- U D04H 1/08
- · and hardened by felting; Felts or felted products

- D04H 1/22
- · · Three-dimensional articles formed by felting processes {(formed by other consolidation processes [D04H 1/005](#))}

- U 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](#)

- U D04H 1/72
- · the fibres being randomly arranged

- D04H 1/728
- · · by electro-spinning {(Electro-spinning methods and apparatus [D01D 5/0007](#))}

**U D04H 3/00 Non-woven fabrics formed wholly or mainly of yarns or like filamentary material of substantial length**

- U D04H 3/02 · characterised by the method of forming fleeces or layers, e.g. reorientation of yarns or filaments
- D04H 3/05 · · in another pattern, e.g. zig-zag, sinusoidal {(D04H 3/04 takes precedence)}

**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 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](#).

**Project: N/A (D06P)**

- U D06P 3/00 **Special processes of dyeing or printing textiles, or dyeing leather, furs, or solid macromolecular substances in any form, classified according to the material treated**
- U D06P 3/82 · textiles which contain different kinds of fibres
- D06P 3/854 · · containing modified or unmodified fibres, {i.e. containing the same type of fibres having different characteristics, e.g. twisted and not-twisted fibres (reserve dyeing [D06P 5/12](#))}

**Project: N/A (D07B)****D07B 2801/00**

**Linked indexing codes associated with indexing codes or classes of [D07B](#)(not used)**

NOTE

The following indexing codes are applied as linked indexing codes associated to other indexing codes or classes of [D07B](#), with the following restrictions:

- [D07B 2801/10](#), [D07B 2801/14](#) -[D07B 2801/22](#) are only to be used as linked indexing codes with [D07B 2205/00](#) and lower hierarchy
- [D07B 2801/12](#) and [D07B 2801/24](#) are only to be used as linked indexing codes with [D07B 2205/00](#) and lower hierarchy or [D07B 2201/2047](#) and lower hierarchy
- [D07B 2801/60](#) and [D07B 2801/62](#) are only to be used as linked indexing codes with [D07B 2207/404](#) and lower hierarchy
- [D07B 2801/90](#) is only used as linked indexing code with any class or indexing code of [D07B](#) and defines that the classified feature belongs to the general knowledge.

**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 [D12D](#) to [D12H](#))}**
- D21C 9/08
  - Removal of fats, resins, pitch or waxes; { Chemical or physical purification, i.e. refining, of crude cellulose by removing non-cellulosic contaminants, optionally combined with bleaching (fats, waxes [C11B](#); natural resins [C09F 1/00](#); hemicellulose [C08B 37/14](#); purification by mechanical means [D21D 5/00](#))}
- U D21C 11/00** **Regeneration of pulp liquors {or effluent waste waters}**
- U D21C 11/06
  - Treatment of pulp gases; Recovery of the heat content of the gases; { Treatment of gases arising from various sources in pulp and paper mills; Regeneration of gaseous SO<sub>2</sub>, e.g. arising from liquors containing sulfur compounds}
- D21C 11/08
  - • Deodorisation {Elimination of malodorous compounds, e.g. sulfur compounds such as hydrogen sulfide and mercaptans, from gas streams (oxidation of liquors [D21C 11/0057](#); post-combustion of gases [D21C 11/127](#))}
- U D21C 11/12
  - Combustion of pulp liquors
- D21C 11/14
  - • Wet combustion; {Treatment of pulp liquors without previous evaporation, by oxidation of the liquors remaining at least partially in the liquid phase, e.g. by application or pressure (oxidation of black, green or white liquors [D21C 11/0057](#))}

**Project: N/A (D21H)**

- U D21H 5/00** **Special paper or cardboard not otherwise provided for (duplicating or recording paper [B41M](#))**
- D21H 5/22
  - Fungicidal, bactericidal, insecticidal, disinfecting, antiseptic, or corrosion-inhibiting paper {antistatic, antioxygenic paper (toilet paper [A47K 10/16](#))}
- D21H 5/26
  - Special paper or cardboard manufactured by dry method; { Apparatus or processes for forming webs by dry method from mainly short-fibre or particle material, e.g. paper pulp (making board from wood, e.g. lignocellulosic, particles or fibres [B27N 1/00](#) and subgroups; making non-woven fabrics from textile fibres [D04H 1/72](#); machines for forming diapers [A61F 13/15585](#); lap-forming devices in preliminary treatment of fibres, e.g. for spinning [D01G 25/00](#))}
- U 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](#) to [D21H 15/00](#).
- D21H 17/71
  - Mixtures of material ([D21H 17/69](#) takes precedence){ Pulp or paper comprising several different materials not incorporated by special processes ([D21H 23/10](#), [D21H 23/70](#), [D21H 23/76](#) take precedence)}
- NOTE
- In this group, it is desirable to classify the individual components of the mixtures using Combination Sets with symbols chosen from groups [D21H 17/00](#) or [D21H 21/00](#).

**Project: N/A (E01C)**

- U E01C 1/00** **Design or layout of roads, e.g. for noise abatement, for gas absorption (design or layout of sports grounds [A63C 19/00](#) ; design or layout of airfields [B64F](#) , { of helicopter landing stages [E01F 3/00](#)})**
- E01C 1/002
- {Design or lay-out of roads, e.g. street systems, cross-sections ([E01C 1/005](#) , [E01C 1/007](#) take precedence; of footpaths, sidewalks, berms, hard shoulders or cycle tracks [E01C 15/00](#)); Design for noise abatement, e.g. sunken road (reducing transmission of structure-born noise [E01C 3/06](#) ; arrangement of means for absorbing surfacings see the groups for the respective surfacings; other arrangements for absorbing or reflecting air transmitted road traffic noise, e.g. barriers [E01F 8/00](#))}
- E01C 1/02
- Crossings, junctions or interconnections between roads on the same level {(construction of traffic islands [E01F 1/00](#))}
- U E01C 3/00** **Foundations for pavings (specially adapted for playgrounds or sports grounds [E01C 13/02](#) ; foundations in general [E02D](#))**
- E01C 3/04
- Foundations produced by soil stabilisation {(soil stabilisation for road building in general [E01C 7/36](#))}
- E01C 3/06
- Methods or arrangements for protecting foundations from destructive influence of moisture, frost or vibration {(heating devices [E01C 11/26](#) ; draining the subbase of roads [E01F 5/00](#))}
- 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 5/008
- {made of vegetable stems, e.g. straw, thatch (of wood [E01C 5/14](#)); made of textiles (of bituminous textile webs [E01C 5/12](#) ; of linoleum [E01C 5/20](#))}
- E01C 5/02
- made of natural stones, e.g. sett stones {(as inserts in binders or bound thereby into greater unity [E01C 5/22](#))}
- E01C 5/04
- made of bricks {(of asphalt bricks [E01C 5/12](#))}
- U E01C 5/06**
- made of units with cement or like binders
- E01C 5/08
- · Reinforced units {with steel frames (with metal upper or under layers [E01C 5/22](#))}
- E01C 5/10
- · · Prestressed reinforced units; {Prestressed coverings from reinforced or non-reinforced units (prestressed concrete coverings [E01C 7/16](#))}
- E01C 5/18
- made of rubber units {(of units made from other material and having a rubber upper layer [E01C 5/226](#))}
- 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](#))**
- E01C 7/08
- made of road-metal and binders {([E01C 7/36](#) takes precedence)}
- U E01C 7/10**
- · of road-metal and cement or like binders (cement or like binders, composition of mortars [C04B](#))
- E01C 7/14
- · · Concrete paving {(from concrete prepared in situ [E01C 7/12](#) ; small individual units from concrete cast in situ [E01C 9/001](#) ; arrangement or construction of joints [E01C 11/04](#) ; reinforcements [E01C 11/18](#))}
- E01C 7/145
- · · {Sliding coverings, underlayers or intermediate layers (isolating underlayers [E01C 3/06](#) ; sliding layers between coverings of different materials [E01C 7/34](#)); Isolating or separating intermediate layers; Transmission of shearing force in horizontal intermediate planes, e.g. by protrusions, by inlays (anchoring new concrete wearing layers on old concrete paving [E01C 7/147](#))}

- E01C 7/16
- • • Prestressed concrete paving {(prestressed coverings from prefabricated concrete units [E01C 5/10](#) ; prestressed joint constructions [E01C 11/04](#) ; prestressed reinforcements [E01C 11/20](#))}
- E01C 7/18
- • of road-metal and bituminous binders {(for surface treatments except for penetration coverings, or for thin surface layers [E01C 7/353](#) ; bituminous mixtures [C08L 95/00](#))}
- E01C 7/26
- • • mixed with other materials, e.g. cement, rubber, leather, fibre {(fibrous material reinforcements for bituminous paving [E01C 11/165](#))}
- U E01C 7/32
- • of courses of different kind made in situ
- NOTE**  
This group is limited to coverings consisting of layers with different binders, except for thin intermediate or surface layers, which are classified in group [E01C 7/35](#)
- E01C 7/34
- • • made of several courses which are not bound to each other; {Separating means therefor, e.g. sliding layers (in or under concrete coverings [E01C 7/145](#))}
- 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 7/36
- by subjecting soil to stabilisation {([E01C 7/06](#) takes precedence; foundations [E01C 3/04](#) ; soil conditioning or soil stabilising materials [C09K 17/00](#) ; soil stabilisation devices for road construction [E01C 21/00](#))}
- 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 9/001
- {Paving elements formed in situ; Permanent shutterings therefor (removable shutterings [E01C 19/502](#) ; moulding machines therefor [E01C 19/508](#)); Inlays or reinforcements which divide the cast material in a great number of individual units (reinforcement girders which do not break the cohesion of the covering material [E01C 11/16](#) , [E01C 11/185](#))}
- 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)}**
- 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](#))}
- E01C 11/04
- • for cement concrete paving {([E01C 9/001](#) takes precedence)}
- E01C 11/08
- • • Packing of metal {([E01C 11/045](#) takes precedence)}
- E01C 11/10
- • • Packing of plastic or elastic materials, {e.g. wood, resin ( [E01C 11/045](#) takes precedence)}
- E01C 11/12
- • • Packing of metal and plastic or elastic materials {([E01C 11/045](#) 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 11/16
- Reinforcements {(as anchoring elements between layers [E01C 7/145](#) , [E01C 7/185](#) , [E01C 7/325](#) ) ; for building in general [E04C](#))}
- E01C 11/18
- • for cement concrete pavings {(prefabricated reinforced units [E01C 5/08](#))}

- E01C 11/20
  - • • for prestressed concrete pavings {(from prefabricated concrete units, similar prestressed units [E01C 5/10](#))}
- E01C 11/22
  - Gutters; {Surface drainage of streets, roads or like traffic areas (for sports grounds [E01C 13/00](#)); Kerbs {or like edging members (for sports grounds [E01C 13/00](#))}
- E01C 11/24
  - Methods or arrangements for preventing slipperiness or protecting against influences of the weather {(measures taken in connection with the foundation [E01C 3/06](#) ; paving elements with anti-slip inlays [E01C 5/22](#) ; aggregates resisting to grinding [E01C 7/085](#) , [E01C 7/142](#) , [E01C 7/182](#) ; specially for surface layers [E01C 7/35](#) ; reinforcements extending up to the surface [E01C 11/16](#) , [E01C 11/18](#) , [E01C 11/185](#) ; drainage [E01C 11/22](#) ; windscreens [E01F 7/02](#) ; snow fences [E01F 7/02](#) ; combating fog [E01H 13/00](#))}
- E01C 11/26
  - • Permanently installed heating or blowing devices {(specially for combating fog [E01H](#) ; built-in melting devices for dislodged snow [E01H 5/102](#)); Mounting thereof}
- U E01C 13/00**

**Pavings or foundations specially adapted for playgrounds or sports grounds;{Drainage, irrigation or heating of sports grounds}(general layout [A63C 19/00](#))**
- E01C 13/02
  - Foundations, e.g. with drainage or heating arrangements {([E01C 13/003](#) , [E01C 13/083](#) , [E01C 13/10](#) take precedence; drainage of soil [E02B 11/00](#))}
- E01C 13/06
  - Pavings made in situ,{ e.g. for sand grounds, clay courts [E01C 13/003](#)},{([E01C 13/08](#) , [E01C 13/10](#) take precedence)
- E01C 13/08
  - Surfaces simulating grass; {Grass-grown sports grounds {(grass-like surfaces for skiing [E01C 13/12](#))}
- U E01C 13/10**
  - for artificial surfaces for outdoor or indoor practice of snow or ice sports ([E01C 13/08](#) takes precedence; production of snow or ice for winter sports or similar recreational purposes [F25C 3/00](#))
- E01C 13/12
  - • for snow sports,{e.g. skiing or ski tow track (mechanical ski trails [A63C 19/10](#))}
- 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](#))}
- 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)}
- 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)}
- 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](#))}
- E01C 19/21
  - • for simultaneously but separately applying liquid material and granular or pulverulent material, e.g. bitumen and grit, with or without spreading {(with rolling [E01C 19/4813](#)); for filling grooves and gritting the filling}

- 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 19/30
- • 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 19/38
- • • with means specifically for generating vibrations, {e.g. vibrating plate compactors, immersion vibrators ([E01C 19/40](#) , [E01C 19/41](#) take precedence)}
- E01C 19/48
- for laying-down the materials and consolidating them, or finishing the surface, {e.g. slip forms therefor, forming kerbs or gutters in a continuous operation in situ ([E01C 19/002](#) , [E01C 23/065](#) take precedence; devices for guiding or controlling the machines along a predetermined path [E01C 19/004](#))}
- U E01C 21/00
- Apparatus or processes for surface {soil}stabilisation for road building or like purposes, e.g. mixing local aggregate with binder ({recycling in place or on the road involving soil stabilisation [E01C 23/065](#) } ; stabilising soil under existing surfacing [E01C 23/10](#) ; soil-conditioning or soil-stabilising materials [C09K 17/00](#) ; soil consolidation in general [E02D 3/12](#))**
- E01C 21/02
- Fusing, calcining, or burning soil in situ, {(improving soil by thermal means in general [E02D 3/11](#) ; devices for heating foundation or paving [E01C 23/14](#))}
- 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](#))**
- U E01C 23/02
- Devices for making, treating or filling grooves or like channels in not-yet-hardened paving, e.g. for joints or markings (surface patterning [E01C 19/43](#)); Removable forms therefor (non-removable forms [E01C 11/02](#)); Devices for introducing inserts or removable insert-supports in not-yet-hardened paving ([E01C 23/04](#) takes precedence; non-removable {joint} insert supports [E01C 11/02](#))
- E01C 23/021
- • {Removable, e.g. reusable, forms for grooves or like channels ([E01C 23/028](#) takes precedence; groove-forming members of groove-making apparatus [E01C 23/025](#) , [E01C 23/026](#)); Installing same prior to placing the paving (into laid paving [E01C 23/026](#))}
- E01C 23/023
- • {Removable joint-body supports ([E01C 23/045](#) take precedence); Installing joint or like bodies, e.g. waterstops, prior to placing the paving (into laid paving [E01C 23/026](#) takes precedence)}
- E01C 23/04
- Devices for laying {inserting or positioning}reinforcing elements or dowel bars {with or without joint bodies (installing or inserting joint bodies per se [E01C 23/023](#) , [E01C 23/026](#))}; Removable support for reinforcing {or load transfer}elements (non- removable supports therefor{[E01C 11/02](#)}[E01C 11/16](#) ; side forms adapted to supporting reinforcement [E01C 19/50](#)); Devices, e.g. removable forms, for making essentially horizontal ducts in paving, e.g. for prestressed reinforcements
- U 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}

- U E01C 23/08
  - • for roughening or patterning; for removing {the surface down to a predetermined depth}high spots or material bonded to the surface, e.g. markings;{for maintaining earth roads, clay courts or like surfaces by means of surface working tools, e.g. scarifiers, levelling blades}{removing matter not bonded to the surface [E01H 1/00](#) ; roughening or detaching ice [E01H 5/12](#)}
- U E01C 23/085
  - • • using power-driven tools, e.g. vibratory tools
- E01C 23/088
  - • • Rotary tools, e.g. milling drums {(for forming recesses to receive marking materials [E01C 23/0946](#))}
- E01C 23/16
  - Devices for marking-out, applying, or forming traffic or like markings on finished paving ([E01C 23/14](#) takes precedence; inserting or forming in not-yet-hardened paving [E01C 23/02](#) , in recesses formed in fully-set paving [E01C 23/09](#) ; marking-out playing courts or playgrounds [A63C 19/06](#) ; applying liquids or other fluent materials to surfaces in general [B05](#) ; road surface markings per se [E01F 9/04](#)); Protecting fresh markings {(indicating fresh markings [E01F 9/0128](#))}
- U E01C 23/20
  - • for forming markings in situ
- E01C 23/22
  - • • by spraying {([E01C 23/206](#) takes precedence)}

**Project: N/A (E01D)**

- U E01D 19/00
  - Structural or constructional details of bridges**
- E01D 19/02
  - Piers {([E01D 19/005](#) takes precedence; towers for suspension bridges [E01D 19/14](#)); Abutments (foundations [E02D](#)); {Protecting same against drifting ice (against colliding vehicles [E01F 15/00](#))}
- E01D 19/08
  - Damp-proof or other insulating layers; Drainage arrangements or devices {Bridge deck surfacings (bridge decks per se [E01D 19/125](#))}
- E01D 19/083
  - • {Waterproofing of bridge decks; Other insulations for bridges, e.g. thermal (insulation for buildings in general [E04B 1/62](#)); Bridge deck surfacings (road surfacings in general [E01C](#))}
- U E01D 19/10
  - Railings; Protectors against smoke or gases, e.g. of locomotives; Maintenance travellers; Fastening of pipes or cables to bridges ({pipe-line bridges [E01D 18/00](#)); supports for pipes, cables or protective tubing, e.g. hangers, holders, clamps, cleats, clips, brackets, [F16L 3/00](#)}
- E01D 19/103
  - • {Parapets, railings ([E01D 19/005](#) takes precedence; balustrades in general [E04F 11/18](#)); Guard barriers or road-bridges (in general [E01F 15/00](#))}

**Project: N/A (E01F)**

- E01F 1/00
  - Construction of { station or like} platforms or refuge islands { or like islands in traffic areas, e.g. intersection or filling-station islands} (general arrangement { of filling stations [B60S 5/02](#),} of railway platforms {[B61B 1/02](#), of traffic-channelling island at intersections [E01C 1/02](#))}{ ; Kerbs specially adapted for islands in traffic areas (specially adapted for guiding, marking or signalling [E01F 9/0533](#), for illumination [E01F 9/0536](#); lane separators diverting traffic past safety zones [E01F 9/087](#))}**
- E01F 7/00
  - Devices affording protection against snow, sand drifts, side-wind effects, snowslides, avalanches or falling rocks (permanently installed heating or blowing devices for roads [E01C 11/26](#)); Anti-dazzle arrangements {; Sight-screens for roads, e.g. to mask accident site ([E01F 8/00](#) takes precedence)}**
- E01F 7/06
  - Anti-dazzle arrangements ([E01F 8/00](#) takes precedence){Securing anti-dazzle means to crash-barriers (securing signs or supports therefor to crash-barriers [E01F 9/03](#))}

- U E01F 8/00 Arrangements for absorbing or reflecting air-transmitted noise from road or railway traffic (ground installations for reducing aircraft noise [B64F 1/26](#); general building constructions for absorbing or reflecting noise, noise absorption or reflection for buildings [E04B 1/74](#))**
- E01F 8/02
- specially adapted for sustaining vegetation or for accommodating plants (receptacles for cultivation of plants [A01G 9/02](#); securing slopes or inclines [E02D 17/20](#); retaining or protecting walls [E02D 29/02](#)); {Embankment-type or crib-type noise barriers; Retaining walls specially adapted to absorb or reflect noise (building elements for planting walls [E04C 1/395](#))}
- U E01F 9/00 Arrangement of road signs or traffic signals (signals, signalling systems [G08](#); signs, attachment thereof to supports [G09F](#)); Arrangements for enforcing caution, e.g. speed bumps**
- U E01F 9/011
- Upright bodies, e.g. marker posts or bollards; Supports for road signs, { e.g. posts, frames, gantries}{([E01F 9/045](#), [E01F 9/0533](#), [E01F 13/02](#) take precedence);} posts or poles in general [E04H 12/00](#); means for attaching signs to a supporting structure in general [G09F 7/18](#))
- E01F 9/012
- • Free-standing, e.g. traffic cones, foldable or inflatable devices; {Portable supports (for barriers [E01F 13/02](#)); Portable traffic signs or signals (specially adapted for fitting to raised kerbs [E01F 9/0533](#), to portable barriers [E01F 13/02](#), to crash barriers [E01F 9/03](#); normal vehicle equipment portable emergency signal devices to be placed on way [B60Q 7/00](#); portable traffic signalling devices, i.e. hand signals [G08B 5/006](#))}
- E01F 9/0126
- • {mounted on vehicles, e.g. for rapid change of station, as signal fitting of service vehicle (vehicle aspects [B60P](#), [B62D](#)); Warning vehicles designed to move along with traveling road-maintenance, e.g. remotely controlled (mobile impact cushioning arrangements [E01F 15/14](#))}
- E01F 9/013
- • intended to be readily removable, e.g. for insertion into road-stud sockets ([E01F 9/012](#) takes precedence); {Base members specially adapted therefor ([E01F 9/018](#), [E01F 13/026](#) take precedence)}
- E01F 9/014
- • Storing, transporting, placing or retrieving portable devices, {e.g. road cones emplacing vehicles (vehicle aspects [B60P](#), [B62D](#); applying permanent markers, e.g. buttons [E01C 23/18](#))}
- E01F 9/018
- • specially adapted for breaking, disengaging, collapsing or permanent deformation upon deflection or displacement, e.g. upon vehicle impact; {replaceable couplings ([E01F 9/0118](#), [E01F 9/012](#), [E01F 9/014](#), [E01F 9/016](#), [E01F 9/017](#) take precedence)}
- E01F 9/019
- • Extensible, collapsible or pivotable, {e.g. telescopic} ([E01F 9/017](#), [E01F 9/018](#) take precedence); {Retractable or otherwise movable to an underground position ([E01F 9/093](#), [E01F 13/046](#), [E01F 13/085](#) take precedence; retractable traffic islands [E01F 1/005](#))}
- U E01F 9/04
- Road surface markings; Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated (for redirecting vehicles [E01F 15/00](#))
- E01F 9/041
- • {Selection of materials for road surface marking, e.g. wheel-grip improving additives, reflecting particles (specially adapted for kerbs [E01F 9/053](#), for playing grounds [A63C 19/06](#); reflecting or signal paints [C09D 5/004](#)); Methods of forming, installing or applying markings in, on or to paving ([E01F 9/047](#), [E01F 9/053](#), [E01F 9/06](#) take precedence; devices therefor [E01C](#))}
- U E01F 9/08
- • Traffic lines, {e.g. edge lines (flush kerbs or edge strips specially adapted for traffic guidance [E01F 9/053](#)); Methods of forming, installing or applying same in, on or to the road (devices therefor [E01C 23/16](#)); Traffic lane separators}

- E01F 9/087
- • • Lane delineators for physically separating traffic lanes and discouraging but not preventing crossing {,e.g. low barriers for channelling traffic ([E01F 9/093](#) takes precedence; insurmountable lane-separating barriers [E01F 15/006](#), [E01F 15/02](#))}
- E01F 9/093
- • • movable for repeated use at different locations {,e.g. shiftable lines, line location transferable by selective illumination, retractable lane delineating posts ([E01F 15/006](#) takes precedence; retractable posts [E01F 9/019](#))}
- E01F 13/00
- Arrangements for obstructing or restricting traffic, e.g. gates, barricades (for railway crossings [B61L](#)); {Preventing passage of vehicles of selected category or dimensions ([E01F 13/12](#), [E01F 13/126](#) take precedence)}**
- 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 9/03](#); for forcibly arresting vehicles [E01F 13/00](#); {guard barriers on road-bridges [E01D 19/103](#); fences in general [E04H 17/00](#))}**
- E01F 15/006
- {Lane control by movable lane separating barriers, e.g. shiftable barriers, retractable kerbs ([E01F 15/12](#) takes precedence; by crossable lane separators [E01F 9/093](#)); Apparatus or barriers specially adapted therefor, e.g. wheeled barriers (wall-type modules [E01F 15/08](#))}
- U E01F 15/02
- Continuous barriers extending along roads or between traffic lanes (crossable-lane separators {[E01F 9/087](#)})
- E01F 15/04
- • essentially made of longitudinal beams or rigid strips {supported above ground at spaced points ([E01F 15/10](#), [E01F 15/12](#) take precedence)}

**Project: N/A (E01H)**

- U 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](#))}**
- U 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](#))}
- E01H 1/0809
- • {Loosening or dislodging by blowing (with steam [E01H 1/10](#) combined with suction [E01H 1/0863](#); removing snow by blowing [E01H 5/106](#); removing fog by blowing [E01H 13/00](#); cleaning rails by blowing [E01H 8/105](#), [E01H 8/125](#); cleaning joints in road construction by blowing [E01C 23/0906](#)); Drying by means of gas streams (by heat only [E01H 1/08](#); combined with snow or ice melting [E01H 5/10](#), [E01H 5/106](#), [E01H 5/108](#))}
- U E01H 1/0827
- • {Dislodging by suction; Mechanical dislodging-cleaning apparatus with independent or dependent exhaust, e.g. dislodging-sweeping machines with independent suction nozzles (combined with blowing [E01H 1/0872](#)); Mechanical loosening devices working under vacuum}

- E01H 1/0836
- • • {Apparatus dislodging all of the dirt by suction (liquids or semi-liquids [E01H 1/108](#); combined with loosening by blowing [E01H 1/0863](#); for cleaning rails [E01H 8/105](#), [E01H 8/125](#); removing snow by suction [E01H 5/106](#), [E01H 8/08](#)); Suction nozzles (independent suction nozzles in mechanical dislodging-cleaning devices [E01H 1/0827](#); suction and blowing nozzles [E01H 1/0863](#))}
- 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 1/105
- • {Raking, scraping or other mechanical loosening devices, e.g. for caked dirt (loosening ice or hard snow [E01H 5/12](#); working the road surface [E01C 23/08](#)); Apparatus for mechanically moving dirt on road surfaces, e.g. wipers for evacuating mud (wipers as accessories for road washing machines [E01H 1/101](#); of devices for removing liquids or semi-liquids [E01H 1/108](#); of snow scrapers for evacuating wet snow [E01H 5/06](#); wipers for spreading bitumen or the like [E01C 19/16](#), [E01C 19/178](#))}
- 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](#))**
- E01H 5/12
- Apparatus or implements specially adapted for breaking, disintegrating, or loosening layers of ice or hard snow {with or without clearing or removing ([E01H 5/10](#) takes precedence); Roughening ice or hard snow by means of tools (by means of gritting materials [E01H 10/00](#) ; roughening or breaking-up pavements [E01C 23/08](#) ,[E01C 23/12](#))}
- U 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 8/02
- Methods or apparatus for removing ice or snow from railway tracks, e.g. using snow-ploughs {Devices for dislodging snow or ice which are carried or propelled by tramway vehicles} (operating only on rails or flange grooves [E01H 8/10](#)); {Moving or removing ballast; ([E01B 27/02](#), [E01B 27/04](#) take precedence; removing snow or ice in general [E01H 5/00](#))}
- E01H 8/04
- • essentially by non-driven elements {Clearing instruments, e.g. scraping blades, scoop plates (with oscillating or vibrating tools [E01H 8/06](#); with heated instruments or combined with melting [E01H 8/10](#); ballast ploughs [E01B 27/025](#); track clearing devices [B61F 19/06](#))}
- E01H 8/06
- • essentially by driven tools {clearing instruments, e.g. rotary cutting tools or brushes (with heated instruments or combined with melting [E01H 8/08](#); for spreading or redistributing ballast [E01B 27/026](#))}
- U E01H 8/10**      • Removing undesirable matter from rails, flange grooves, or the like {railway parts}, e.g. removing ice from contact rails, removing mud from flange grooves (heating, blowing, or fluid-applying devices installed in the track [E01B 19/00](#); built-in draining devices for rails [E01B 21/02](#); removing ballast from rails [E01B 27/04](#))
- U E01H 8/12**      • • specially adapted to grooved rails, flange-ways, or like {parts of the permanent way, e.g. level crossings or switches}
- E01H 8/125
- • • {Pneumatically or hydraulically loosening, removing or dislodging undesirable matter, e.g. removing by blowing, suction or flushing (flushing devices incorporated in tramway tracks [E01B 21/02](#)); Loosening or removing by means of heat (built-in heating, blowing or liquid applying devices for switches [E01B 7/24](#))}

**Project: N/A (E02B)**

- E02B 1/00 **Equipment or apparatus for, or methods of, general hydraulic engineering, {e.g. protection of constructions against ice-strains (protection of offshore constructions against ice-loads [E02B 17/0021](#); ice-structures as artificial islands [E02B 17/028](#))}**
- U E02B 5/00 **Artificial water canals, { e.g. irrigation canals}(for water-power plants [E02B 9/02](#); irrigation of soil [E02B 13/00](#))**
- E02B 5/02 · Making or lining canals {(linings in general [E02B 13/02](#); digging canals [E02F](#))}
- U E02B 15/00 **Cleaning or keeping clear the surface of open water; Apparatus therefor (construction of ships or other waterborne vessels [B63B](#), e.g. vessels specially adapted for collecting pollution from open water [B63B 35/32](#); in swimming or splash baths or pools [E04H 4/16](#))**
- U E02B 15/04 · Devices for cleaning or keeping clear the surface of open water from oil or like floating materials by separating or removing these materials ({stopping water-borne material in artificial water canals [E02B 5/085](#); stopping water-borne material at barrages or weirs [E02B 8/023](#)}; other treatment of water, waste water or sewage [C02F](#); materials for treating liquid pollutants; e.g. oil, gasoline, fat, [C09K 3/32](#); {separation of oil in sewage conduits [E03F 5/16](#))}
- E02B 15/045 · {Separating means for recovering oil floating on a surface of open water; [E02B 15/048](#) takes precedence (separation in general [B01D](#))}

**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](#))}
- U 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 5/28 · · · made of steel {or other metals (E02D 5/52 takes precedence)}
- 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 5/48 · · Piles varying in construction along their length, {i.e. along the body between head and shoe, e.g. made of different materials along their length (E02D 5/50, [E02D 5/52](#) take precedence)}
- 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](#))}**
- U E02D 7/02 · Placing by driving {(E02D 7/18 to [E02D 7/24](#) take precedence)}
- U E02D 7/06 · · Power-driven drivers {(tampers [E02D 3/061](#))}
- E02D 7/10 · · · with pressure-actuated hammer, {i.e. the pressure fluid acting directly on the hammer structure (E02D 7/12 takes precedence; vibrating drivers [E02D 7/18](#))}
- U E02D 19/00 **Keeping dry foundation sites or other areas in the ground (sheet piles or bulkheads [E02D 5/02](#))**

- U E02D 19/02                   · Restraining of open water
- E02D 19/04                   · · by coffer-dams {,e.g. made of sheet piles (permanent sheet piling boxes [E02D 27/30](#))}

**U E02D 27/00                   Foundations as substructures**

- 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)}

**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
- 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 3/18                   · · 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](#))}
- 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 3/36                   · · · Component parts
- E02F 3/38                   · · · · Cantilever beams { i.e. booms; e.g. manufacturing processes, forms, geometry or materials used for booms (for booms with cable suspension arrangements [E02F 9/14](#) takes precedence)}; Dipper-arms { e.g. manufacturing processes, forms, geometry or materials used for dipper-arms}; Bucket-arms {([E02F 3/34](#) takes precedence)}
- 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 3/46                   · · with reciprocating digging or scraping elements moved by cables or hoisting ropes; { Drives or control devices therefor ([E02F 3/205](#), [E02F 3/905](#) take precedence)}
- E02F 3/627                   · · Devices to connect beams or arms to tractors or similar self-propelled machines, { e.g. drives therefor (Connection of beams or booms or arms to the frame per se [E02F 3/382](#); connection of scraper bowls to the vehicle main body [E02F 3/653](#); connecting devices for agriculture tractors [A01B 59/06](#))}
- 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](#))}
- U E02F 3/80                   · · · Component parts
- E02F 3/815                   · · · · Blades; Levelling {or scarifying}tools {([E02F 3/40](#) takes precedence)}
- U E02F 3/88                   · · with arrangements acting by a sucking or forcing effect, e.g. suction dredgers (pumps in general [F04](#))
- U E02F 3/90                   · · · Component parts {e.g. arrangement or adaptation of pumps}
- E02F 3/94                   · · · · Apparatus for separating stones from the dredged material, {i.e. separating or treating dredged material (screening plants mounted on dredger therefor [E02F 7/06](#))}
- U 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](#))**

- E02F 9/14 · Booms { only for booms with cable suspension arrangements (for booms or manipulators with cable suspensions for suction pipes [E02F 3/905](#) takes precedence; for booms per se [E02F 3/38](#); [E02F 3/34](#) for bucket-arms)}; Cable suspensions
- E02F 9/24 · Safety devices {e.g. for preventing overload ([E02F 9/226](#) takes precedence)}
- E02F 9/28 · Small metalwork for digging elements, e.g. teeth { scraper bits (ploughs for agriculture [A01B 15/00](#); teeth of harrows [A01B 23/02](#))}

**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}**
- E03D 1/30 · Valves for high or low level cisterns; Their arrangement (inlet valves, valves in general [F16K](#)){Flushing mechanisms in the cistern, optionally with provisions for a pre-or a post- flushing and for cutting off the flushing mechanism in case of leakage (flushing valves [E03D 1/142](#), [E03D 1/186](#), [E03D 1/266](#), [E03D 1/286](#))}
- E03D 9/00 Sanitary or other accessories for lavatories (hand tools for cleaning the toilets bowl [A47K 11/10](#); seats or covers for closets [A47K 13/00](#); body supports, other than seats for closets [A47K 17/02](#); devices for preventing contamination of drinking-water pipes [E03C 1/10](#)){Devices for cleaning or disinfecting the toilet room or the toilet bowl; Devices for eliminating smells (cleaning, disinfecting or deodorising the seat [A47K 13/30](#))}**
- U E03D 11/00 Other component parts of water-closets (pipe-joints or couplings in general [F16L](#)){e.g. noise-reducing means in the flushing system (noise-reducing means in combination with flushing valves [E03D 9/14](#)), flushing pipes mounted in the bowl, seals for the bowl outlet, devices preventing overflow of the bowl contents; devices forming a water seal in the bowl after flushing, devices eliminating obstructions in the bowl outlet or preventing backflow of water and excrements from the waterpipe}**
- E03D 11/02 · Water-closet bowls (auxiliary chambers with connections to flushing water for bowl-cleaning utensils [E03D 9/06](#); modified for using upwardly-directed sprays [E03D 9/08](#); seats or covers [A47K 13/00](#)){Bowls with a double odour seal optionally with provisions for a good siphonic action; siphons as part of the bowl (parts or details of bowls [E03D 11/13](#))}

**Project: N/A (E04B)**

- U E04B 2/00 Walls, e.g. partitions, for buildings; Wall construction with regard to insulation; Connections specially adapted to walls (connections for building structures in general [E04B 1/38](#); insulation for buildings in general [E04B 1/62](#); building elements of relatively thin form for parts of buildings [E04C 2/00](#))**
- U E04B 2/74 · Removable non-load-bearing partitions; Partitions with a free upper edge (framed panels [E04C 2/38](#)){modular coordination}
- U E04B 2/76 · · with framework or posts of metal {(details of connections, thresholds or skirtings [E04B 2/82](#))}
- E04B 2/78 · · · characterised by special cross-section of the frame-members {as far as important for securing wall panels to a framework with or without the help of cover-strips (separate connecting means, e.g. clip [E04B 2/74](#); connections between uprights and cross-members [E04B 2/76](#))}
- 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](#))**

- U E04B 5/02
  - Load-carrying floor structures formed substantially of prefabricated units ([E04B 5/43](#) to [E04B 5/48](#) take precedence)
- E04B 5/12
  - · with wooden beams ([E04B 5/14](#) takes precedence){also means for supporting beams; (shores or struts [E04G 25/00](#))}

**Project: N/A (E04C)**

- U E04C 2/00
 

**Building elements of relatively thin form for the construction of parts of buildings, e.g. sheet materials, slabs, or panels (materials or manufacture, see the relevant subclasses, e.g. [B27N](#), [D21J](#); made in situ [E04B](#); specially designed for insulation or other protection [E04B 1/62](#); load-carrying floor structures [E04B 5/02](#), [E04B 5/16](#); roofs consisting of self-supporting slabs [E04B 7/20](#); roof or like covering elements [E04D 3/00](#); for lining or finishing [E04F 13/00](#))**
- U E04C 2/30
  - characterised by the shape or structure (translucent [E04C 2/54](#))
- E04C 2/40
  - · composed of a number of smaller components rigidly or movably connected together, e.g. interlocking, hingedly connected {of particular shape, e.g. not rectangular of variable shape or size, e.g. flexible or telescopic panels ([E04C 2/041](#) takes precedence)}

**Project: N/A (E04D)**

- U E04D 13/00
 

**Special arrangements or devices in connection with roof coverings; {Protection against birds}; Roof drainage; {Sky-lights}(ventilation tiles [E04D 1/30](#); ventilation slabs [E04D 3/40](#); internal channels [E04F 17/00](#); elements therefor, see the relevant groups)**
- E04D 13/15
  - Trimming strips; Edge strips; Fascias; {Expansion joints for roofs (wall copings [E04D 3/405](#); drainage borders [E04D 13/0459](#); joints in general [E04B 1/68](#))}
- E04D 13/152
  - · with ventilating means {in soffits or fascias; (on the eaves of the roof [E04D 13/178](#))}

**Project: N/A (E04F)**

- E04F 10/00
 

**Sunshades, {e.g. Florentine blinds or jalousies; Outside screens ([E06B 9/26](#) takes precedence)}; Awnings {or baldachins (for caravans [B60P 3/343](#))}; (trailer awnings [E04H 15/08](#); for tents [E04H 15/58](#))**
- U E04F 10/08
  - of a plurality of similar rigid parts, e.g. slabs, lamellae {([E04F 10/005](#) takes precedence)}
- E04F 10/10
  - · collapsible {or extensible; metallic Florentine blinds; awnings with movable parts such as louvres; (shutters [E06B 9/04](#); louver windows [E06B 7/08](#))}
- U E04F 13/00
 

**Coverings or linings, e.g. for walls or ceilings (flooring [E04F 15/00](#); decoration of surfaces, mosaic work [B44](#), e.g. paper-hanging [B44C 7/00](#); made of webs, e.g. of fabrics or wallpaper, { as such, or their manufacturing})[D03D](#), [D04G](#), [D04H](#), [D06N](#), [D21H](#); construction of { false} ceilings [E04B 9/00](#); roofings or similar water-tight coverings against precipitation [E04D](#))**
- U E04F 13/07
  - composed of covering or lining elements; Sub-structures therefor; Fastening means therefor
- U E04F 13/08
  - · composed of a plurality of similar covering or lining elements, ([E04F 13/072](#) takes precedence; borders, skirtings [E04F 19/02](#); { of webs or fabrics [E04F 13/002](#); fixing strips [E04F 19/06](#); separate provisional spacers between adjacent tiles [E04F 21/0092](#); implements or means for setting tiles [E04F 21/18](#))}
- E04F 13/10
  - · · of wood { or with an outer layer of wood ([E04F 13/0864](#) takes precedence)}

- E04F 13/12
  - • • of metal { or with an outer layer of metal or enameled metal ([E04F 13/0864](#) takes precedence)}
- E04F 13/14
  - • • stone or stone-like materials, e.g. ceramics { concrete,}; of glass { or with an outer layer of stone or stone-like materials or glass ([E04F 13/0864](#) takes precedence; producing shaped elements from concrete, ceramic compositions or other stone-like materials [B28B](#); prefabricated panels in general [E04C 2/00](#))}
- E04F 13/15
  - • • characterised by the use of glass elements { , i.e. wherein an outer layer is not of glass ([E04F 13/145](#) takes precedence)}
- E04F 13/16
  - • • of fibres or chips, e.g. bonded with synthetic resins { , or with an outer layer of fibres or chips ([E04F 13/0864](#) takes precedence)}
- E04F 13/18
  - • • of organic plastics with or without reinforcements or filling materials (of plastic-bound fibres or chips [E04F 13/16](#)){ or with an outer layer of organic plastics with or without reinforcements or filling materials; plastic tiles ([E04F 13/0864](#) takes precedence)}
- U E04F 15/00**

**Flooring (stair treads [E04F 11/104](#); coverings not specially adapted for floors [E04F 13/00](#); borders, skirtings [E04F 19/02](#); { implements for laying flooring [E04F 21/20](#);} gratings for cleaning soles of footwear [A47L 23/24](#); { built-in gratings [E04F 19/10](#); removing floor coverings [E04G 23/00](#); carpets [A47G 27/00](#);} of similar materials to roads [E01C](#); basic or rough floors { , structural floors}[E04B 5/00](#))**
- U E04F 15/02
  - Flooring or floor layers composed of a number of similar elements (of webs [E04F 15/16](#))
- E04F 15/08
  - • only of stone or stone-like material, e.g. { ceramics}, concrete; of glass { or with a top layer of stone or stone-like material, e.g. ceramics, concrete or glass ([E04F 15/02005](#) takes precedence)}
- U E04F 19/00**

**Other details of constructional parts for finishing work on buildings (ladders, e.g. climbing irons, [E06C 9/04](#))**
- U E04F 19/02
  - Borders; Finishing strips, e.g. beadings; Light covers (for protecting edges of plaster [E04F 13/06](#))
- E04F 19/06
  - • specially designed for securing panels (or masking the edges of wall- or floor-covering elements ([E04F 19/022](#), [E04F 19/026](#) and [E04F 19/04](#) take precedence)}
- U E04F 21/00**

**Implements for finishing work on buildings (for working or treating building elements of stone or stone-like material [B28D](#); designed specifically for special details provided for in the other groups of this subclass, see the relevant groups for the details { working measures on existing buildings [E04G 23/00](#); measuring angles or linear dimensions in general [G01B](#), [G01C](#); measuring inclination, e.g. by clinometers or levels [G01C 9/00](#); reference lines, planes or sectors, generated by active optical means [G01C 15/004](#))}**
- U E04F 21/20
  - for laying flooring (made of similar material to roads or pavements [E01C](#); { arrangements for removing of previously fixed floor covering [E04G 23/00](#))}
- E04F 21/22
  - • of single elements, e.g. flooring cramps; {flexible webs (cutting tiles [B28D 1/225](#))}

**Project: N/A (E04G)**

- U E04G 11/00**

**Forms, shutterings, or falsework for making walls, floors, ceilings, or roofs {(for prefabrication of concrete elements in a plant [B28B 7/00](#))}**
- E04G 11/36
  - for floors, ceilings, or roofs of plane or curved surfaces { end formpanels for floor shutterings (floors with lost forms [E04B 5/32](#))}

- E04G 13/00** Falsework, forms, or shutterings for particular parts of buildings, e.g. stairs, steps, cornices, balconies { foundations, sills ([E04G 11/365](#) takes precedence; flat foundations e.g. with lost forms [E02D 27/01](#); removable forms or shutterings for road-building purposes [E01C 19/50](#))}
- U E04G 15/00** Forms or shutterings for making openings, cavities, slits, or channels (forming part of shuttering for walls [E04G 11/06](#), { e.g. double walls [E04G 11/18](#); prefabricated elements with elements wholly or partly embedded therein [B28B 23/00](#); core or mandrels for the prefabrication of concrete elements [B28B 7/28](#)})
- E04G 15/04
- Cores for anchor holes or the like { around anchors embedded in the concrete (means in or on the building element for connecting to handling apparatus [E04G 21/142](#))}
- U E04G 17/00** Connecting or other auxiliary members for forms, falsework structure, or shutterings
- E04G 17/04
- Connecting or fastening means for metallic forming or stiffening elements, {e.g. for connecting metallic elements to non-metallic elements ([E04G 17/001](#) takes precedence)}
- E04G 17/06
- Tying means; Spacers; { Devices for extracting or inserting wall ties ([E04G 17/047](#) takes precedence; permanent forms for walls e.g. with ties [E04B 2/86](#))}
- U E04G 21/00** Preparing, conveying, or working-up building materials or building elements in situ; Other devices or measures for constructional work (conveying in general [B65G](#); lifting devices [B66](#); working stone-like materials [B28D](#); measuring instruments [G01](#))
- U E04G 21/02
- Conveying or working-up concrete or similar masses able to be heaped or cast (in connection with finishing work [E04F](#); construction and surfacing of floorings made of similar material to roads or pavements [E01C](#); in connection with barrages [E02B 7/00](#); in connection with foundations [E02D 15/00](#); composition of concrete [C04B](#); working concrete in general, e.g. mixing machines [B28C](#))
- U E04G 21/06
- • Solidifying concrete, e.g. by application of vacuum before hardening (devices for solidifying also soil [E02D 3/02](#); for road building [E01C 19/00](#); { for producing shaped articles [B28B 1/00](#))}
- E04G 21/08
- • • Internal vibrators, {e.g. needle vibrators (combined with vacuum [E04G 21/061](#))}

**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 9/00](#); 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
- 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 6/22
- • • characterised by the use of movable platforms for horizontal transport, {i.e. cars being permanently parked on pallettes ([E04H 6/20](#) takes precedence)}
- E04H 6/24
- • • characterised by the use of dollies for horizontal transport, {i.e. cars being permanently parked on wheeled platforms ([E04H 6/20](#) takes precedence)}

**Project: N/A (E05B)**

- U E05B 15/00** **Other details of locks; Parts for engagement by bolts of fastening devices (fastening devices for wings other than locks or associated with locks [E05C](#))**
- E05B 15/02
- Striking-plates; Keepers; Bolt staples; Escutcheons {{keyhole finders [E05B 15/08](#); escutcheons made of hard materials [E05B 15/1614](#); finger-plates [E06B 7/285](#)}}
- U E05B 19/00** **Keys; Accessories therefor (making keys, see the relevant places e.g. [B21D 53/42](#){ or [B23P 15/005](#)}; milling grooves in keys [B23C 3/35](#)); {{[E05B 11/005](#) takes precedence; illuminating devices [E05B 17/103](#); key rings [A44B 15/00](#); key cases [A45C 11/32](#); key holders [A47G 29/10](#)}}**
- E05B 19/14
- Double {or multiple}keys, { e.g. with two or more bows or bits (see also [E05B 35/14](#))}
- U E05B 37/00** **Permutation { or combination} locks ({handles with combination locks [E05B 13/103](#); keyhole guards with combination locks [E05B 17/145](#); alarms therefor [E05B 45/061](#)}; electric permutation locks [E05B 49/00](#); { for container closures [B65D 55/145](#); combination switches [H01H 27/10](#)});  
Puzzle locks**
- E05B 37/16
- with two or more push or pull knobs, slides, or the like {{[E05B 65/461](#) takes precedence}}

**Project: N/A (E05C)**

- U E05C 17/00** **Devices for holding wings open; Devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing; Braking devices, stops or buffers, combined therewith (combined with hinges [E05D 11/00](#); combined with operating apparatus for wings [E05F](#); other braking devices, stops, buffers [E05F 5/00](#))**
- U E05C 17/02
- by mechanical means ([E05C 17/60](#) takes precedence)
- U E05C 17/04
- · {Hinges for the movable bar ([E05C 17/163](#), [E05C 17/26](#), [E05C 17/345](#) take precedence; hinges in general [F16C 11/04](#), [E05D](#))}
- U E05C 17/12
- · · consisting of a single rod
- U E05C 17/20
- · · · sliding through a guide ([E05C 17/18](#) takes precedence)
- E05C 17/22
- · · · · with braking, clamping or securing means in the guide {{[E05C 17/203](#) takes precedence}}

**Project: N/A (E05D)**

- E05D 3/00** **Hinges with pins {{[E05D 7/08](#) takes precedence}}**
- U E05D 7/00** **Hinges or pivots of special construction (used for special suspension arrangements [E05D 15/00](#) ; so as to be self-closing [E05F 1/06](#) , [E05F 1/12](#) ; with means for raising wings before being turned [E05F 7/02](#))**
- E05D 7/08
- for use in suspensions comprising two spigots placed at opposite edges of the wing, especially at the top and the bottom, e.g. trunnions {{[E05D 15/266](#) takes precedence}}
- E05D 7/12
- to allow easy detachment of the hinge from the wing or the frame {{[E05D 15/507](#) takes precedence}}
- E05D 11/00** **Additional features or accessories of hinges {{(edge protecting devices [E06B 3/88](#))}}**
- 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 15/16
  - for wings sliding vertically more or less in their own plane
- E05D 15/22
  - · allowing an additional movement {(E05D 15/20 takes precedence)}
- U E05D 15/48
  - allowing alternative movements {(E05D 15/0604 takes precedence)} ; for vertically-sliding wings E05D 15/22
- E05D 15/50
  - · for opening at either of two opposite edges {(hinges or pivots of special construction to allow easy separation or connection of the parts at the hinge axis E05D 7/10 ; to allow easy detachment of the hinge from the wing or the frame E05D 7/12)}
- U E05D 15/52
  - · for opening about a vertical as well as a horizontal axis
- E05D 15/526
  - · · Safety devices {(E05D 15/5217 takes precedence)}
- E05D 15/56
  - with successive different movements {(raising wings before being turned E05F 7/02)}

**Project: N/A (E05F)**

- U E05F 1/00
  - Closers or openers for wings, not otherwise provided for in this subclass**
- E05F 1/08
  - spring-actuated, {e.g. for horizontally sliding wings (counterbalancing sliding or lifting wings E05D; springs per se F16F, e.g. gas-springs F16F 9/00)}
- E05F 1/10
  - · for swinging wings, {e.g. counterbalance (spring-assisted actuation of lids or covers of refuse receptacles B65F 1/1623)}

**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)**
- E06B 1/02
  - Base frames, i.e. template frames for openings in walls or the like, provided with means for securing a further rigidly-mounted frame; Special adaptations of frames to be fixed therein {(E06B 1/003 , E06B 1/24 take precedence; fastening door or window frames per se E06B 1/56)}
- 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)**
- E06B 3/02
  - Wings made completely of glass {(E06B 3/4681 takes precedence)}
- U E06B 3/04
  - Wing frames not characterised by the manner of movement (features relating to the manner of movement E06B 3/32)
- U E06B 3/06
  - · Single frames
- U E06B 3/08
  - · · Constructions depending on the use of specified materials (E06B 3/24 takes precedence)
- U E06B 3/12
  - · · · of metal
- E06B 3/14
  - · · · · of special cross-section {(not used, see subgroup and E06B 3/12)}
- U E06B 3/20
  - · · · of plastics

- E06B 3/22      • . . . . Hollow frames {(E06B 3/205 takes precedence)}
- E06B 3/30      • Coverings, e.g. protecting against weather, for decorative purposes {(for door leaves E06B 3/7001)}
- 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)
- E06B 3/38      • . . with a horizontal axis of rotation at the top or bottom of the opening {(E06B 3/5036 takes precedence)}
- E06B 3/42      • . . Sliding wings; Details of frames with respect to guiding {(E06B 3/26347 and E06B 3/92 take precedence)}
- E06B 3/46      • . . . Horizontally-sliding wings {(E06B 3/487 takes precedence)}
- 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)}
- E06B 3/68      • Window bars {(bay windows E06B 1/363 ; joints for frame members crossing each other E06B 3/9628)}
- U E06B 3/70      • Door leaves (wing frames E06B 3/04)
- U 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)}
- E06B 3/80      • . flexible {(upwardly folding flexible screens E06B 9/262)}
- E06B 3/96      • Corner joints or edge joints for windows, doors, or the like frames or wings {(E06B 3/663 takes precedence)}
- U 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 3/968      • . . characterised by the way the connecting pieces are fixed in or on the frame members
- E06B 3/976      • . . . by deformation of the frame members {(making sheet metal frames for openings B21D 53/74)}
- E06B 5/00      Doors, windows, or like closures for special purposes {(insulated compound frames specially adapted for sliding doors or windows E06B 3/26347)}; Border constructions therefor**
- 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 7/28      • Other arrangements on doors or windows, e.g. door-plates, windows adapted to carry plants, hooks for window cleaners {(edge protecting devices for door leaves E06B 3/88 ; special glazing; emergency glazing; double glazing E06B 3/66)}

- U E06B 9/00** Screening or protective devices for {wall or similar} openings, with or without operating or securing mechanisms; Closures of similar construction ([E06B 5/10](#) takes precedence; wings for doors or windows, connected at their edges, [E06B 3/48](#) ; additional indoor equipment of doors or windows, not forming part of the proper finishing work of a building, e.g. curtains, [A47H](#) ; gratings as building elements [E04C 2/24](#) ; fastening means [E05](#) ; operating-mechanisms for wings in general [E05F](#))
- E06B 9/01 · Grilles fixed to walls, doors, or windows; Grilles moving with doors or windows; Walls formed as grilles, e.g. claustra {(emergency release of window grilles [E05B 65/1033](#) ; security bars for wings [E05C 19/003](#))}
- U E06B 9/02** · Shutters, movable grilles, or other safety closing devices, e.g. against burglary (louvre windows or grilles [E06B 7/08](#) ; lamellar blinds [E06B 9/26](#))
- E06B 9/04 · · of wing type, e.g. revolving or sliding {(trap doors; louvre doors or windows [E06B 7/08](#))}
- U E06B 9/24** · Screens or other constructions affording protection against light, especially against sunshine; Similar screens for privacy or appearance; {Slat blinds} (operating, guiding or securing devices or arrangements for roll-type closures [E06B 9/56](#) ; free-hanging flexible screens [A47H 23/00](#))
- E06B 9/26 · · Lamellar or like blinds, e.g. venetian blinds {(for vehicles [B60J 1/2088](#))}
- E06B 9/266 · · · Devices or accessories for making or mounting lamellar blinds or parts thereof {(cleaning of lamellar blinds [A47L 4/00](#) ; joining plastics plates for making venetian blinds [B29C 66/437](#))}
- U E06B 9/28** · · · with horizontal lamellae, e.g. non-liftable (louvre windows or gratings [E06B 7/08](#))
- U E06B 9/30** · · · · liftable
- U E06B 9/32** · · · · · Operating, guiding, or securing devices therefor (operation of tilting bars [E06B 9/307](#))
- E06B 9/324 · · · · · Cord-locks {(cord-locks for curtains [A47H 3/00](#))}
- E06B 9/52 · Devices affording protection against insects, e.g. fly screens; Mesh windows for other purposes {(screens [A47G 5/00](#))}

**Project: N/A (E21B)****E21B 29/00**

**Cutting or destroying pipes, packers, plugs, or wire lines, located in boreholes or wells, e.g. cutting of damaged pipes, of windows (perforators [E21B 43/11](#)); Deforming of pipes in boreholes or wells; Reconditioning of well casings while in the ground {(by enlarging drilled holes or counterboring [E21B 7/28](#))}**

**Project: N/A (E21D)****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**

E21D 9/06

· Making by using a driving shield, {i.e. advanced by pushing means bearing against the already placed lining} (pushing prefabricated elements through the ground from an access pit [E21D 9/005](#))}

**U 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](#))**

- U E21D 11/14
- Lining predominantly with metal {(backfilling the space between the lining elements and the rock [E21D 11/105](#))}
- E21D 11/18
- Arch members; {Network made of arch members ([E21D 11/36](#) takes precedence); Ring elements; Polygon elements; Polygon elements inside arches (caps for arches [E21D 17/00](#))}

**Project: N/A (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. 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](#).

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 of Relations in respect of kind of apparatus	positive displacement		non-positive displacement		Working fluid	
	reciprocating piston	rotary or oscillating piston	reciprocating piston	rotary or oscillating piston	liquid	elastic fluid
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	<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".

## Project: N/A (F01D)

### U F01D 1/00

**Non-positive-displacement machines or engines, e.g. steam turbines (with working-fluid flows in opposite axial directions for balancing axial thrust [F01D 3/02](#); with other than pure rotation [F01D 23/00](#); turbines characterised by their use in special steam systems, cycles, or processes, regulating devices therefor [F01K](#))**

### F01D 1/32

- with pressure velocity transformation exclusively in rotor, e.g. the rotor rotating under the influence of jets issuing from the rotor, {e.g. Heron turbines (the working fluid being a combustion products [F02C 3/165](#); jet propulsion plants per se [F02K](#))}

- 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 5/18** • • • Hollow blades, {i.e. blades with cooling or heating channels or cavities (structure of hollow blades in general [F01D 5/147](#))}; Heating, heat-insulating or cooling means on blades
- F01D 5/34** • Rotor-blade aggregates of unitary construction {e.g. formed of sheet laminae; (discs formed of sheet laminae [F01D 5/028](#); Ceramic materials [F01D 5/284](#), composite materials [F01D 5/282](#))}
- U F01D 9/00** **Stators (non-fluid guiding aspects of casings, regulating, controlling, or safety aspects, see the relevant groups)**
- F01D 9/02** • Nozzles; Nozzle boxes; Stator blades; Guide conduits { e.g. individual nozzles (nozzle boxes [F01D 9/047](#))}

**Project: N/A (F01N)**

- F01N 1/00** **Silencing apparatus characterised by method of silencing {(by cooling [F01N 3/02](#) ; using liquids [F01N 3/04](#))}**
- F01N 1/14** • by adding air to exhaust gases {(in tailpipes [F01N 13/082](#) , [F01N 13/20](#))}
- U F01N 1/16** • by using movable parts
- F01N 1/20** • • having oscillating or vibrating movement {(the parts being resilient walls [F01N 1/22](#))}
- 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 3/02** • for cooling, or for removing solid constituents of, exhaust (by means of electric or electrostatic separators [F01N 3/01](#) ; { mixing air with exhaust in tailpipes [F01N 13/082](#) , [F01N 13/20](#))}
- U F01N 3/021** • • by means of filters
- F01N 3/033** • • • in combination with other devices {(with adsorbents or absorbents [F01N 3/0821](#))}
- F01N 11/00** **Monitoring or diagnostic devices for exhaust-gas treatment apparatus, {e.g. for catalytic activity (safety, indicating or supervising devices for internal combustion engines [F02B 77/08](#) ; testing of machines [G01M 13/00](#))}**
- U 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](#)}**
- U F01N 13/08** • Other arrangements or adaptations of exhaust conduits {(pipes, joints or supports therefor in general [F16L](#); collecting or removing exhaust gases of vehicle engines in workshops [B08B 15/00](#) , on highways [E01C 1/005](#))}
- F01N 13/10** • • of exhaust manifolds {(with cooling jacket [F01N 3/046](#))}
- F01N 13/14** • having thermal insulation {(exhaust manifolds [F01N 13/102](#))}

**Project: N/A (F02B)**

- U 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](#)
- U F02B 25/14** · using reverse-flow scavenging, e.g. with both outlet and inlet ports arranged near bottom of piston stroke
- F02B 25/16** · · the charge flowing upward essentially along cylinder wall opposite the inlet ports {([F02B 25/145](#) takes precedence)}
- F02B 25/18** · · the charge flowing upward essentially along cylinder wall adjacent the inlet ports, e.g. by means of deflection rib on piston {([F02B 25/145](#) takes precedence)}
- U F02B 37/00** **Engines characterised by provision of pumps driven at least for part of the time by exhaust (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 passages conducting the charge from the pump to the engine inlet [F02B 33/44](#))**
- U F02B 37/12** · Control of the pumps
- F02B 37/16** · · by bypassing charging air {(bypassing air from the pump inlet, e.g. to the pump outlet [F02B 37/127](#))}
- F02B 37/20** · · by increasing exhaust energy, e.g. using combustion chamber {by after-burning (using an auxiliary combustion chamber supplied by charging air [F02B 37/166](#))}
- F02B 37/22** · · by varying cross-section of exhaust passages or air passages, {e.g. by throttling turbine inlets or outlets or by varying effective number of guide conduits ([F02B 37/24](#) takes precedence)}
- U F02B 77/00** **Component parts, details or accessories, not otherwise provided for**
- F02B 77/04** · Cleaning of, preventing corrosion or erosion in, or preventing unwanted deposits in, combustion engines {(cleaning of fuel injection apparatus [F02M 65/00](#))}

**Project: N/A (F02C)**

- U F02C 3/00** **Gas-turbine plants characterised by the use of combustion products as the working fluid (generated by intermittent combustion [F02C 5/00](#))**
- U F02C 3/20** · using a special fuel, oxidant, or dilution fluid to generate the combustion products
- F02C 3/30** · · Adding water, steam or other fluids {for influencing combustion, e.g. to obtain cleaner exhaust gases ([F02C 7/141](#), [F02C 7/30](#), [F01D 21/00](#), [F01K 21/04](#), [F23D 11/10](#) take precedence)}
- U F02C 7/00** **Features, components parts, details or accessories, not provided for in, or of interest apart form groups [F02C 1/00](#) to [F02C 6/00](#); Air intakes for jet-propulsion plants (controlling [F02C 9/00](#))**
- U F02C 7/12** · Cooling of plants (of component parts, see the relevant subclasses, e.g. [F01D](#); cooling of engines in general [F01P](#))
- F02C 7/14** · · of fluids in the plant, {e.g. lubricant or fuel ([F02C 7/185](#) takes precedence)}

**Project: N/A (F02D)**

- F02D 33/00** Controlling delivery of fuel or combustion-air, not otherwise provided for **{(using exhaust gas sensors [F02D 35/0023](#) , [F02D 35/0046](#))}**
- U F02D 41/00** **Electrical control of supply of combustible mixture or its constituents ([F02D 43/00](#) takes precedence)**
- U F02D 41/02 · Circuit arrangements for generating control signals
- U F02D 41/04 · · Introducing corrections for particular operating conditions ([F02D 41/14](#) takes precedence)
- F02D 41/047 · · · {Taking into account fuel evaporation or wall wetting; **{(special correction after fuel cut-off [F02D 41/126](#))}**
- F02D 41/06 · · · for engine starting or warming up **{([F02D 41/0255](#) takes precedence)}**
- F02D 41/12 · · · for deceleration **{([F02D 41/0005](#) , [F02D 41/107](#) take precedence)}**
- F02D 41/22 · Safety or indicating devices for abnormal conditions **{(in air/fuel ratio feedback systems [F02D 41/1495](#) , in electric control linkage [F02D 11/107](#) , in purge control systems [F02M 25/0809](#))}**
- U F02D 41/30 · Controlling fuel injection **{([F02D 41/182](#), [F02D 41/24](#) take precedence)}**
- F02D 41/32 · · of the low pressure type **{([F02D 41/3082](#) takes precedence)}**

**Project: N/A (F02F)**

- F02F 5/00** **Piston rings, e.g. associated with piston crown **{(not used see [F16J 9/00](#))}****

**Project: N/A (F02M)**

- U F02M 35/00** **Combustion-air cleaners, air intakes, intake silencers, or induction systems specially adapted for, or arranged on, internal-combustion engines (air cleaners in general [B01D](#))**
- U F02M 35/02 · Air cleaners
- F02M 35/04 · · specially arranged with respect to engine, { to intake system or specially adapted to vehicle}; Mounting thereon; { Combinations with other devices (combined with silencers [F02M 35/14](#))}
- U F02M 35/08 · · with means for removing dust, { particles or liquids} from cleaners; with means for indicating clogging; with by-pass means; { Regeneration of cleaners}
- F02M 35/09 · · · Clogging indicators; { Diagnosis or testing of air cleaners **{(sensors therefore [F02M 35/10373](#))}**
- F02M 35/12 · Intake silencers { Sound modulation, transmission or amplification **{(intake silencers also used as exhaust silencer [F01N 13/007](#); filters for compressors [F04B 39/16](#))}**
- F02M 35/1288 · · {combined with or integrated into other devices ([F02M 35/14](#) takes precedence); Plurality of air intake silencers **{([F02M 35/1266](#) takes precedence)}**
- U 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: **[F02M2700/07G](#)**, **[F02M2700/13E](#)**, [F02M 2700/1323](#), [F02M 2700/1341](#), [F02M 2700/1352](#), [F02M 2700/1388](#)
- U F02M 59/02 · of reciprocating-piston {or reciprocating-cylinder} type

- F02M 59/04
- characterised by special arrangement of cylinders with respect to piston-driving shaft, e.g. arranged parallel to that shaft {or swash-plate type pumps (with rotary valve [F02M 59/362](#))}
- F02M 59/08
- characterised by two or more pumping elements with conjoint outlet {or several pumping elements feeding one engine cylinder (feeding common rails [F02M 63/0225](#))}
- U 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](#), [F02M2700/07B](#), [F02M 2700/074](#)
- U F02M 61/16
- Details not provided for in, or of interest apart from, the apparatus of groups [F02M 61/02](#) to [F02M 61/14](#)
- F02M 61/20
- Closing valves mechanically, e.g. arrangements of springs or weights {or permanent magnets; Damping of valve lift ([F02M 61/205](#) takes precedence)}
- 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: [F02M2700/43C](#), [F02B 2720/15](#)
- U 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](#)
- F02M 69/50
- Arrangement of fuel distributors, {e.g. with means for supplying equal portion of metered fuel to injectors ([F02M 69/147](#) takes precedence)}

**Project: N/A (F02P)**

- 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](#))**
- 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)**
- U 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](#))}**
- U F02P 15/001
- {Ignition installations adapted to specific engine types (ignition of jet propulsion plants [F02K 9/95](#); for rotary piston engines [F02B 53/12](#))}
- F02P 15/003
- {Layout of ignition circuits for gas turbine plants (ignition of gas turbine plants *per se* [F02C 7/26](#))}
- F02P 15/005
- {Layout of ignition circuits for rotary- or oscillating piston engines (ignition of those engines *per se* [F02B 53/12](#))}

**Project: N/A (F03B)**

- U F03B 13/00** **Adaptations of machines or engines for special use; Combinations of machines or engines with driving or driven apparatus (if the apparatus aspects are predominant, see the relevant subclasses for such apparatus, e.g. [H02K 7/18](#)); Power stations or aggregates (incorporating only machines or engines of positive-displacement type [F03C](#); hydraulic engineering aspects [E02B](#); {combinations with wind energy converters [F03D 9/008](#)})**
- F03B 13/08 · Machine or engine aggregates in dams or the like; Conduits therefor, {e.g. diffusors ([bulb groups \[F03B 13/105\]\(#\)](#))}
- U F03B 17/00** **Other machines or engines**
- F03B 17/005 · {Installations wherein the liquid circulates in a closed loop ([F03B 13/06](#) takes precedence); Alleged perpetua mobilia of this or similar kind (perpetua mobilia using hydrostatic thrust or buoyancy [F03B 17/04](#))}
- F03B 17/06 · using liquid flow {with predominantly kinetic energy conversion}, e.g. of swinging-flap type, {"run-of-river", "ultra-low head"} ([F03B 13/264](#) takes precedence)}

**Project: N/A (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](#))}

**Project: N/A (F04D)**

- F04D 5/00** **Pumps with circumferential or transverse flow {(control thereof [F04D 15/005](#))}**
- U F04D 13/00** **Pumping installations or systems (controlling [F04D 15/00](#))**
- U F04D 13/12** · Combinations of two or more pumps (combinations with priming pumps or booster pumps to counteract vapour-lock [F04D 9/04](#))
- F04D 13/14 · · the pumps being all of centrifugal type {(deviation valves [F04D 15/0016](#))}
- U F04D 17/00** **Radial-flow pumps e.g. centrifugal pumps; Helico-centrifugal pumps ([F04D 21/00](#) takes precedence)**
- U F04D 17/08** · Centrifugal pumps
- U F04D 17/10** · · for compressing or evacuating
- U F04D 17/12** · · · Multi-stage pumps
- F04D 17/14 · · · · with means for changing the flow-path through the stages, e.g. series-parallel, e.g. side-loads, (surge control [F04D 27/02](#))
- F04D 17/18 · · characterised by use of centrifugal force of liquids entrained in pumps {(e.g. by means of an auxiliary liquid; fluid ring compressors [F04C 19/00](#))}
- U F04D 25/00** **Pumping installations or systems (controlling [F04D 27/00](#))**
- U F04D 25/02** · Units comprising pumps and their driving means (predominant aspect of the driving means, see the relevant classes for such means)
- F04D 25/04 · · the pump being fluid-driven {(pumps driven by exhaust gases [F02B 37/00](#) , [F02B 39/00](#) ; turbochargers [F02C 6/12](#))}
- U 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

- F04D 27/02      · Surge control [{\(surge detection F04D 27/001\)}](#)
- U F04D 29/00      Details, component parts, or accessories (machine elements in general F16)**
- F04D 29/06      · Lubrication [{\(F04D 13/0606 , F04D 13/0646 , F04D 13/0653 take precedence\)}](#)
- U F04D 29/26      · Rotors specially for elastic fluids
- F04D 29/32      · · for axial flow pumps [{\(multistage rotors F01D 5/00\)}](#)
- F04D 29/34      · · · Blade mountings [{\(for axial flow compressors F04D 29/322\)}](#)
- F04D 29/36      · · · · adjustable [{\(flexible blades F04D 29/382\)}](#)
- F04D 29/38      · · · Blades [{\(for axial flow compressors F04D 29/324\)}](#)
- F04D 29/40      · Casings; Connections of working fluid [{\(bleed or by-pass valves F04D 15/0011 , F04D 27/0215\)}](#)
- U F04D 29/42      · · for radial or helico-centrifugal pumps
- U F04D 29/44      · · · Fluid-guiding means, e.g. diffusers
- U F04D 29/46      · · · · adjustable
- F04D 29/48      · · · · · for unidirectional fluid flow in reversible pumps [{\(rotors for reverse action F04D 29/2283\)}](#)
- F04D 29/50      · · · · · for reversing fluid flow [{\(rotors for reverse action F04D 29/2283\)}](#)
- F04D 29/58      · Cooling (of machines or engines in general F01P); Heating; Diminishing heat transfer [{\(for the motor of air-pump units F04D 25/082 ; cooling of shafts or bearings F04D 29/04\)}](#)
- U F04D 29/66      · Combating cavitation, whirls, noise, vibration or the like (gas-flow silencers for machines or engines in general F01N); Balancing (surge control F04D 27/02)
- F04D 29/68      · · by influencing boundary layers [{\(by bleeding elastic fluid F04D 27/0215\)}](#)

**Project: N/A (F15B)**

- F15B 3/00      Intensifiers or fluid-pressure converters, e.g. pressure exchangers; Conveying pressure from one fluid system to another, without contact between the fluids [{\(fluid-driven pumps F04B 9/08\)}](#)**
- F15B 7/00      Systems in which the movement produced is definitely related to the output of a volumetric pump; Telemotors [{\(for control in motor vehicles B60K ; in ships B63H 25/00 ; in aircraft B64C 13/00 ; combinations of telemotor and servomotor systems F15B 17/00\)}](#)**
- 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 [{\(F15B 11/10 takes precedence\)}](#)**
- U F15B 9/02      · with servomotors of the reciprocable or oscillatable type
- F15B 9/03      · · with electrical control means [{\(F15B 9/07 , F15B 9/09 , F15B 9/17 take precedence\)}](#)
- U F15B 11/00      Servomotor systems without provision for follow-up action;{Circuits therefor}(F15B 3/00 takes precedence)**
- U F15B 11/02      · Systems essentially incorporating special features for controlling the speed or actuating force of an output member
- F15B 11/024      · · by means of differential connection of the servomotor lines, e.g. regenerative circuits [{\(interconnecting valve details F15B 13/021\)}](#)
- U F15B 11/08      · with only one servomotor
- F15B 11/12      · · providing distinct intermediate positions; with step-by-step action{ with a number of pistons in a single cylinder step-by-step action obtained by combining two or more servomotors [F15B 11/18 ;](#) [{\(for restricting the stroke F15B 15/24\)}](#)

- F15B 11/15
  - • with special provision for automatic return {(fluid gearing with oscillating input or output [F16H 43/00](#))}
- F15B 11/16
  - with two or more servomotors {(for soil-shifting machines [E02F 9/22](#))}
- 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}**
- U 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](#)
- U F15B 13/04
  - • for use with a single servomotor
- F15B 13/042
  - • • operated by fluid pressure {([F15B 13/0401](#) , [F15B 13/0416](#) take precedence)}
- F15B 13/043
  - • • with electrically-controlled pilot valves {(electrically-operated main valves [F15B 13/044](#))}
- F15B 13/044
  - • • operated by electrically-controlled means, e.g. solenoids, torque-motors {(electrically-controlled pilot valves [F15B 13/043](#))}
- U 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**
- F15B 15/18
  - Combined units comprising both motor and pump {(telemotors [F15B 7/00](#))}
- U F15B 15/20
  - Other details {e.g. assembly with regulating devices}
- F15B 15/26
  - • Locking mechanisms {(locking valves not combined with the actuator [F15B 13/01](#))}

**Project: N/A (F15C)**

- U F15C 1/00**
  - Circuit elements having no moving parts**
- F15C 1/001
  - {for punched-card machines (punched-card machines [G06K](#)); for typewriters (typewriters [B41J](#)); for keyboards; for conveying cards or tape; for conveying through tubes (transport through tubes [B65G 51/00](#), [B65G 53/00](#)); for computers (non-electric computers [G06C](#), [G06D](#), [G06G](#)); for dc-ac transducers for information processing (dc-ac converters [H02M](#)); for signal transmission (telegraphic apparatus [H04L](#))}
- F15C 1/002
  - {for controlling engines, turbines, compressors (starting, speed regulation, temperature control or the like) (control of internal-combustion piston engines [F02D](#); of turbines [F01D](#), [F02C](#); of fans [F04D 27/00](#); speedometers [G01P](#))}
- 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 1/04
  - • Means for controlling fluid streams to fluid devices, e.g. by electric signals {or other signals, no mixing taking place between the signal and the flow to be controlled (fluid information or pulse transducers [F15B 5/00](#); electric regulation with electro-fluid amplifiers [G05B 7/02](#); fluid operating means for indicating or recording members in measuring instruments [G01D 5/42](#); distribution or supply devices for servomotors with electrically-controlled pilot valves [F15B 13/043](#))}

- 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 1/08
- Boundary-layer devices, e.g. wall-attachment amplifiers {coanda effect (fluid oscillators of pulse generators [F15B 21/12](#))}

**U 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](#).

- F15C 3/06
- using balls {or pill-shaped disks} (using fluid drops or similar deformable bodies [F15C 3/002](#))}

**Project: N/A (F16B)**

**U F16B 33/00**      **Features common to bolt and nut**

- F16B 33/06
- Surface treatment of parts furnished with screw-thread, e.g. for preventing seizure {or fretting} (corrosion preventing means [F16B 33/008](#); settable coatings for locking threaded members [F16B 39/225](#); deformable coatings for locking threaded members [F16B 39/34](#))}

**Project: N/A (F16D)**

**U F16D 1/00**      **Couplings for rigidly connecting two coaxial shafts or other movable machine elements (attachment of wheels to axles for railway carriages [B60B](#) ; for attachment of cranks to their shafts [F16C 3/10](#))**

- 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 1/09
- • • with radial clamping due to axial loading of at least one pair of conical surfaces {(tapered keys [F16D 1/0882](#))}

- U F16D 1/093
- • • • using one or more elastic segmented conical rings forming at least one of the conical surfaces, the rings being expanded or contracted to effect clamping ([F16D 1/091](#) takes precedence)

- F16D 1/095
- • • • with clamping effected by ring contraction only {(for connecting two abutting shafts [F16D 1/02](#))}

**U F16D 13/00**      **Friction clutches (arrangements for synchronisation [F16D 23/02](#))**

- U F16D 13/22
- with axially-movable clutching members (similar brakes [F16D 55/00](#))

- U F16D 13/38
- • with flat clutching surfaces, e.g. discs

- F16D 13/52
- • • Clutches with multiple lamellae {Clutches in which three or more axially moveable members are fixed alternately to the shafts to be coupled and are pressed from one side towards an axially-located member} ([F16D 13/385](#) takes precedence)}

- F16D 13/58
- Details {(tools for assembling or disassembling clutches [B25B 27/0064](#))}

- U F16D 13/60
- • Clutching elements (friction lining or attachment thereof [F16D 69/00](#))

- U F16D 13/64
- • • Clutch-plates; Clutch-lamellae (brake-plates, brake-lamellae [F16D 65/12](#))

- F16D 13/68
- • • Attachments of plates or lamellae to their supports {(one or more discs connected to the linings transmitting torque to one or more discs connected to the hub by helical springs in windows in the discs, i.e. rotary vibration dampers [F16F 15/12](#))}
- F16D 13/70
- • Pressure members, e.g. pressure plates, for clutch-plates or lamellae; Guiding arrangements for pressure members {(clutch flywheels comprising two or more masses with a rotational damper [F16F 15/12](#))}
- 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 27/02
- with electromagnets incorporated in the clutch, i.e. with collecting rings {([F16D 27/004](#) takes precedence)}
- F16D 27/10
- with an electromagnet not rotating with a clutching member, i.e. without collecting rings {([F16D 27/004](#) takes precedence)}
- F16D 27/12
- Clutch systems with a plurality of electro-magnetically-actuated clutches {([F16D 27/004](#) takes precedence)}
- F16D 57/00** **Liquid-resistance brakes; {Brakes using the internal friction of fluids or fluid-like media, e.g. powders (for braking drums, barrels or ropes of cranes, lift hoists or winches [B66D 5/026](#))}**
- U F16D 65/00** **Parts or details (similar members for clutches [F16D 13/58](#))**
- U F16D 65/78
- Features relating to cooling
- F16D 65/84
- • for disc brakes {(discs characterised by means for cooling [F16D 65/128](#))}

**Project: N/A (F16F)**

- U F16F 1/00** **Springs (working with fluid [F16F 5/00](#) , [F16F 9/00](#))**
- U F16F 1/02
- made of steel or other material having low internal friction {(characterised by their special construction from fibre-reinforced plastics [F16F 1/366](#) ; spring units consisting of several springs [F16F 3/02](#) ; making springs from wire [B21F 35/00](#)); Wound, torsion, leaf, cup, ring or the like springs, the material of the spring not being relevant
- F16F 1/04
- • Wound springs {(making springs by coiling wire [B21F 3/00](#))}
- F16F 1/10
- • • Spiral springs with turns lying substantially in plane surfaces {([F16F 1/326](#) takes precedence)}
- F16F 1/12
- • • Attachments or mountings {([F16F 1/041](#) , [F16F 13/02](#) take precedence; of combinations of vibration damper and mechanical spring for vehicle suspension units [B60G 15/02](#))}
- F16F 1/13
- • • comprising inserts and spacers between the windings for changing the mechanical or physical characteristics of the spring {([F16F 1/122](#) takes precedence)}
- U F16F 1/14
- • Torsion springs consisting of bars or tubes
- F16F 1/16
- • • Attachments or mountings {([F16F 1/145](#) takes precedence; mounting means for vehicle stabiliser bars [B60G 21/0551](#))}
- F16F 1/18
- • Leaf springs {(planar springs in general [F16F 1/027](#) ; "Belleville"-type springs with generally radial arms [F16F 1/324](#))}
- F16F 1/22
- • • with means for modifying the spring characteristic {(fluid regulation of leaf spring characteristics in vehicle suspensions [B60G 17/0275](#))}
- 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](#))}

- U F16F 1/3605
- • {characterised by their material ([F16F 1/362](#) , [F16F 1/364](#) , [F16F 1/366](#) , [F16F 1/37](#) take precedence; composition of macromolecular compounds in general [C08L](#))}
- F16F 1/361
- • • {comprising magneto-rheological elastomers (MR), (magneto-rheological fluid dampers [F16F 9/535](#))}
- F16F 1/37
- • of foam-like material, {i.e. micro-cellular material}, e.g. sponge rubber {(padded linings for vehicle interiors [B60R 21/04](#))}
- F16F 1/373
- • characterised by having a particular shape {([F16F 9/58](#) takes precedence)}
- U F16F 1/38
- • with a sleeve of elastic material between a rigid outer sleeve and a rigid inner sleeve or pin, {i.e. bushing-type (hydraulically-damped bushes [F16F 13/14](#) ; suppression of vibrations in rotating systems by making use of elastomeric spring members between rotating elements, driveline torque being transmitted therebetween [F16F 15/126](#) , by making use of a dynamic damping mass attached to a rotating element by means of elastomeric springs [F16F 15/14](#) ; pivots per se [F16C 11/00](#) ; elastic or yielding bearings or bearing supports [F16C 27/00](#) ; parts of sliding-contact bearings, e.g. bushes [F16C 33/04](#))}
- F16F 1/387
- • • comprising means for modifying the rigidity in particular directions {(spherical or conical sleeves [F16F 1/393](#))}
- F16F 1/40
- • consisting of a stack of similar elements separated by non-elastic intermediate layers {([F16F 9/306](#) takes precedence; laminated constructions to protect buildings against abnormal external influences, e.g. earthquakes, [E04H 9/022](#))}
- F16F 1/41
- • • the spring consisting of generally conically arranged elements {(if sleeve-like, i.e. a surface of revolution [F16F 1/3935](#))}
- U F16F 3/00
- Spring units consisting of several springs, e.g. for obtaining a desired spring characteristic (([F16F 1/32](#) , [F16F 1/34](#) , [F16F 7/14](#) take precedence ) ; if including fluid springs [F16F 5/00](#) , [F16F 13/00](#))**
- NOTE
- In this group, vehicle leaf spring units, i.e. "packets" of individual leaves, are considered as a single spring
- F16F 3/08
- with springs made of a material having high internal friction, e.g. rubber {(multi-part grommet-type resilient mountings [F16F 1/3735](#))}
- U F16F 3/087
- • Units comprising several springs made of plastics or the like material ([F16F 1/40](#) , {[F16F 1/545](#)}take precedence)
- F16F 3/093
- • • the springs being of different materials, e.g. having different types of rubber {([F16F 1/3835](#) takes precedence)}
- U F16F 3/10
- • combined with springs made of steel or other material having low internal friction
- F16F 3/12
- • • the steel spring being in contact with the rubber spring {([F16F 1/12](#) takes precedence)}
- F16F 5/00
- Liquid springs in which the liquid works as a spring by compression, e.g. combined with throttling action; Combinations of devices including liquid springs {(dampers with solid or semi-solid material [F16F 9/30](#))}**
- U F16F 6/00
- Magnetic springs; {(magnetic spring arrangements for the suppression of vibration in systems [F16F 15/03](#))}; Fluid magnetic springs, {i.e. magnetic spring combined with a fluid}**
- U F16F 7/00
- Vibration-dampers; Shock-absorbers (using fluid [F16F 5/00](#) , [F16F 9/00](#) ; specific for rotary systems [F16F 15/10](#) ; { belt tensioners [F16H 7/12](#))}**

- U F16F 7/02
  - with relatively-rotatable friction surfaces that are pressed together ([F16F 7/01](#) takes precedence; one of the members being a spring [F16F 13/02](#) ; { friction devices between relatively-movable parts of a hinge [E05D 11/08](#) ; braking devices for wings [E05F 5/00](#)})
- F16F 7/04
  - • in the direction of the axis of rotation {([F16F 7/023](#) takes precedence)}
- F16F 7/06
  - • in a direction perpendicular or inclined to the axis of rotation {([F16F 7/023](#) takes precedence)}
- U F16F 7/10
  - using inertia effect ([F16F 13/108](#) , [F16F 13/22](#) , [F16F 15/10](#) , [F16F 15/22](#) take precedence; stabilising vehicle bodies by means of movable masses [B62D 37/04](#) ; protection of buildings against vibrations or shocks by mass dampers [E04B 1/985](#) ; arrangements or devices for damping mechanical oscillations of power lines [H02G 7/14](#))
- F16F 7/104
  - • the inertia member being resiliently mounted {([F16F 7/1022](#) takes precedence)}
- F16F 7/12
  - using plastic deformation of members {([F16F 9/30](#) takes precedence; yieldable means for mounting bumpers on vehicles [B60R 19/26](#) ; yieldable or collapsible steering columns [B62D 1/192](#))}
- 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 9/02
  - using gas only {or vacuum ([F16F 9/006](#) takes precedence)}
- F16F 9/04
  - • in a chamber with a flexible wall {(producing hollow articles of plastics, e.g. air bellows, [B29D 22/00](#))}
- F16F 9/06
  - using both gas and liquid {([F16F 9/486](#) take precedence; self-pumping fluid springs [B60G 17/044](#))}
- F16F 9/08
  - • {where gas is}in a chamber with a flexible wall {(pressurised fluid system accumulators per se [F15B 1/04](#))}
- F16F 9/096
  - • comprising a hydropneumatic accumulator of the membrane type provided on the upper or the lower end of a damper or separately from or laterally on the damper {([F16F 9/088](#) takes precedence)}
- U F16F 9/10
  - using liquid only; using a fluid of which the nature is immaterial
- U F16F 9/14
  - • Devices with one or more members, e.g. pistons, vanes, moving to and fro in chambers and using throttling effect
- F16F 9/16
  - • involving only straight-line movement of the effective parts {(wing closers or openers with liquid piston brakes [E05F 3/04](#))}
- F16F 9/30
  - with solid or semi-solid material, e.g. pasty masses, as damping medium {(in devices where rotary elements are damped by viscous shear effect only, any throttling effect being immaterial [F16F 9/12](#) ; where members moving with a rotating system are being damped [F16F 15/16](#))}
- U F16F 9/32
  - Details
- U F16F 9/34
  - • Special valve constructions {([F16F 9/44](#) , [F16F 9/50](#) take precedence; filtering details [F16F 9/3285](#)) ; valves in general [F16K](#)); Shape or construction of throttling passages
- F16F 9/342
  - • Throttling passages operating with metering pins {([F16F 9/486](#) takes precedence)}
- F16F 9/43
  - • Filling {or drainage}arrangements, e.g. for supply of gas {(filling vessels with, or discharging from vessels, compressed, liquefied, or solidified gases [F17C](#))}

- F16F 9/53
- Means for adjusting damping characteristics by varying fluid viscosity, e.g. electromagnetically {{(F16F 13/30 takes precedence; brakes comprising a medium with electrically or magnetically controlled friction F16D 57/002 ; electrorheological fluids per se C10M 171/001 ; magnetorheological fluids per se H01F 1/447)}
- F16F 9/54
- Arrangements for attachment {{(grommet-type rubber mounting springs per se F16F 1/3732 ; construction of cylinder ends F16F 9/3242 ; attachments to vehicles B60G 13/001 , B60G 15/00)}
- F16F 9/56
- Means for adjusting the length of, or for locking, the spring or damper, e.g. at the end of the stroke {{(F16F 9/50 takes precedence; for telescopic gas springs or dampers F16F 9/0245 ; vehicle suspension locking arrangements B60G 17/005)}
- 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)
- U 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)
- U F16F 13/14
- Units of the bushing type, {i.e. loaded predominantly radially (bushes F16F 1/38 ; mounting brackets therefor F16F 1/3849)}
- F16F 13/16
- specially adapted for receiving axial loads {{(F16F 13/1436 takes precedence)}
- F16F 13/26
- characterised by adjusting or regulating devices responsive to exterior conditions {{(F16F 13/101 takes 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)}
- U F16F 15/023
- using fluid means
- F16F 15/027
- comprising control arrangements {{(F16F 15/0237 takes precedence)}
- U 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)}
- F16F 15/08
- with rubber springs {{(grommet- or bushing-type resilient mountings F16F 1/3732 , F16F 1/38); with springs made of rubber and metal (arrangement of internal-combustion or jet-propulsion units B60K 5/12 ; mounting of propulsion plants on vessels B63H 21/30 ; mounting of vehicle drivers` cabs B62D 33/0604)}

- U F16F 15/10
  - Suppression of vibrations in rotating systems by making use of members moving with the system (by balancing [F16F 15/22](#) ; { yielding couplings [F16D 3/00](#) } ; with flywheels acting variably or intermittently [F16H](#) ; { construction providing resilience or vibration-damping for gear elements [F16H 55/14](#)})
- U F16F 15/12
  - • using elastic members or friction-damping members, e.g. between a rotating shaft and a gyratory mass mounted thereon ({[F16F 15/14](#) , [F16F 15/16](#) take precedence)
- F16F 15/121
  - • • using springs as elastic members, e.g. metallic springs {([F16F 15/133](#) takes precedence)}
- F16F 15/123
  - • • • Wound springs {([F16F 15/1213](#) , [F16F 15/1216](#) , [F16F 15/127](#) take precedence)}
- U F16F 15/131
  - • • the rotating system comprising two or more gyratory masses
- U F16F 15/133
  - • • • using springs as elastic members, e.g. metallic springs
- F16F 15/134
  - • • • • Wound springs {([F16F 15/1333](#) , [F16F 15/1337](#) , [F16F 15/137](#) take precedence)}
- F16F 15/139
  - • • • characterised by friction-damping means {([F16F 15/13128](#) takes precedence)}
- U F16F 15/16
  - • using a fluid {or pasty material}{[F16F 9/53](#) , [F16F 15/13157](#) take precedence; devices connecting input and output members [F16D](#)}
- U F16F 15/167
  - • • having an inertia member, e.g. ring
- F16F 15/173
  - • • • provided within a closed housing {([F16F 15/36](#) takes precedence)}
- F16F 15/20
  - Suppression of vibrations of rotating systems by favourable grouping or relative arrangements of the moving members of the system or systems {([F16F 15/24](#) takes precedence)}
- F16F 15/22
  - Compensation of inertia forces {(suppression of vibrations of rotating systems by favourable grouping or relative arrangements of the moving members of the system or systems [F16F 15/20](#) , counterweights [F16F 15/28](#) ; correcting-weights for balancing rotating bodies [F16F 15/32](#))}
- F16F 15/24
  - • of crankshaft systems by particular disposition of cranks, pistons, or the like {(shape of crankshafts or eccentric-shafts having regard to balancing [F16C 3/20](#))}
- F16F 15/32
  - Correcting- or balancing-weights or equivalent means for balancing rotating bodies, e.g. vehicle wheels {(suppression of vibrations in rotating systems by using freely rotating masses [F16F 15/14](#) ; compensation of inertia forces [F16F 15/22](#) ; compensating unbalance for testing purposes [G01M 1/30](#))}

**Project: N/A (F16G)**

- U **F16G 13/00**      **Chains (making thereof [B21L](#))**
- U F16G 13/02
  - Driving-chains (specially adapted to gearings with variable gear-ratio [F16H 9/00](#))
- F16G 13/06
  - • with links connected by parallel driving-pins with or without rollers {so called open links (if the parallel coupling pins have only a joining function - so called closed links - [F16G 13/02](#))}

## 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
<a href="#">H03J 1/00</a>	Driving arrangements for tuning resonant circuits
<a href="#">H04L 13/04</a>	Driving mechanisms for apparatus for transmission of coded digital information.

- U F16H 3/00** **Toothed gears 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 3/02 · without gears having orbital motion
- U F16H 3/08 · · exclusively or essentially with continuously meshing gears, that can be disengaged from their shafts
- F16H 3/083 · · · with radially acting and axially controlled clutching members, e.g. sliding keys {(clutches with clutching members movable otherwise than only axially [F16D 11/12](#) ; clutches with wedgeable clutching members [F16D 15/00](#) ; systems of mechanically actuated clutches [F16D 21/04](#))}
- F16H 3/44 · using gears having orbital motion {(the gear-ratio being changed by inversion of torque direction [F16H 3/005](#))}
- F16H 23/00** **Wobble-plate gears; Oblique-crank gears {(conveying rotary motion with toothed nutating gears [F16H 1/321](#))}**
- U F16H 27/00** **Step-by-step mechanisms without freewheel members, e.g. Geneva driven (rotary gears with cyclically-varying velocity ratio [F16H 35/02](#) ; impulse couplings [F16D 5/00](#) ; clockwork escapements [G04B 15/00](#))**
- F16H 27/02 · with at least one reciprocating or oscillating transmission member {([F16H 27/04](#) takes precedence)}
- U F16H 33/00** **Gears based on repeated accumulation and delivery of energy**
- F16H 33/20 · for interconversion, based essentially on inertia, of rotary motion and reciprocating or oscillating motion {(for converting into a linear propulsion force, i.e. inertia motors [F03G 3/00](#))}
- U F16H 37/00** **Combinations of mechanical gears, not hereinbefore provided for (applications of "underdrives" or "overdrives" in motor vehicles, combinations with differential gears in motor vehicles [B60K](#))**
- U F16H 37/02 · comprising essentially only toothed or friction gears
- U F16H 37/06 · · with a plurality of driving or driven shafts; with arrangements for dividing torque between two or more intermediate shafts
- U F16H 37/08 · · · with differential gearing
- F16H 37/10 · · · · at both ends of intermediate shafts {([F16H 37/0806](#) takes precedence)}
- U F16H 47/00** **Combinations of mechanical gearing with fluid clutches or fluid gearing (conjoint control of driveline clutches and change-speed gearing in vehicles [B60W 10/02](#) and [B60W 10/10](#))**
- U F16H 47/06 · the fluid gearing being of the hydrokinetic type
- F16H 47/08 · · the mechanical gearing being of the type with members having orbital motion {([F16H 47/065](#) takes precedence)}
- 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](#))**
- U 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

- F16H 57/0434
- {relating to lubrication supply, e.g. pumps (arrangement of pumps [F16H 57/0441](#)); Pressure control (grooves with pumping effect for supplying lubricant [F16H 57/0428](#); generation and variation of line pressure for transmission control [F16H 61/0021](#))}
- 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}**
- 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 61/38** • Control of exclusively fluid gearing
- U F16H 61/40** • • hydrostatic (involving modification of the gearing [F16H 39/02](#) , [F16H 39/04](#))
- F16H 61/42** • • involving adjustment of a pump or motor with adjustable output or capacity {([F16H 61/46](#) takes precedence)}
- 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 63/02** • Final output mechanisms therefor; Actuating means for the final output mechanisms
- F16H 63/04** • • a single final output mechanism being moved by a single final actuating mechanism {(Constructional features of the final output mechanisms [F16H 63/30](#))}
- F16H 63/08** • • Multiple final output mechanisms being moved by a single common final actuating mechanism {(Constructional features of the final output mechanisms [F16H 63/30](#))}
- F16H 63/24** • • each of the final output mechanisms being moved by only one of the various final actuating mechanisms {(Constructional features of the final output mechanisms [F16H 63/30](#))}
- F16H 63/28** • • two or more final actuating mechanisms moving the same final output mechanism {(Constructional features of the final output mechanisms [F16H 63/30](#))}
- U F16H 63/30** • • Constructional features of the final output mechanisms
- F16H 63/38** • • • Detents {(spring-loaded ball units for holding levers in a limited number of positions [G05G 5/065](#))}

**Project: N/A (F16K)****F16K**

**VALVES; TAPS; COCKS; ACTUATING-FLOATS; DEVICES FOR VENTING OR AERATING {(devices for emptying and evacuating the excess liquid in valves or conduits [F16L 55/07](#))}**

NOTE

Attention is drawn to the following places:

- [A47J 27/09](#) Safety devices for pressure cookers
- [A47J 31/46](#) Dispensing spouts, drain valves or like beverage-making apparatus

[A61B 5/0235](#) Valves specially adapted for measuring pressure in heart or blood vessels

[A61F 2/24](#) Heart valves

[A61M 16/20](#) Valves specially adapted for medical respiratory devices

[A61M 39/00](#) Tube connectors, tube couplings, valves or branch units specially adapted for medical use in general

[A62B 9/02](#) Valves for respiratory apparatus

[A62B 18/10](#) Valves for breathing masks or helmets

[A62C](#) Fire extinguishers

[{B01D 35/04](#) Plug, tap, or cock filters }

[B05B](#) Nozzles, spray heads or other discharge apparatus for spraying or atomising

[B60C 29/00](#) Arrangements of tyre-inflating valves relative to tyres or wheel rims; Connection of valves to wheel rims, tyres or other inflatable elastic bodies

[B60G 17/048](#) Valves specially adapted for adjusting vehicle fluid-spring characteristics

[B60T](#) Valves specially adapted for vehicle brake control systems

[B62D 5/08](#) Vehicle power-assisted steering characterised by the type of valve used

[B63B 7/00](#) ,

[B63C 9/00](#) Arrangement of inflating valves for floatable life-saving equipment

[B65D 47/04](#) Container closures with discharging valves

[B65D 90/32](#) Safety valves for large containers

[B65D 90/54](#) Gates or closures on large containers

[B67C 3/28](#) Flow control devices for bottling liquids

[B67D](#) Dispensing, delivering or transferring liquids

[{C21B 9/12](#) Hot-blast valves for blast furnaces }

[E02B 8/00](#) Details, e.g. valves, of barrages or weirs

[E02B 13/02](#) Closures for irrigation conduits

[{E03C 1/04](#) Water-basin installations specially adapted for wash-basins or baths }

[{E03C 1/05](#) Arrangements on wash-basins for the remote control of taps }

[E03D](#) Flushing valves for water-closets or urinals

[{E03F 7/04](#) Valves for preventing return flow in sewer systems }

[E05F 3/12](#) Valve arrangements in door closers

[E21B 21/10](#) Valve arrangements in drilling-fluid circulation systems

[E21B 34/00](#) Valve arrangements for boreholes or wells

[{E21D 15/51](#) Arrangement of relief valves in hydraulic mine props }

[F01B 25/10](#) Working-fluid valves for controlling machines or engines in general or of positive-displacement type

[F01D 17/10](#) Final actuators for controlling non-positive displacement machines or engines

<a href="#">F01L</a>	Cyclically operated valves for machines or engines
<a href="#">F02D 9/08</a>	Throttle valves for controlling combustion engines
<a href="#">F02K 9/58</a>	Propellant feed valves for rocket-engines
<a href="#">F02M</a>	Carburettors, fuel injection
<a href="#">F02M 59/46</a>	Valves for fuel injection pumps
<a href="#">F04</a>	Pumps
<a href="#">F16F 9/34</a>	Valves for shock absorbers
<a href="#">F16L 29/00</a>	,
<a href="#">F16L 37/28</a>	Pipe joints or quick-acting couplings with fluid cut-off means
<a href="#">F16L 55/00</a>	Arrangement of valves in pipes
<a href="#">F16L 55/055</a>	Valves specially adapted to prevent or minimise the effect of water hammer
<a href="#">F16L 55/46</a>	Launching devices for pigs or moles
<a href="#">F16N 23/00</a>	Check valves for lubrication systems
{F16T	Draining-off liquids from steam traps}
<a href="#">F17C 13/04</a>	Arrangement of valves in pressure vessels
<a href="#">F22B 37/44</a>	Arrangement of safety valves on steam boilers
<a href="#">F22D 5/34</a>	Application of valves to automatic water-feed in boiler
<a href="#">F23L 13/00</a>	Valves for air supply control to burners
{ <a href="#">F23Q 2/16</a>	Valves for lighters with gaseous fuel and adjustable flame }
<a href="#">F24C 3/12</a>	,
<a href="#">F24C 5/16</a>	Arrangement of valves on stoves or ranges
<a href="#">F24F</a>	Air conditioning; Ventilation
<a href="#">F25B 41/04</a>	Disposition of fluid circulation valves in refrigeration machines
<a href="#">G05D</a>	Controlling non-electric variables
<a href="#">G10B 3/06</a>	Valves for organs
<a href="#">G10D 9/04</a>	Valves for other wind-actuated musical instruments
{ <a href="#">G21C 9/06</a>	Safety valves structurally associated with nuclear reactors }
{ <a href="#">H01M 2/12</a>	Vent plugs in batteries or cells }

**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="#">F16K 31/11</a>	covered by	<a href="#">F16K 31/06</a>	,	<a href="#">F16K 31/08</a>
,		<a href="#">F16K 31/10</a>		
<a href="#">F16K 31/64</a>	" "	<a href="#">G05D</a>		
<a href="#">F16K 31/66</a>	" "	<a href="#">F16K 31/06</a>	;	<a href="#">H01F</a>
<a href="#">F16K 31/68</a>	" "	<a href="#">G05D</a>		
<a href="#">F16K 31/70</a>	" "	<a href="#">F16K 31/002</a>		
<a href="#">F16K 31/72</a>	" "	<a href="#">F16K 31/00</a>		

- U F16K 7/00 **Diaphragm {valves or}cut-off apparatus, e.g. with a member deformed, but not moved bodily, to close the passage (container gates or closures operating by deformation of flexible walls [B65D 90/56](#) ; means for plugging pipes or hoses [F16L 55/10](#)){Pinch valves}**
- U F16K 7/02 - with tubular diaphragm

- U F16K 7/04  
F16K 7/06
- • constrictable by external radial force
  - • • by means of a screw-spindle, cam, or other mechanical means [{\(F16K 7/045 takes precedence\)}](#)
- U **F16K 17/00** **Safety valves; Equalising valves, {e.g. pressure relief valves}**
- U F16K 17/18  
F16K 17/19
- opening on surplus pressure on either side
  - • Equalising valves predominantly for tanks [{\(when combined with safety valve by change of position F16K 17/36\)}](#)
- 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](#)}**
- F16K 21/04
- Self-closing valves, i.e. closing automatically after operation [{\(pneumatic tools B25B 9/00\)}](#)
- F16K 31/00** **{Actuating devices;} Operating means; Releasing devices {(regulating means [G05D](#))}**
- F16K 31/02
- electric [{\(F16K 31/004 takes precedence\)}](#); magnetic
- U F16K 31/44  
F16K 31/60
- Mechanical actuating means
  - • Handles [{\(form, features or function of taps or faucet handles for domestic plumbing installations E03C 1/04\)}](#)
- F16K 33/00** **Floats for actuation of valves or other apparatus [{\(float actuated valves F16K 31/18\)}](#)**

**Project: N/A (F16M)**

F16M 13/00

**Other supports for positioning apparatus or articles (heads thereof [F16M 11/02](#) ; { undercarriages thereof [F16M 11/20](#) } ; adapted to be stuck in the ground [A45F 3/44](#) ; { sockets or holders for poles or posts [E04H 12/22](#)}); Means for steadying hand-held apparatus or articles {(supports for measuring instruments [G01D 11/30](#) ; supports for casings of remote control switching devices [H01H 9/025](#))}**

**Project: N/A (F21S)**

U F21S 8/00

**Lighting devices intended for fixed installation ([F21S 9/00](#) , [F21S 10/00](#) take precedence; using a string or strip of light sources [F21S 4/00](#))**

F21S 8/08

- with a standard [{\(F21S 6/00 takes precedence\)}](#)

U F21S 10/00

**Lighting devices or systems producing a varying lighting effect**

F21S 10/02

- changing colors [{\(F21S 10/002 to F21S 10/007 , F21S 10/04 take precedence\)}](#)

F21S 10/06

- flashing, e.g. with rotating reflector or light source [{\(signalling lighting devices mounted on vehicles B60Q 1/26\)}](#)

F21S 11/00

**Non-electric lighting devices or systems using daylight [{\(roofs with sky-light opening E04D 13/03](#) ; sun blinds for windows with means for redirecting light onto ceiling of a room [E06B 9/00](#) ; hybrid lighting devices combining artificial and natural light [F21S 19/00](#) ; solar heat collectors [F24J 2/00](#) ; solar cells or solar cell modules [H01L 31/00](#))}**

**Project: N/A (F23B)**

U F23B 1/00

**Combustion apparatus using only lump fuel**

U F23B 1/16

- the combustion apparatus being modified according to the form of grate or other fuel support [{\(for incinerators F23G 5/002\)}](#)

F23B 1/28

- • using ridge-type grate, e.g. for combustion of peat, sawdust, or pulverulent fuel [{\(combustion of peat, sawdust F23G 7/10\)}](#)

- U F23B 1/30
  - F23B 1/38
- characterised by the form of combustion chamber
  - · for combustion of peat, sawdust, or pulverulent fuel on a grate or other fuel support {{(combustion of peat, sawdust [F23G 7/10](#))}}

**Project: N/A (F23C)**

F23C 15/00

**Apparatus in which combustion takes place in pulses influenced by acoustic resonance in a gas mass** {{(for generating combustion products of high pressure or high velocity [F23R 7/00](#) ; starting devices [F23D 11/42](#))}}

**Project: N/A (F23N)**

U F23N 5/00

**Systems for controlling combustion** ([F23N 1/00](#) , [F23N 3/00](#) take precedence)

U F23N 5/02

- using devices responsive to thermal changes or to thermal expansion of a medium

F23N 5/12

- · using ionisation-sensitive elements, i.e. flame rods {{(testing of other ignition means, e.g. flame [F02P 17/12](#) ; analysing gases by investigating the ionisation by using heat [G01N 27/626](#))}}

**Project: N/A (F24B)**

U F24B 1/00

**Stoves or ranges**

U F24B 1/18

- Stoves with open fires, e.g. fireplaces

U F24B 1/191

- · Component parts; Accessories

F24B 1/192

- · · Doors; Screens; Fuel guards {{(fire-screens [A47G 5/04](#) , protective guards [F24C 15/36](#))}}

**Project: N/A (F24D)**

U F24D 11/00

**Central heating systems using heat accumulated in storage masses (self-contained storage heating units [F24D 15/02](#); storage masses, see the relevant subclasses)**

F24D 11/02

- using heat pumps {using heat-pumps {{(for producing heat in general [F25B 29/00](#))}}

**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](#))}}

F24F 7/04

- with ducting systems {also by double walls; with natural circulation {{(F24F 7/02 takes precedence)}}

F24F 7/06

- · with forced air circulation, e.g. by fan {positioning of a ventilator in or against a conduit (ventilators per se [F04D 25/08](#))}}

**Project: N/A (F24H)**

U F24H 9/00

**Details**

F24H 9/06

- Arrangement of mountings or supports { for heaters, e.g. boilers, other than space heating radiators (space heating radiators [F24D 19/02](#))}

**Project: N/A (F25D)**

- U F25D 3/00** **Devices using other cold materials; Devices using cold-storage bodies**  
 F25D 3/10 · using liquefied gases, e.g. liquid air {(for cooling semiconductor devices [H01L 23/445](#))}

**Project: N/A (F25J)**

- F25J** **LIQUEFACTION, SOLIDIFICATION OR SEPARATION OF GASES OR GASEOUS { or liquefied gaseous} MIXTURES BY PRESSURE AND COLD TREATMENT { or by bringing them into the supercritical state (cryogenic pumps [F04B 37/08](#); gas storage vessels, gas holders [F17](#); filling vessels with, or discharging from vessels, compressed, liquefied or solidified gases [F17C](#); refrigeration machines, plants, or systems [F25B](#))}**
- U F25J 1/00** **Processes or apparatus for liquefying or solidifying gases or gaseous mixtures {(for ammonia in general [C01C 1/00](#); solidification of carbonic acid [C01B 31/22](#); recovering volatile solvents by condensation [B01D 5/00](#); vapor recovery systems combined with filling nozzles [B67D 7/54](#))(not used)}**  
 F25J 1/02 · requiring the use of refrigeration, e.g. of helium or hydrogen { Details and kind of the refrigeration system used; Integration with other units or processes; Controlling aspects of the process (not used)}
- 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)}
- U F25J 3/0204** · · {characterised by the feed stream (for air [F25J 3/04](#))(not used)}
- F25J 3/0223** · · · {H<sub>2</sub>/CO mixtures, i.e. synthesis gas; Water gas or shifted synthesis gas (production of carbon monoxide containing gas in general [C01B 31/18](#), [C10J](#), [C10K](#); production of hydrogen containing gas [C01B 3/00](#))}
- U F25J 3/0228** · · {characterised by the separated product stream (not used)}
- F25J 3/0271** · · · {separation of H<sub>2</sub>/CO mixtures, i.e. of synthesis gas (production of carbon monoxide containing gas in general [C01B 31/18](#), [C10J](#), [C10K](#), production of hydrogen containing gas [C01B 3/00](#))}
- F25J 3/0276** · · · {separation of H<sub>2</sub>/N<sub>2</sub> mixtures, i.e. of ammonia synthesis gas (in general [C01B 3/00](#))}
- U F25J 3/06** · by partial condensation ([F25J 3/08](#) takes precedence; by rectification [F25J 3/02](#); { purification of hydrocarbons in general [C07C 7/00](#); not used)}
- U F25J 3/0605** · · {characterised by the feed stream (for air [F25J 3/04](#))(not used)}
- F25J 3/0625** · · · {H<sub>2</sub>/CO mixtures, i.e. synthesis gas; Water gas or shifted synthesis gas (production of carbon monoxide containing gas in general [C01B 31/18](#), [C10J](#), [C10K](#); production of hydrogen containing gas [C01B 3/00](#))}
- U F25J 3/063** · · {characterised by the separated product stream (not used)}
- F25J 3/0675** · · · {separation of H<sub>2</sub>/CO mixtures, i.e. of synthesis gas (production of carbon monoxide containing gas in general [C01B 31/18](#), [C10J](#), [C10K](#), production of hydrogen containing gas [C01B 3/00](#))}
- F25J 3/068** · · · {separation of H<sub>2</sub>/N<sub>2</sub> mixtures, i.e. of ammonia synthesis gas (in general [C01B 3/00](#))}

**Project: N/A (F26B)**

- F26B 1/00** Preliminary treatment of solid materials or objects to facilitate drying, {e.g. mixing or backmixing the materials to be dried with predominantly dry solids ([F26B 5/005](#) takes precedence)}
- U 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](#))**
- F26B 3/02
- by convection, i.e. heat being conveyed from a heat source to the materials or objects to be dried by a gas or vapour, e.g. air {([F26B 3/283](#) and [F26B 3/343](#) take precedence)}
- U F26B 3/06**
- • the gas or vapour flowing through the materials or objects to be dried ([F26B 3/14](#) takes precedence)
- F26B 3/08
- • • so as to loosen them, e.g. to form a fluidised bed {"fluidised-bed" technique in general [B01J 8/24](#) ; centrifugal fluidised beds [F26B 7/007](#)}
- U F26B 3/10**
- • the gas or vapour carrying the materials or objects to be dried with it
- F26B 3/12
- • • in the form of a spray, {i.e. sprayed or dispersed emulsions or suspensions (spray drying of solutions [B01D 1/18](#))}
- U F26B 3/28**
- by radiation, e.g. from the sun
- F26B 3/30
- • from infra-red-emitting elements {(by radiation emanating from passages containing heated fluids other than combustion gases [F26B 23/10](#))}
- U F26B 5/00** **Drying solid materials or objects by processes not involving the application of heat (separating liquids from solids by straining [B01D](#) ; replacing liquids in wet solids by other liquids, e.g. water by spirit, [B01D 12/00](#) ; drying by electrophoresis [B01J](#))**
- F26B 5/02
- by using ultrasonic vibrations {(using sonic energy generated by pulse jet combustion [F26B 23/026](#))}
- F26B 5/04
- by evaporation or sublimation of moisture under reduced pressure, e.g. in a vacuum {([F26B 11/049](#) and [F26B 17/128](#) take precedence)}
- NOTE**
- In subgroups [F26B 5/04](#) and [F26B 5/06](#) , the term "not including the application of heat" is disregarded for classification purposes. When drying with the use of vacuum, frequently heat is applied to compensate for the cooling effect or to promote sublimation from the frozen state
- 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
- F26B 9/08
- • including agitating devices, {e.g. pneumatic recirculation arrangements (unloading devices [F26B 25/002](#) ; spouted beds [F26B 3/0926](#))}
- F26B 9/10
- in the open air; in pans or tables in rooms; Drying stacks of loose material {on floors which may be covered, e.g. by a roof (ventilating means of stacks for agricultural produce [A01F 25/08](#))}
- U F26B 11/00** **Machines or apparatus for drying solid materials or objects with movement which is non-progressive**
- U F26B 11/02**
- in moving drums or other mainly-closed receptacles ([F26B 11/18](#) takes precedence)
- F26B 11/04
- • rotating about a horizontal or slightly-inclined axis {([F26B 11/022](#) , [F26B 11/024](#) , [F26B 11/026](#) , [F26B 11/028](#) take precedence)}
- U F26B 13/00** **Machines and apparatus for drying fabrics, fibres, yarns, or other materials in long lengths, with progressive movement**

- U F26B 13/24 · Arrangements of devices using drying processes not involving heating (such processes per se [F26B 5/00](#))
- F26B 13/30 · · for applying suction [{\(F26B 13/16 takes precedence\)}](#)
- U 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](#))**
- 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
- 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](#))}
- 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-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](#)})**
- 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 17/08 · · the belts being arranged in a sinuous or zig-zag path [{\(F26B 17/026 takes precedence; superimposed tray conveyers \[F26B 15/146\]\(#\)\)}](#)
- U F26B 17/12 · with movement performed solely by gravity, {i.e. the material moving through a substantially vertical drying enclosure, e.g. shaft}
- F26B 17/16 · · the materials passing down a heated surface, {e.g. fluid-heated closed ducts or other heating elements in contact with the moving stack of material ([F26B 17/128](#) takes precedence)}
- F26B 17/24 · with movement performed by shooting or throwing the materials, {e.g. after which the materials are subject to impact ([F26B 17/108](#) takes precedence)}
- F26B 17/28 · with movement performed by rollers or discs with material passing over or between them, e.g. suction drum, sieve, {the axis of rotation being in fixed position} (moving rotating rollers [F26B 15/122](#))}
- U F26B 21/00** **Arrangements {or duct systems, e.g. in combination with pallet boxes,} for supplying and controlling air or gases for drying solid materials or objects ([F26B 9/10](#) takes precedence; systems for vehicle body drying [B60S 3/002](#) ; air conditioning or ventilation in general [F24F](#))**
- U F26B 21/06 · Controlling, e.g. regulating, parameters of gas supply ([F26B 21/14](#) takes precedence; control in general [G05](#))
- F26B 21/10 · · Temperature; Pressure [{\(F26B 23/026 takes precedence\)}](#)
- F26B 21/12 · · Velocity of flow; Quantity of flow, {e.g. by varying fan speed, by modifying cross flow area} ([F26B 21/004](#) takes precedence; changing air flow pattern [F26B 21/022](#))}
- U F26B 23/00** **Heating arrangements ([{by radiation, e.g. infra-red, ultra-violet, solar \[F26B 3/28\]\(#\) and \[F26B 3/30\]\(#\) ; using heated air or gases \[F26B 21/00\]\(#\)}](#))**

- F26B 23/10
- using tubes or passages containing heated fluids, {e.g. acting as radiative elements; Closed-loop systems (for combustion gases [F26B 3/305](#))}
- 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](#))**
- F26B 25/04
- Agitating, stirring, or scraping devices {(Arrangement of doctor blades [F26B 17/286](#))}
- F26B 25/06
- Chambers, containers, or receptacles {(large containers having means for heating, cooling, aerating or other conditioning of contents [B65D 88/74](#))}
- U F26B 25/14**
- • Chambers, containers, receptacles of simple construction
- F26B 25/18
- • • mainly open, e.g. dish, tray, pan, {rack (for drying agricultural produce [A01F 25/12](#))}

**Project: N/A (F28D)**

- U F28D 9/00** **Heat-exchange apparatus having stationary plate-like or laminated conduit assemblies for both heat-exchange media, the media being in contact with different sides of a conduit wall {([F28F 3/083](#), [F28F 3/086](#) take precedence)}**
- F28D 9/0081
- {the conduits for one heat-exchange medium being formed by a single plate-like element ([F28D 9/0012](#) takes precedence); the conduits for one heat-exchange medium being integrated in one single plate-like element ([F28D 9/0012](#) takes precedence)}
- F28D 15/00** **Heat-exchange apparatus with the intermediate heat-transfer medium in closed tubes passing into or through the conduit walls; {Heat-exchange apparatus employing intermediate heat-transfer medium or bodies ([F28D 17/00](#), [F28D 19/00](#), [F28D 20/00](#) take precedence)}**

**Project: N/A (F41A)**

- U F41A 1/00** **Missile propulsion characterised by the use of explosive or combustible propellant charges (projecting missiles without use of explosive or combustible propellant charge [F41B](#) ; launching rockets or torpedoes [F41F 3/00](#) ; missile self-propulsion [F42B 15/00](#))**
- F41A 1/06
- Adjusting the range without varying elevation angle or propellant charge data, e.g. by venting a part of the propulsive charge gases, or by adjusting the capacity of the cartridge or combustion chamber {(adjusting the range by using gas-relieving ports in the barrel [F41A 21/28](#))}
- U F41A 3/00** **Breech mechanisms, e.g. locks**
- U F41A 3/64**
- Mounting of breech-blocks; Accessories for breech-blocks or breech-block mountings
- U F41A 3/70**
- • Anti-rebound arrangements, i.e. preventing rebound of the bolt out of the firing position; {(Safeties for locking the breech-block or bolt in a safety position [F41A 17/42](#))}
- F41A 3/72
- • Operating handles or levers; Mounting thereof in breech-blocks or bolts {([F41C 7/02](#) , [F41C 7/06](#) take precedence)}
- U F41A 3/78**
- • Bolt buffer or recuperator means
- F41A 3/90
- • • Fluid buffers {([F41A 3/62](#) takes 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 [F41B11/02](#)); Magazines; Guiding means for the extracting of cartridges (cartridge extractors or ejectors [F41A 15/00](#))**
- U F41A 9/01**
- Feeding of unbelted ammunition

- U F41A 9/06
- using cyclically moving conveyers, i.e. conveyers having ammunition pusher or carrier elements which are emptied or disengaged from the ammunition during the return stroke
- F41A 9/09
- • Movable ammunition carriers or loading trays, e.g. for feeding from magazines {(locking of ammunition in ammunition containers or loading trays [F42B 39/22](#))}
- U F41A 9/38
- Loading arrangements, i.e. for bringing the ammunition into the firing position
- F41A 9/45
- • the cartridge chamber or the barrel as a whole being tiltable {or transversely slidable}between a loading and a firing position {([F41A 9/25](#) and [F41A 9/27](#) take precedence)}
- U F41A 9/54
- Cartridge guides, stops or positioners, e.g. for cartridge extraction
- F41A 9/56
- • Movable guiding means {([F41A 9/55](#) takes precedence)}
- U F41A 17/00** **Safety arrangements, e.g. safeties**
- F41A 17/02
- Key-operated safeties {([F41A 17/44](#) takes precedence)}
- U F41A 17/34
- Magazine safeties
- F41A 17/36
- • locking the gun {automatically}in a safety condition when the magazine is empty or removed {([F41A 17/44](#) takes precedence)}
- U F41A 19/00** **Firing or trigger mechanisms; Cocking mechanisms**
- U 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}
- F41A 19/13
- • Percussion or firing pins, i.e. fixed or slidably-mounted striker elements; Mountings therefor {([F41A 19/26](#) takes precedence)}
- U F41A 19/25
- • having only slidably-mounted striker elements, i.e. percussion or firing pins
- F41A 19/26
- • • the percussion or firing pin and the breech-block or bolt forming one piece {([F41A 19/34](#) takes precedence)}
- U F41A 19/58
- Electric firing mechanisms ([F41A 17/10](#) , [F41A 17/12](#) take precedence)
- U F41A 19/60
- • characterised by the means for generating electric energy
- F41A 19/61
- • • Inductive generators {([F41A 19/63](#) takes precedence)}
- U F41A 21/00** **Barrels; Gun tubes; Muzzle attachments; Barrel mounting means**  
**([F41A 25/00](#) takes precedence; barrel attachments for firing grenades or riot-control ammunition from smallarms [F41C 27/06](#))**
- F41A 21/22
- Barrels which have undergone surface treatment, e.g. phosphating {([F41A 21/44](#) takes precedence)}

**Project: N/A (F41B)**

- F41B 6/00
- Electromagnetic launchers; {Plasma-actuated launchers (projectiles for electromagnetic or plasma guns [F42B 6/006](#))}**
- U F41B 7/00
- Spring guns ({[F41J 9/18](#) takes precedence; catapults having a cocking device [F41B 3/005](#)}; catapults [F41B 3/02](#); {throwing apparatus for boomerangs [A63B 65/08](#); spring-loaded devices for projecting sporting balls [A63B 69/407](#))}**
- F41B 7/08
- Toy guns, {i.e. guns launching objects of the gliding type, e.g. airplanes, parachute missiles}{([F41B 7/006](#) and [F41B 7/02](#) take precedence)}

**Project: N/A (F41G)**

- U F41G 1/00
- Sighting devices (for indirect laying of fire [F41G 3/16](#); bombsights [F41G 3/24](#)){ structurally associated with laser telemeters [F41G 3/065](#); mounting tubular or beam shaped aiming devices on firearms [F41G 11/001](#))}**

- U F41G 1/06                   · Rearsights
- F41G 1/08                   · · with aperture; {tubular or of ring form; Peep sights ([F41G 1/42](#) takes precedence)}

**Project: N/A (F41H)**

- U F41H 5/00                   **Armour; Armour plates (processes for manufacturing or treating [B21](#), [C21](#), { heat treatment [C21D 9/42](#); wall or panel structure for safes [E05G 1/024](#)})**
- U F41H 5/06                   · Shields (in ships [B63G 9/00](#); in aircraft [B64D 7/00](#){blasting mats [F42D 5/05](#)})
- F41H 5/16                   · · for ordnance {or tanks ([F41H 5/18](#) takes precedence)}
- F41H 5/24                   · for stationary use, e.g. fortifications {Shelters, Guard Booths (air-raid shelters [E04H 9/04](#))}

**Project: N/A (F42B)**

- 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](#))**
- U 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 3/18                   · · Safety initiators resistant to premature firing by static electricity or stray currents
- F42B 3/188                   · · · having radio-frequency filters, {e.g. containing ferrite cores or inductances ([F42B 3/185](#) takes precedence)}
- U F42B 5/00                   **Cartridge ammunition, e.g. separately-loaded propellant charges (shotgun ammunition [F42B 7/00](#); practice or training ammunition [F42B 8/00](#); missiles therefor [F42B 12/00](#),[F42B 14/00](#),[F42B 15/00](#))**
- U F42B 5/02                   · Cartridges, i.e. cases with charge and missile
- U F42B 5/18                   · · Caseless ammunition; Cartridges having combustible cases
- F42B 5/192                   · · · Cartridge cases characterised by the material { of the casing wall (cartridge bags [F42B 5/38](#))}
- U F42B 23/00                   **Land mines; {Land torpedoes}{[F42B 12/00](#) takes precedence; for practice or training [F42B 8/28](#)}**
- F42B 23/04                   · anti-vehicle {, e.g. anti-aircraft or anti tank (hollow charges per se [F42B 1/02](#); artillery projectiles having hollow charges [F42B 12/10](#))}
- U F42B 39/00                   **Packaging or storage of ammunition or explosive charges; Safety features thereof; Cartridge belts or bags**
- F42B 39/20                   · Packages or ammunition having valves for pressure-equalising; Packages or ammunition having plugs for pressure release, e.g. meltable {Blow-out panels; Venting arrangements (ventilating arrangements on packages formed from foldable or erectable blanks [B65D 5/4295](#); packages with pressure-relief valves incorporated in a container wall [B65D 77/225](#))}

**Project: N/A (F42D)**

- U F42D 1/00                   **Blasting methods or apparatus, e.g. loading or tamping**
- F42D 1/04                   · Arrangements for ignition {(ignition systems for shaped charge perforators [E21B 43/1185](#) ; ignition devices for seismic energy generators [G01V 1/06](#))}

F42D 3/00

Particular applications of blasting techniques {(explosive welding [B23K 20/08](#) ; explosive bolts or actuators [F42B 3/006](#); explosive valves [F16K 13/06](#) ; cutting devices actuated by explosion [B23D 15/145](#); pyrotechnical actuators [F15B 15/19](#) ; switching devices actuated by explosion [H01H 39/00](#))}

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](#))

G01B 3/14

• Templates for checking contours {(templates for mounting doors or windows [E04F 21/0007](#))}

U G01B 3/38

• Gauges with an open yoke and opposed faces i.e. calipers, in which the internal distance between the faces is fixed, although it may be preadjustable

G01B 3/42

• • of limit-gauge type, i.e. "go/no-go" ([G01B 3/40](#) takes precedence)

- U G01B 3/46 · Plug gauges for internal dimensions with engaging surfaces which are at a fixed distance, although they may be preadjustable
- G01B 3/50 · · of limit-gauge type, i.e. "go/no-go" ([G01B 3/48](#) takes precedence)
- 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](#))**
- G01B 5/08 · for measuring diameters [{\(G01B 5/0035 takes precedence; measuring radius of curvature \[G01B 5/213\]\(#\)\)}](#)
- 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)
- G01B 7/06 · · for measuring thickness [{\(measuring during the manufacture of coatings \[C23C 14/54\]\(#\)\)}](#)
- 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 11/255 · · for measuring radius of curvature [{\(measuring diameter \[G01B 11/08\]\(#\)\)}](#)
- U G01B 11/26 · for measuring angles or tapers; for testing the alignment of axes
- G01B 11/27 · · for testing the alignment of axes [{\(means for centering or aligning a light guide within a ferrule \[G02B 6/3834\]\(#\)\)}](#)
- G01B 13/00** **Measuring arrangements characterised by the use of fluids [{\(pressure regulation \[G05D 16/00\]\(#\)\)}](#)**
- G01B 17/00** **Measuring arrangements characterised by the use of subsonic, sonic or ultrasonic vibrations [{\(by sonar technique \[G01S 15/00\]\(#\)\)}](#)**
- U G01B 21/00** **Measuring arrangements or details thereof in so far as they are not adapted to particular types of measuring means of the preceding groups**
- NOTE  
Measuring arrangements or details thereof covered by two or more of groups [G01B 3/00](#) - [G01B 17/00](#) are classified in this group if no single other group can be selected as being predominantly applicable.
- U G01B 21/02 · for measuring length, width, or thickness ([G01B 21/10](#) takes precedence)
- G01B 21/06 · · specially adapted for measuring length or width of objects while moving [{\(unwinding or rewinding apparatus incorporating length measuring devices \[B65H 16/025\]\(#\)\)}](#)
- U G01B 21/10 · for measuring diameters
- G01B 21/14 · · internal diameters [{\(of boreholes or wells \[E21B 47/08\]\(#\)\)}](#)

**Project: N/A (G01C)**

- U G01C 5/00** **Measuring height; Measuring distances transverse to line of sight; Levelling between separated points; Surveyors' levels ([G01C 3/20](#) , [G01C 3/30](#) take precedence; tracing profiles [G01C 7/00](#) ; levels indicating inclination at a single point [G01C 9/00](#))**
- G01C 5/02 · involving automatic stabilisation of the line of sight; [\(tilt compensation in general \[G12B\]\(#\) ; regulation of direction in general \[G05D 3/00\]\(#\)\)](#)
- G01C 9/00** **Measuring inclination, e.g. by clinometers, by levels [{\(switches operated by inclination or orientation \[H01H 35/02\]\(#\)\)}](#)**

- U G01C 21/00** Navigation; Navigational instruments not provided for in preceding groups (measuring distance traversed on the ground by a vehicle [G01C 22/00](#) ; measuring linear or angular speed or acceleration [G01P](#) ; control of position, course, altitude or attitude of vehicles [G05D 1/00](#) ; traffic control systems [G08G](#))
- U G01C 21/26 · specially adapted for navigation in a road network
- U G01C 21/34 · · Route searching; Route guidance
- U G01C 21/36 · · · Input/output arrangements of navigation systems; {(Input arrangements for transferring data to be processed into a form capable of being handled by the computer, and output arrangements for transferring data from processing unit to output unit, e.g. interface arrangements [G06F 3/00](#) ; pointing devices displaced or positioned by the user, e.g. mice, trackballs, pens or joysticks, and accessories therefor [G06F 3/033](#) ; interaction techniques for graphical user interfaces, e.g. interaction with windows, icons or menus [G06F 3/048](#) ; Manipulating 3D models or images for computer graphics [G06T 19/00](#))}
- U G01C 22/00** Measuring distance traversed on the ground by vehicles, persons, animals, or other moving solid bodies, e.g. using odometers, using pedometers (counting mechanisms per se [G06M](#))
- G01C 22/02 · by conversion into electric waveforms and subsequent integration, e.g. using tachometer generator, {([G01C 22/002](#) , [G01C 22/004](#) , [G01C 22/006](#) take precedence)}

**Project: N/A (G01H)**

- G01H 11/00** Measuring mechanical vibrations or ultrasonic, sonic or infrasonic waves by detecting changes in electric or magnetic properties, {e.g. capacitance or reluctance (structural combination of musical instruments with microphones or other pick-up devices [G10H 3/16](#), [G10H 3/18](#), [G10H 3/20](#))}

**Project: N/A (G01L)**

- U G01L 19/00** Details of, or accessories for, apparatus for measuring steady or quasi-steady pressure of a fluent medium insofar as such details or accessories are not special to particular types of pressure gauges
- G01L 19/04 · Means for compensating for effects of changes of temperature { , i.e. other than electric compensation (electric compensation [G01L 9/025](#), [G01L 9/045](#), [G01L 9/065](#), [G01L 9/085](#), [G01L 9/105](#) or [G01L 9/125](#))}

**Project: N/A (G01M)**

- G01M** TESTING STATIC OR DYNAMIC BALANCE OF MACHINES OR STRUCTURES; TESTING STRUCTURES OR APPARATUS NOT OTHERWISE PROVIDED FOR, {(devices for testing the performance of portable percussive tools with fluid-pressure drive [B25D 9/005](#))}

NOTE

Attention is drawn to the Note following the title of Class [G01](#).

WARNING

Subject matter covered by these groups is classified in the following CPC groups: - **G01M/38** covered by [G01M 1/14](#) and [G01M 1/30](#) and subgroups

- U G01M 1/00** Testing static or dynamic balance of machines or structures (balancing rotary bowls of centrifuges [B04B 9/14](#) ; apparatus characterised by the means for holding wheels or parts thereof [B60B 30/00](#) ; determining the stability factors of ships [B63B](#); stabilising of aircraft [B64C 17/00](#) ; control systems for balancing automatically in operation [G05](#); balancing rotors of dynamo-electric machines [H02K 15/16](#))
- U G01M 1/02  
G01M 1/04
- Details of balancing machines or devices
  - • Adaptation of bearing support assemblies for receiving the body to be tested {{(tyre chucks in general [G01M 17/021](#))}}
- U G01M 11/00** Testing of optical apparatus; Testing structures by optical methods not otherwise provided for
- WARNING
- Groups [G01M 11/30](#) - [G01M 11/39](#) do not correspond to former or future IPC groups. Concordance CPC : IPC for these groups is as follows: - [G01M 11/30](#) - [G01M 11/39](#) : [G01M 11/00](#)
- G01M 11/08
- Testing of mechanical properties {{([G01M 11/005](#) takes precedence)}}

**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](#)})
- 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](#))}}
- 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 1/28
- Preparing specimens for investigation{ including physical details of (bio-)chemical methods covered elsewhere, e.g. [G01N 33/50](#) , [C12Q](#)}(mounting specimens on microscopic slides [G02B 21/34](#) ; means for supporting the objects or the materials to be analysed in electron microscopes [H01J 37/20](#) ; { laboratory gas handling apparatus [B01L 5/00](#)})
- G01N 1/34
- • Purifying; Cleaning {{(processes or apparatus for extracting or separating nucleic acids from biological samples [C12N 15/1003](#))}}
- U G01N 3/00** **Investigating strength properties of solid materials by application of mechanical stress (strain gauges [G01B](#); measuring stress in general [G01L](#))**
- NOTE
- This group covers the stressing of materials not only below but also beyond the elastic limit, e.g. until breaking occurs.
- G01N 3/60
- Investigating resistance of materials, e.g. refractory materials, to rapid heat changes {{(thermal testing of structures or apparatus [G01M 99/002](#))}}
- U G01N 5/00** **Analysing materials by weighing, e.g. weighing small particles separated from a gas or liquid ([G01N 9/00](#) takes precedence; {weighing per se [G01G](#)})**
- G01N 5/02
- by absorbing or adsorbing components of a material and determining change of weight of the adsorbent, e.g. determining moisture content {{(absorption bulbs [B01D 53/00](#))}}

- U G01N 7/00 Analysing materials by measuring the pressure or volume of a gas or vapour**
- G01N 7/02 · by absorption, adsorption, or combustion of components and measurement of the change in pressure or volume of the remainder {(absorption bulbs [B01D 53/00](#))}
- G01N 7/14 · by allowing the material to emit a gas or vapour, e.g. water vapour, and measuring a pressure or volume difference {(determining urea [G01N 33/48742](#))}
- U G01N 19/00 Investigating materials by mechanical methods ([G01N 3/00](#) to [G01N 17/00](#) take precedence)**
- G01N 19/02 · Measuring coefficient of friction between materials {(testing of tyres [G01M 17/02](#) ; determinations of friction coefficient used in vehicle braking or traction control systems [B60T 8/172](#))}
- 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 21/0317 · · · {High pressure cuvettes; ([G01N 21/0332](#) to [G01N 21/15](#) take precedence)}
- G01N 21/13 · · Moving of cuvettes or solid samples to or from the investigating station {(handling materials for automatic analysis [G01N 35/00](#))}
- 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
- G01N 21/27 · · · using photo-electric detection ([G01N 21/31](#) takes precedence){circuits for computing concentration (logarithmic circuits [G06G 7/24](#) ; photometric circuits in general [G01J](#))}
- 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 21/35 · · · · using infra-red light ([G01N 21/39](#) takes precedence)
- G01N 21/37 · · · · · using pneumatic detection {(opto-acoustic detection [G01N 21/1702](#))}
- U G01N 21/59 · · Transmissivity ([G01N 21/25](#) takes precedence)
- G01N 21/61 · · · Non-dispersive gas analysers {([G01N 21/3504](#) takes precedence)}
- 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
- G01N 21/636 · · · {using an arrangement of pump beam and probe beam; using the measurement of optical non-linear properties; (non-linear optics per se [G02F 1/35](#))}

- U G01N 21/64
  - · · Fluorescence; Phosphorescence
- G01N 21/6428
  - · · · {Measuring fluorescence of fluorescent products of reactions or of fluorochrome labelled reactive substances, e.g. measuring quenching effects, using measuring "optodes" (in vivo [A61B 5/00](#) ; immunoassay [G01N 33/53](#))}
- U G01N 21/84
  - Systems specially adapted for particular applications
- U G01N 21/88
  - · Investigating the presence of flaws or contamination
- U G01N 21/89
  - · · in moving material, e.g. running paper or textiles ([G01N 21/90](#) , [G01N 21/91](#) , [G01N 21/94](#) take precedence)
- U G01N 21/892
  - · · · characterised by the flaw, defect or object feature examined
- G01N 21/896
  - · · · · Optical defects in or on transparent materials, e.g. distortion, surface flaws {in conveyed flat sheet or rod (for other objects [G01N 21/958](#))}
- U 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 21/958
  - · · · Inspecting transparent materials {or objects, e.g. windscreens (for conveyed flat sheet or rod [G01N 21/896](#))}
- U 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](#))**
- U G01N 23/20
  - by using diffraction of the radiation, e.g. for investigating crystal structure; by using reflection of the radiation
- U G01N 23/205
  - · by means of diffraction cameras ([G01N 23/201](#) takes precedence)
- G01N 23/206
  - · · the radiation being neutrons {([G01N 23/2055](#) takes precedence)}
- U G01N 23/22
  - by measuring secondary emission

NOTE  
Devices per se are classified in the relevant places, e.g. [H01J 37/00](#) , [H01J 49/00](#)
- G01N 23/223
  - · by irradiating the sample with X-rays {or gamma-rays}and by measuring X-ray fluorescence {([G01N 23/2076](#) takes precedence)}
- U G01N 25/00**

**Investigating or analyzing materials by the use of thermal means ([G01N 3/00](#) to [G01N 23/00](#) take precedence)**
- G01N 25/02
  - by investigating changes of state or changes of phase; by investigating sintering {(investigating or analysing oils or hydrocarbon fluids by measuring cloud point or pour point [G01N 33/2811](#))}
- U 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](#))**
- U G01N 27/02
  - by investigating the impedance of the material
- G01N 27/04
  - · by investigating resistance {(for measuring the amount of particles [G01N 15/0656](#))}

- U G01N 27/26
- by investigating electrochemical variables; by using electrolysis or electrophoresis (investigating resistance to corrosion [G01N 17/00](#) ; investigating or analysing materials by separation into components using adsorption, absorption or similar phenomena or using ion-exchange, e.g. chromatography, [G01N 30/00](#) ; immunoelectrophoresis [G01N 33/561](#) ; electrochemical processes or apparatus in general [B01J](#); standard cells [H01M 6/28](#))
- G01N 27/27
- • Association of two or more measuring systems or cells, each measuring a different parameter, where the measurement results may be either used independently, the systems or cells being physically associated, or combined to produce a value for a further parameter {e.g. electrochemical electrode arrays (gas sensor arrays [G01N 33/0031](#))}
- U G01N 27/28
- • Electrolytic cell components
- U G01N 27/30
- • • Electrodes, e.g. test electrodes; Half-cells ([G01N 27/414](#) takes precedence)
- G01N 27/327
- • • • Biochemical electrodes {electrical and mechanical details of in vitro measurements (chemical and biological details [C12Q 1/00](#), [G01N 33/543](#) ; in vivo [A61B 5/00](#))}
- U G01N 27/403
- • Cells and electrode assemblies
- U G01N 27/406
- • • Cells and probes with solid electrolytes
- G01N 27/407
- • • • for investigating or analysing gases {([G01N 27/411](#) takes precedence)}
- U G01N 27/416
- • Systems ([G01N 27/27](#) takes precedence { ; for testing batteries [G01R 31/36](#))}
- G01N 27/447
- • • using electrophoresis {(aspects concerning peptides or proteins [C07K 1/26](#) ; for non-analytical purposes [B01D 57/02](#) ; separating particles by dielectrophoresis [B03C 5/00](#))}
- U G01N 27/62
- by investigating the ionisation of gases; by investigating electric discharges, e.g. emission of cathode (particle spectrometers per se [H01J 49/00](#))
- G01N 27/64
- • using wave or particle radiation to ionise a gas, e.g. in an ionisation chamber {(discharge tubes for measuring pressure of introduced gas or for detecting presence of gas [H01J 41/02](#))}
- U G01N 27/72
- by investigating magnetic variables
- U G01N 27/74
- • of fluids ([G01N 24/00](#) takes precedence)
- G01N 27/76
- • • by investigating susceptibility {(measuring susceptibility [G01R 33/16](#))}
- U G01N 27/82
- • for investigating the presence of flaws
- G01N 27/90
- • • using eddy currents {(for measuring thickness [G01B 7/06](#))}
- U **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](#))}**
- U G01N 29/04
- Analysing solids (using acoustic emission techniques [G01N 29/14](#))
- G01N 29/06
- • Visualisation of the interior, e.g. acoustic microscopy {(medical or veterinary diagnosis using sonic waves [A61B 8/00](#) ; representation of acoustic wave distribution [G01H 3/125](#) , [G01H 9/002](#) ; short-range imaging systems using reflection of acoustic waves [G01S 15/8906](#))}

- G01N 29/12
  - • by measuring frequency or resonance of acoustic waves {(measuring frequency or resonant frequency of mechanical vibrations or acoustic waves in general [G01H 1/06](#) , [G01H 3/04](#) , [G01H 13/00](#) ; acoustic resonators [G10K 11/04](#) ; vibration or shock testing of structures [G01M 7/00](#)}
- G01N 29/14
  - using acoustic emission techniques {(echo of particles [G01N 29/046](#) ; measuring mechanical vibrations or acoustic waves in solids in general [G01H 1/00](#)}
- U G01N 29/22
  - Details,{e.g. general constructional or apparatus details}
- G01N 29/24
  - • Probes {(transducers for acoustic waves [B06B](#) , [G10K](#) ; for measuring [G01H](#)}
- G01N 29/2412
  - • • {using the magnetostrictive properties of the material to be examined, e.g. electromagnetic acoustic transducers [EMAT]; {(investigating the presence of flaws using eddy currents [G01N 27/90](#) , magnetostrictive transducers [B06B 1/08](#) , measuring magnetostrictive properties [G01R 33/18](#)}
- G01N 29/26
  - • Arrangements for orientation or scanning {by relative movement of the head and the sensor (mechanical steering of sound transducers or their beams [G10K 11/35](#))}
- G01N 29/28
  - • providing acoustic coupling {e.g. water (impedance matching [G10K 11/02](#))}
- G01N 29/44
  - Processing the detected response signal,{e.g. electronic circuits specially adapted therefor (digital signal processing per se [G06F 17/00](#))}
- G01N 29/46
  - • by spectral analysis, e.g. Fourier analysis {or wavelet analysis (spectral signal processing per se [G06F 17/14](#))}

**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
- U G01N 30/26
  - • Conditioning of the fluid carrier; Flow patterns
- U G01N 30/38
  - • • Flow patterns
- G01N 30/46
  - • • • using more than one column {([G01N 30/44](#) takes precedence)}
- U G01N 30/62
  - • Detectors specially adapted therefor
- G01N 30/72
  - • • Mass spectrometers {(mass spectrometers per se [H01J 49/00](#))}
- G01N 30/74
  - • • Optical detectors {(measurement of intensity, velocity, spectral content, polarisation, or phase of infra-red, visible or ultra-violet light [G01J](#))}
- G01N 30/76
  - • • Acoustical detectors {(measurement of mechanical vibrations or ultrasonic, sonic or infrasonic waves [G01H](#))}
- 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**

- G01N 31/02
- using precipitation {(measuring deposition or liberation of materials from an electrolyte [G01N 27/42](#))}
- U G01N 33/00 Investigating or analysing materials by specific methods not covered by the preceding groups**
- G01N 33/15
- Medicinal preparations; {Physical properties thereof, e.g. dissolubility (drug screening with animal cells [G01N 33/5008](#) , drug screening with microorganisms [C12Q 1/025](#))}
- G01N 33/18
- Water {(treatment of water [C02F](#))}
- G01N 33/22
- Fuels, explosives {(liquid hydrocarbons [G01N 33/28](#))}
- U G01N 33/26**
- oils; viscous liquids; paints; inks ([G01N 33/22](#) takes precedence)
- G01N 33/32
- . paints; inks {(investigating resistance to the weather, to corrosion, to light [G01N 17/00](#))}
- U 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 33/49
- . . . Blood {(taking blood samples [A61B 5/15](#) ; chemical methods for determining blood cell populations [G01N 33/5094](#) ; chemical analysis of blood groups or blood types [G01N 33/80](#))}
- G01N 33/497
- . . of gaseous biological material, e.g. breath {(for evaluating respiratory organs [A61B 5/08](#))}
- U 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
- G01N 33/52
- . . Use of compounds or compositions for colorimetric, spectrophotometric or fluorometric investigation, e.g. use of reagent paper {and including single- and multilayer analytical elements (immunological elements [G01N 33/54386](#) ; involving labelled immunochemicals [G01N 33/58](#) ; for haemoglobin or occult blood [G01N 33/72](#))}
- 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](#))
- U G01N 33/543**
- . . . with an insoluble carrier for immobilising immunochemicals
- U G01N 33/544**
- . . . . the carrier being organic
- U G01N 33/545**
- . . . . . Synthetic resin

- G01N 33/546 . . . . . as water suspendable particles {(not used, see [G01N 33/54313](#))}
- G01N 33/547 . . . . . with antigen or antibody attached to the carrier via a bridging agent {(not used, see [G01N 33/54353](#))}
- G01N 33/549 . . . . . with antigen or antibody entrapped within the carrier {(not used, see [G01N 33/5436](#))}
- G01N 33/563 . . . . . involving antibody fragments {(not used, see [G01N 33/6857](#))}
- U G01N 33/569 . . . . . for micro-organisms, e.g. protozoa, bacteria, viruses
- G01N 33/571 . . . . . for venereal disease, e.g. syphilis, gonorrhoea {(herpes [G01N 33/56994](#) ; chlamydia [G01N 33/56927](#))}
- G01N 33/68 . . . . . involving proteins, peptides or amino acids {(involving lipoproteins [G01N 33/92](#))}
- G01N 33/80 . . . . . involving blood groups or blood types {or red blood cells {white blood cells [G01N 33/56972](#))}
- G01N 33/92 . . . . . involving lipids, e.g. cholesterol, {lipoproteins, or their receptors {steroid hormones [G01N 33/743](#))}
- U 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 conveyer system past one or more treatment or analysis stations {([G01N 35/0098](#) and [G01N 35/0099](#) take precedence)}
- G01N 35/04 . . . . . Details of the conveyer system {([G01N 35/021](#) to [G01N 35/028](#) take precedence)}
- G01N 35/10 . . . . . Devices for transferring samples {or any liquids}to, in, or from, the analysis apparatus, e.g. suction devices, injection devices {([G01N 35/0099](#) takes precedence)}
- U 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.
- U 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 2333/315 . . . . . from Streptococcus (G), e.g. Enterococci
- G01N 2333/3156 . . . . . from Streptococcus pneumoniae (Pneumococcus) (Streptokinase [G01N 2333/3153](#))
- U G01N 2333/90 . . . . . Enzymes; Proenzymes
- NOTE  
Enzymes are generally categorised below according to the "Nomenclature and Classification of Enzymes" of the International Commission on Enzymes. Where appropriate, this designation appears in the groups below in parenthesis.
- U G01N 2333/902 . . . . . Oxidoreductases (1.)
- U G01N 2333/90245 . . . . . acting on paired donors with incorporation of molecular oxygen (1.14)
- G01N 2333/9027 . . . . . Miscellaneous (1.14.99) (not used)

G01N 2333/90274 . . . . with a definite EC number (1.14.99.-) (not used)

## Project: N/A (G01R)

- U 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 1/02 . General constructional details (details of a kind applicable to measuring arrangements not specially adapted for a specific variable [G01D 7/00](#))
- U G01R 1/06 . . Measuring leads; Measuring probes ([G01R 19/145](#) , [G01R 19/165](#) take precedence; end pieces for leads [H01R 11/00](#))
- G01R 1/067 . . . Measuring probes {(plugs, sockets or clips [G01R 1/0408](#) ; testing of connections [G01R 31/04](#) ; contacting IC`s for test purposes when probe design is not the essential feature [G01R 31/2886](#) ; using radiation beam as probe [G01R 31/302](#) ; end pieces for wires terminating in a probe [H01R 11/18](#))}
- G01R 1/07 . . . . Non-contact-making probes {(wireless interface with the DUT [G01R 31/3025](#))}
- G01R 1/073 . . . . Multiple probes {([G01R 1/06783](#) , [G01R 1/06794](#) , [G01R 1/071](#) , [G01R 1/072](#) take precedence)}
- G01R 1/18 . . Screening arrangements against electric or magnetic fields, e.g. against earth`s field {(measuring shielding efficiency [H05K 9/0069](#))}
- G01R 1/38 . Arrangements for altering the indicating characteristic, e.g. by modifying the air gap {(circuits [G01R 15/005](#))}
- G01R 1/44 . Modifications of instruments for temperature compensation {(When measuring current or voltage [G01R 19/32](#))}
- 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 11/24 . . Arrangements for avoiding or indicating fraudulent use {(measures against unauthorised operation of bolts, nuts or pins [F16B 41/005](#) ; security seals [G09F 3/03](#) ; preventing of tampering with detection circuits in signaling or alarm circuits [G08B 29/046](#))}
- U G01R 13/00** **Arrangements for displaying electric variables or waveforms (display by mechanical displacement only [G01R 5/00](#) , [G01R 7/00](#) , [G01R 9/00](#) ; recording frequency spectrum [G01R 23/18](#))**
- G01R 13/20 . Cathode-ray oscilloscopes; {Oscilloscopes using other screens than CRT`s, e.g. LCD`s; {(control arrangements or circuits for cathode-ray tube indicators [G09G 1/00](#) ; cathode ray tubes [H01J 31/00](#))}
- G01R 13/40 . using modulation of a light beam otherwise than by mechanical displacement, e.g. by Kerr effect {(visual indication of correct tuning [H03J 3/14](#))}
- U 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 15/04
  - Voltage dividers
- G01R 15/06
  - • having reactive components, e.g. capacitive transformer, {(when the HV capacitor/sensor as such is the essential [G01R 15/16](#))}
- 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 15/146
  - • {Measuring arrangements for current not covered by other subgroups of [G01R 15/14](#), e.g. using current dividers, shunts, or measuring a voltage drop, (if no voltage isolation is involved [G01R 1/203](#) or [G01R 19/0092](#))}
- G01R 15/16
  - • using capacitive devices {(circuits constituting a voltage divider [G01R 15/06](#))}
- G01R 15/20
  - • using galvano-magnetic devices, e.g. Hall-effect devices, {i.e. measuring a magnetic field via the interaction between a current and a magnetic field, e.g. magneto resistive or Hall effect devices, (electromechanical such devices, [G01R 5/00](#) , [G01R 7/00](#) , [G01R 9/00](#) ; measuring magnetic fields [G01R 33/02](#))}
- G01R 15/22
  - • using light-emitting devices, e.g. LED, optocouplers {([G01R 31/31901](#) takes precedence)}
- U **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 19/02
  - Measuring effective values, i.e. root-mean-square values
- G01R 19/03
  - • using thermoconverters {(using ac-dc conversion by means of thermocouples or other heat sensitive elements [G01R 19/225](#))}
- G01R 19/12
  - Measuring rate of change {(emergency protective circuit arrangements responsive to the rate of change of electrical quantities [H02H 3/44](#))}
- G01R 19/145
  - Indicating the presence of current or voltage {(measuring probes in general [G01R 1/06](#) ; indicating continuity or short circuits in electric apparatus or lines or components [G01R 31/024](#))}
- G01R 19/15
  - • Indicating the presence of current {(see provisionally also [G01R 19/145](#))}
- G01R 19/155
  - • Indicating the presence of voltage {(see provisionally also [G01R 19/145](#))}
- U G01R 19/165
  - Indicating that current or voltage is either above or below a predetermined value or within or outside a predetermined range of values (circuits with regenerative action, e.g. Schmitt trigger [H03K 3/00](#) ; threshold switches [H03K 17/00](#))
- U G01R 19/16533
  - • {characterised by the application (contains no documents)}
- G01R 19/16557
  - • • {Logic probes, i.e. circuits indicating logic state (high, low, O); {(modifications of electronic switches or gates for indicating state of switch [H03K 17/18](#))}
- U G01R 19/16566
  - • {Circuits and arrangements for comparing voltage or current with one or several thresholds and for indicating the result not covered by subgroups [G01R 19/16504](#) , [G01R 19/16528](#) , [G01R 19/16533](#)(contains no documents)}

- G01R 19/1659
- • {to indicate that the value is within or outside a predetermined range of values (window) (G01R 19/16514 , G01R 19/16519 , G01R 19/16528 and G01R 19/16533 take precedence)}
- G01R 19/18
- using conversion of dc into ac, e.g. with choppers {(DC amplifiers with modulators at input and demodulator at output H03F 3/38)}
- G01R 19/20
- • using transducers {i.e. a magnetic core transducer the saturation of which is cyclically reversed by an AC source on the secondary side (other DC current transducers, e.g. using the 0-flux principle, G01R 15/185 ; magnetic amplifiers H03F 9/00)}
- 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 19/2506
- • {Arrangements for conditioning or analysing measured signals, e.g. for indicating peak values (G01R 19/003 takes precedence); Details concerning sampling, digitizing or waveform capturing (displaying waveforms G01R 13/00 ; analog sampling G01R 19/0053)}
- U G01R 23/00 Arrangements for measuring frequencies; Arrangements for analysing frequency spectra (frequency discriminators H03D ; { high frequency probes G01R 1/06772})**
- G01R 23/02
- Arrangements for measuring frequency, e.g. pulse repetition rate {(using vibrating reeds G01R 9/04)}; Arrangements for measuring period of current or voltage (measuring short-time intervals G04F)
- G01R 23/16
- Spectrum analysis; Fourier analysis {(computing with Fourier series or Walsh functions G06F 17/14 , G06G 7/19 ; spectral data processing)}
- G01R 23/20
- • Measurement of non-linear distortion, {e.g. harmonics or noise, (G01R 31/31708 takes precedence; noise figure G01R 29/26)}
- G01R 27/00 Arrangements for measuring resistance, reactance, impedance, or electric characteristics derived therefrom {(measuring super-conductive properties G01R 33/1238)}**
- U G01R 29/00 Arrangements for measuring or indicating electric quantities not covered by groups G01R 19/00 to G01R 27/00**
- G01R 29/08
- Measuring electromagnetic field characteristics {(measuring electrostatic fields G01R 29/12 ; for determining a voltage G01R 15/14 ; measuring magnetic fields G01R 33/00 ; Measuring or estimating received signal strength H04B 17/318)}
- G01R 29/26
- Measuring noise figure; Measuring signal-to-noise ratio {Measuring jitter, i.e. phase noise, (distortion G01R 23/20 ; noise measuring in individual transistors G01R 31/2616 , G01R 31/2626)}
- 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 ; data processing equipment for testing or function monitoring G06F15/20B} ; 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})**

- G01R 31/02
  - Testing of electric apparatus, lines or components, for short-circuits, discontinuities, leakage {of current}, or incorrect line connection {(G01R 31/001 , G01R 31/005 , G01R 31/01 , G01R 31/08 , G01R 31/12 , G01R 31/24 , G01R 31/26 , G01R 31/28 , G01R 31/327 , G01R 31/34 , G01R 31/36 , G01R 31/40 , G01R 31/44 take precedence; measuring electromagnetic field leakage G01R 29/0821 ; testing of sparking plugs H01T 13/58)}
- G01R 31/04
  - • Testing connections, e.g. of plugs, of non-disconnectable joints {(G01R 31/31717 takes precedence; testing of connections in integrated circuits, chip-to-lead connections, bond wires G01R 31/2853)}
- G01R 31/046
  - • • {of connections between components and printed circuit boards (PCB`s)}(G01R 31/043 takes precedence)}
- 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)
- G01R 31/265
  - • Contactless testing {(of circuits, also in wafer-form G01R 31/302)}
- G01R 31/27
  - • Testing of devices without physical removal from the circuit of which they form part, e.g. compensating for effects surrounding elements {(testing printed circuit boards G01R 31/2801)}
- 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})
- 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 31/2851
  - • {Testing of integrated circuits (IC) (G01R 31/317 takes precedence; testing individual devices G01R 31/26 ; testing printed circuits G01R 31/2801)}
- G01R 31/2894
  - • • {Aspects of quality control (QC) (G01R 31/31718 takes precedence; program control for QC G05B 19/41875)}
- U G01R 31/302
  - • Contactless testing (non contact-making probes G01R 1/07){(G01R 31/04 takes precedence)}
- G01R 31/305
  - • • using electron beams {(investigating or analysing materials by measuring photoelectric effect G01N 23/227)}
- G01R 31/308
  - • • using non-ionising electromagnetic radiation, e.g. optical radiation {(investigating or analysing materials by the use of optical means G01N 21/00; image analysis G06T 7/00)}
- G01R 31/311
  - • • of integrated circuits {(G01R 31/31728 takes precedence)}
- G01R 31/316
  - • Testing of analog circuits {(G01R 31/2851 takes precedence)}
- G01R 31/3167
  - • Testing of combined analog and digital circuits {(testing ADC`s H03M 1/1071)}

- U G01R 31/317
- • Testing of digital circuits
- WARNING
- The following subgroups of [G01R 31/317](#) are not complete due to an ongoing reorganisation : [G01R 31/31702](#) , [G01R 31/31708](#) , [G01R 31/31711](#) , [G01R 31/31717](#) , [G01R 31/31718](#) , [G01R 31/31728](#) , [G01R 31/31901](#) . See also [G01R 31/317](#) and its other subgroups
- U G01R 31/3181
- • • Functional testing ([G01R 31/3177](#) takes precedence)
- G01R 31/319
- • • • Tester hardware, i.e. output processing circuit {(logic analyzers [G01R 31/3177](#) , Memory tester hardware [G11C 29/56](#))}
- G01R 31/3193
- • • • • with comparison between actual response and known fault free response {(receiver details [G01R 31/31924](#))}
- U G01R 31/36
- Apparatus for testing electrical condition of accumulators or electric batteries, e.g. capacity or charge condition (accumulators combined with arrangements for measuring, testing or indicating condition [H01M 10/48](#) ; circuit arrangements for charging, or depolarising batteries or for supplying loads from batteries [H02J 7/00](#) ; { Coulomb meters [G01R 22/00](#) ; indicating the condition of the power supply in clocks or watches [G04C 10/04](#) ; methods for controlling fuel cells [H01M 8/04298](#)})
- NOTE
- This group covers arrangements for measuring, testing or indicating electrical conditions or variables of accumulators or electric batteries. Accumulators combined with arrangements for measuring, testing or indicating condition, or arrangements for measuring, testing or indicating conditions or variables other than electrical, e.g. level or density of battery electrolyte, are covered by the group [H01M 10/48](#) and subgroups
- G01R 31/3606
- • {Monitoring, i.e. measuring or determining some variables continuously or repeatedly over time, e.g. current, voltage, temperature, state-of-charge [SoC] or state-of-health [SoH]} ([G01R 31/3627](#) , [G01R 31/3644](#) take precedence)}
- U G01R 31/3627
- • {Testing, i.e. making a one-time determination of some variables, e.g. testing ampere-hour charge capacity ([G01R 31/3644](#) takes precedence)}
- G01R 31/3634
- • • {for determining the ampere-hour charge capacity or state-of-charge (SoC)} ([G01R 31/3631](#) takes precedence)}
- U G01R 33/00 Arrangements or instruments for measuring magnetic variables**
- U 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](#) .
- G01R 33/025
- • Compensating stray fields {(compensating compasses [G01C 17/38](#)) ([G01R 33/0017](#) takes precedence)}
- G01R 33/032
- • using magneto-optic devices, e.g. Faraday,{Cotton-Mouton effect}(magneto-optics in general [G02F 1/09](#))}
- G01R 33/035
- • using superconductive devices {(manufacture of superconducting elements [H01L 39/00](#))}
- G01R 33/038
- • using permanent magnets, e.g. balances, torsion devices {(electro-dynamic magnetometers [G01R 33/028](#))}

- G01R 33/06
  - • using galvano-magnetic devices, e.g. Hall effect devices; using magneto-resistive devices [{\(manufacture of galvano-magnetic elements H01L 43/00\)}](#)
- 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](#)})
- U G01R 33/24
  - • for measuring direction or magnitude of magnetic fields or magnetic flux
- G01R 33/26
  - • • using optical pumping [{\(optical pumping in general G01N 24/006\)}](#)
- U 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
- U G01R 33/32
  - • • Excitation or detection systems, e.g. using radio frequency signals
- G01R 33/34
  - • • • Constructional details, e.g. resonators,{specially adapted to MR (aerials in general [H01Q](#))}
- G01R 33/44
  - • using nuclear magnetic resonance [NMR] ([G01R 33/24](#) , [G01R 33/62](#) take precedence)
  - WARNING  
Groups [G01R33/44B](#) - [G01R 33/443](#) are not complete pending reclassification. See also this group
- U G01R 33/48
  - • • NMR imaging systems
- U G01R 33/54
  - • • • Signal processing systems, e.g. using pulse sequences,{Generation or control of pulse sequences (in general [H03K](#)); Operator Console}
- G01R 33/56
  - • • • • Image enhancement or correction, e.g. subtraction or averaging techniques,{e.g. improvement of signal-to-noise ratio and resolution [\(image data processing in general G06T\)}](#)
- G01R 35/00**

**Testing or calibrating of apparatus covered by the preceding groups [{\(G01R 31/31901 takes precedence\)}](#)**

**Project: N/A (G01S)**

- U G01S 1/00
 

**Beacons or beacon systems transmitting signals having a characteristic or characteristics capable of being detected by non-directional receivers and defining directions, positions, or position lines fixed relatively to the beacon transmitters; Receivers co-operating therewith (position fixing by co-ordinating a plurality of determinations of direction or position lines [G01S 5/00](#))**
- U G01S 1/02
  - using radio waves ([G01S 19/00](#) takes precedence)
- G01S 1/08
  - • Systems for determining direction or position line [{\(aerial arrangements for changing or varying the orientation or the shape of the directional pattern \[H01Q 3/00\]\(#\) ; combinations of different interacting units for giving a desired directional characteristic \[H01Q 21/29\]\(#\) ; aerials or aerial systems providing at least two radiation patterns \[H01Q 25/00\]\(#\)\)}](#)
- G01S 1/20
  - • • using a comparison of transit time of synchronised signals transmitted from non-directional aerials or aerial systems spaced apart, i.e. path-difference systems [{\(synchronisation in general H03L 7/00\)}](#)
- U G01S 3/00
 

**Direction-finders for determining the direction from which infrasonic, sonic, ultrasonic, or electromagnetic waves, or particle emission, not having a directional significance, are being received (position fixing by co-ordinating a plurality of determinations of direction or position lines [G01S 5/00](#) ; for geophysical measurement [G01C](#) ; telescope mountings [G02B](#))**
- U G01S 3/02
  - using radio waves

- G01S 3/14
- • Systems for determining direction or deviation from predetermined direction [H01Q 3/00](#) ; combinations of different interacting aerial units for giving a desired directional characteristic [H01Q 21/29](#) ; aeriels or aerial systems providing at least two radiation patterns [H01Q 25/00](#)}}
- G01S 5/00**
- Position-fixing by co-ordinating two or more direction or position line determinations; Position-fixing by co-ordinating two or more distance determinations** [G01S 13/00](#) , [G01S 15/00](#) , [G01S 17/00](#)}}
- U G01S 7/00**
- Details of systems according to groups [G01S 13/00](#) , [G01S 15/00](#) , [G01S 17/00](#) (apparatus for measuring unknown time-intervals by electronic means, e.g. Vernier method [G04F 10/00](#))**
- U G01S 7/02
- of systems according to group [G01S 13/00](#)
- U G01S 7/04
- • Display arrangements
- U G01S 7/06
- • • Cathode-ray tube displays {or other two-dimensional or three-dimensional displays (cathode ray oscilloscopes in general [G01R 13/20](#))}
- WARNING
- Groups [G01S 7/062](#) - [G01S 7/24](#) are not complete pending a reorganization. See provisionally [G01S 7/06](#)
- G01S 7/10
- • • Providing two-dimensional and co-ordinated display of distance and direction [G01R 13/208](#)}}
- G01S 7/20
- • • Stereoscopic displays; Three-dimensional displays; Pseudo-three-dimensional displays [G01R 13/206](#)}}
- G01S 7/22
- • • Producing cursor lines and indicia by electronic means [G01R 13/30](#)}}
- U G01S 7/52
- of systems according to group [G01S 15/00](#)
- G01S 7/523
- • Details of pulse systems [G01S 7/52017](#) ; methods or devices for transmitting, conducting or directing sound [G10K 11/18](#)}}
- U G01S 7/526
- • • Receivers
- G01S 7/527
- • • Extracting wanted echo signals [G01S 15/50](#)}}
- G01S 7/529
- • • Gain of receiver varied automatically during pulse-recurrence period [G01V 1/245](#)}}
- G01S 7/534
- • Details of non-pulse systems [G01S 7/52017](#)}}
- G01S 7/537
- • Counter-measures or counter-counter-measures, e.g. jamming, anti-jamming [H04K](#)}}
- G01S 7/56
- • Display arrangements [G01S 7/52053](#)}}
- U G01S 13/00**
- Systems using the reflection or reradiation of radio waves, e.g. radar systems; Analogous systems using reflection or reradiation of waves whose nature or wavelength is irrelevant or unspecified (using acoustic waves [G01S 15/00](#) ; using electromagnetic waves other than radio waves [G01S 17/00](#))**

NOTES

1. This group covers :

- systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;

- systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.
2. This group does not cover :
- systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups [G01S 1/00](#) or [G01S 3/00](#) ;
  - systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group [G01S 11/00](#) .
- U G01S 13/02 • Systems using reflection of radio waves, e.g. primary radar systems; Analogous systems
- U G01S 13/50 • • Systems of measurement based on relative movement of target
- G01S 13/52 • • • Discriminating between fixed and moving objects or between objects moving at different speeds {(coherent receivers [G01S 7/288](#))}
- U G01S 13/522 • • • • using transmissions of interrupted pulse modulated waves
- U G01S 13/524 • • • • • based upon the phase or frequency shift resulting from movement of objects, with reference to the transmitted signals, e.g. coherent MTI (coherent receivers [G01S 7/288](#))
- G01S 13/5248 • • • • • {combining a coherent MTI processor with a zero Doppler processing channel and a clutter mapped memory, e.g. MTD (Moving target detector), (area MTI [G01S 13/538](#))}
- U G01S 13/526 • • • • • performing filtering on the whole spectrum without loss of range information, e.g. using delay line cancellers or comb filters; {([G01S 13/5244](#) takes precedence)}
- G01S 13/56 • • • • for presence detection {(presence detection using near field arrangements [G01V 3/00](#) , e.g. [G01V 3/08](#) , [G01V 3/12](#) ; burglar, theft or intruder alarms with electrical actuation [G08B 13/22](#) - [G08B 13/26](#))}
- G01S 13/58 • • • Velocity or trajectory determination systems; Sense-of-movement determination systems {(systems applied to the controlling of traffic [G01S 13/92](#))}
- G01S 13/62 • • • • Sense-of-movement determination {([G01S 13/589](#) takes precedence)}
- U G01S 13/74 • Systems using reradiation of radio waves, e.g. secondary radar systems; Analogous systems
- U G01S 13/76 • • wherein pulse-type signals are transmitted
- G01S 13/762 • • • {with special measures concerning the radiation pattern, e.g. S.L.S. (aerials or aerial systems providing at least two radiation patterns e.g. providing sum and difference patterns, [H01Q 25/00](#))}
- G01S 13/78 • • • discriminating between different kinds of targets, e.g. IFF-radar, i.e. identification of friend or foe {([G01S 13/75](#) , [G01S 13/767](#) take precedence)}
- G01S 13/86 • Combinations of radar systems with non-radar systems, e.g. sonar, direction finder {(Combination of sonar systems with non-sonar or non-radar systems [G01S 15/025](#) ; combination of lidar systems with systems other than lidar, radar or sonar [G01S 17/023](#))}
- U G01S 15/00 **Systems using the reflection or reradiation of acoustic waves, e.g. sonar systems**

NOTES

1. This group covers :
- systems for detecting the presence of an object, e.g. by reflection or reradiation from the object itself, or from a transponder associated with

- the object, for determining the distance or relative velocity of an object, for providing a co-ordinated display of the distance and direction of an object or for obtaining an image thereof;
- systems arranged for mounting on a moving craft or vehicle and using the reflection of waves from an extended surface external to the craft, e.g. the surface of the earth, to determine the velocity and direction of motion of the craft relative to the surface.
2. This group does not cover :
- systems for determining the direction of an object by means not employing reflection or reradiation, which are covered by groups [G01S 1/00](#) or [G01S 3/00](#) ;
  - systems for determining distance or velocity of an object by means not employing reflection or reradiation, which are covered by group [G01S 11/00](#) .
- U G01S 15/02      · using reflection of acoustic waves ([G01S 15/66](#) takes precedence)
- U G01S 15/50      · · Systems of measurement, based on relative movement of the target
- G01S 15/58      · · · Velocity or trajectory determination systems; Sense-of-movement determination systems {(velocity measurement in imaging systems [G01S 15/8979](#))}
- G01S 15/62      · · · · Sense-of-movement determination {([G01S 15/588](#) takes precedence)}
- G01S 15/74      · Systems using reradiation of acoustic waves, e.g. IFF, i.e. identification of friend or foe {(teaching or practice apparatus for gun-arming or gun-laying using reflecting targets or active targets [F41G 3/26](#))}
- U G01S 17/00      **Systems using the reflection or reradiation of electromagnetic waves other than radio waves, e.g. lidar systems (photogrammetry or videogrammetry [G01C 11/00](#))**
- NOTE
- The note after group [G01S 13/00](#) also applies to this group.
- G01S 17/74      · Systems using reradiation of electromagnetic waves other than radio waves, e.g. IFF, i.e. identification of friend or foe {(teaching or practice apparatus for gun-arming or gun-laying using reflecting targets or active targets [F41G 3/26](#))}
- U G01S 19/00      **Satellite radio beacon positioning systems; Determining position, velocity or attitude using signals transmitted by such systems**
- NOTE
- In this group, or in the patent documents classified in this group, the following abbreviations are often used:
- PDOP = Position Dilution of Precision
  - RAIM = Receiver Autonomous Integrity Monitoring
- U G01S 19/01      · Satellite radio beacon positioning systems transmitting time-stamped messages, e.g. GPS [Global Positioning System], GLONASS [Global Orbiting Navigation Satellite System] or GALILEO
- U G01S 19/13      · · Receivers
- G01S 19/24      · · · Acquisition or tracking {or demodulation}of signals transmitted by the system {(synchronisation aspects of direct sequence spread spectrum modulation [H04B 1/7073](#))}
- G01S 19/29      · · · · carrier,{including Doppler,}related {([G01S 19/246](#) takes precedence)}
- G01S 19/30      · · · · code related {([G01S 19/246](#) takes precedence)}

**Project: N/A (G01T)**

- U G01T 1/00 Measuring X-radiation, gamma radiation, corpuscular radiation, or cosmic radiation (G01T 3/00 , G01T 5/00 take precedence)**
- U G01T 1/02 . Dosimeters (G01T 1/15 takes precedence, measuring exposure time to X-rays [H05G 1/28](#))
- U G01T 1/10 . Luminescent dosimeters
- G01T 1/11 . . Thermo-luminescent dosimeters {(thermo-luminescent compositions [C09K 11/00](#))}
- U G01T 1/16 . Measuring radiation intensity (G01T 1/29 takes precedence; { self-powered detectors [G01T 3/006](#) ; using an ionisation chamber filled with a liquid or solid, e.g. frozen liquid, dielectric [G01T 3/008](#)})
- G01T 1/161 . . Application in the field of nuclear medicine, e.g. in vivo counting {(apparatus for radiation diagnosis [A61B 6/00](#))}
- G01T 1/163 . . . Whole body counters {(hand or feet contamination measurement [G01T 1/167](#) ; lung, brain, thyroid, kidney or the like counting [G01T 1/16](#))}
- U G01T 1/164 . . . Scintigraphy (radioisotopes [G21G 4/00](#) ; tracers [G21H 5/00](#) ; { measurement of spatial distribution [G01T 1/2914](#) ; apparatus for radiation diagnosis in different planes [A61B 6/02](#)})
- U G01T 1/166 . . . . involving relative movement between detector and subject {(scanners in general without using scintigraphy [G01T 1/2964](#))}
- G01T 1/1663 . . . . . {Processing methods of scan data, e.g. involving contrast enhancement, background reduction, smoothing, motion correction, dual radio-isotope scanning, computer processing (for measuring spatial distribution of radiation [G01T 1/2992](#) ; general purpose image data processing [G06T 1/00](#) ; computerized tomography [G06T 11/003](#); Ancillary equipment (colour printers [G01T 1/1666](#))}
- G01T 1/169 . . Exploration, location of contaminated surface areas (prospecting by the use of nuclear radiation e.g. of natural or induced radioactivity [G01V 5/00](#)){in situ measurement, e.g. floor contamination monitor (directional detectors [G01T 1/2907](#))}
- G01T 1/17 . . Circuit arrangements not adapted to a particular type of detector {(pulse-selection circuits [H03K](#) , [G01R](#))}
- G01T 1/26 . . with resistance detectors {(photoresistors [H01L 31/00](#))}
- G01T 1/28 . . with secondary-emission detectors (secondary-electron-emitting electrodes in general [H01J 1/32](#)){optionally combined with scintillation counters (secondary emission tubes [H01J 43/00](#))}
- U G01T 1/29 . Measurement performed on radiation beams, e.g. position or section of the beam; Measurement of spatial distribution of radiation (scintigraphy [G01T 1/164](#) ; mass-spectrometers [H01J 49/025](#))
- U G01T 1/2914 . . {Measurement of spatial distribution of radiation}
- G01T 1/2985 . . . {In depth localisation e.g. using positron emitters; Tomographic imaging (longitudinal and transverse section imaging; apparatus for radiation diagnosis sequentially in different planes, stereoscopic radiation diagnosis); (using external radiation sources [A61B 6/02](#))}
- G01T 1/30 . Measuring half-life of a radioactive substance {(period meters for nuclear fission reactors [G21C 17/14](#))}
- G01T 1/36 . Measuring spectral distribution of X-rays or of nuclear radiation {spectrometry (pulse selection circuits per se [H03K](#) ; investigation of materials by radiation diffraction [G01N 23/20](#) ; spectrometer tubes [H01J 49/00](#))}
- G01T 1/38 . . Particle discrimination and measurement of relative mass, e.g. by measurement of loss of energy with distance (dE/dx) {(constructional details of semiconductor detectors therefor [H01L 31/00](#))}

- G01T 1/40
- • Stabilisation of spectrometers {(circuits specially adapted for scintillation detectors [G01T 1/208](#))}
- U G01T 5/00**      **Recording of movements or tracks of particles (spark chambers [H01J 47/00](#)); Processing or analysis of such tracks**
- U G01T 5/12
- Circuit arrangements with multi-wire or parallel-plate chambers, e.g. spark chambers (tubes per se [H01J 47/00](#))
- G01T 5/122
- • {for readout of each individual wires; {(readout in such chambers per se [H01J 47/16](#)); for processing the output signals}
- 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](#))}
- G01T 7/08
- Means for conveying samples received {(i.e. sample changers [G01N 35/00](#))}

**Project: N/A (G01V)**

- 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](#))}**
- G01V 3/12
- operating with electromagnetic waves {(operating with millimetre waves [G01V 8/005](#))}
- U G01V 3/15
- specially adapted for use during transport, e.g. by a person, vehicle or boat
- G01V 3/17
- • operating with electromagnetic waves {(operating with millimetre waves [G01V 8/005](#))}
- U G01V 5/00**      **Prospecting or detecting by the use of nuclear radiation, e.g. of natural or induced radioactivity (determining the properties of materials [G01N](#); measuring nuclear radiation [G01T](#))**
- WARNING  
Pending reclassification, the subgroups of this group are not complete; see also this group
- U G01V 5/04
- specially adapted for well-logging
- G01V 5/08
- • using primary nuclear radiation sources or X-rays {(e.g. for inducing radioactivity; investigating or analysing materials by the use of wave or particle radiation, e.g. X-rays, neutrons [G01N 23/00](#))}
- G01V 5/10
- • • using neutron sources {(neutron generating tubes [H05H 5/00](#) ; neutron sources using isotopes [G21G 4/00](#))}
- G01V 5/12
- • • using gamma or X-ray sources {(gamma sources using isotopes [G21G 4/00](#) ; X-ray tubes [H01J 35/00](#))}

**Project: N/A (G02B)**

- U G02B 3/00**      **Simple or compound lenses (artificial eyes [A61F 2/14](#) ; spectacle lenses or contact lenses for the eyes [G02C](#) ; watch or clock glasses [G04B 39/00](#))**
- U G02B 3/02
- with non-spherical faces ([G02B 3/10](#) takes precedence)
- G02B 3/08
- • with discontinuous faces, e.g. Fresnel lens {(diffractive Fresnel lenses [G02B 5/1876](#))}

- U G02B 5/00**      **Optical elements other than lenses (light guides [G02B 6/00](#) ; optical logic elements [G02F 3/00](#))**
- G02B 5/08      • Mirrors {(vehicle mirrors involving special optical features [B60R 1/08](#))}
- G02B 5/18      • Diffraction gratings {(holographic optical elements [G02B 5/32](#) , [G03H](#); integrally combined with optical fibres [G02B 6/02057](#); for coupling light guides [G02B 6/34](#) ; integrally combined with optical integrated light guides [G02B 6/12](#) ;grating systems [G02B 27/44](#))}
- 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 6/00**      **Light guides**
- U G02B 6/02      • Optical fibre with cladding {with or without a coating}(mechanical structures for providing tensile strength and external protection [G02B 6/44](#))
- G02B 6/028      • • with core or cladding having graded refractive index {([G02B 6/02033](#) , [G02B 6/02295](#) take precedence)}
- G02B 6/036      • • core or cladding comprising multiple layers {(multicore optical fibres [G02B 6/02042](#) ; microstructured properties [G02B 6/02295](#) ; omniguide fibres [G02B 6/023](#))}
- U G02B 6/10      • of the optical waveguide type ([G02B 6/02](#) , [G02B 6/24](#) take precedence; devices or arrangements for the control of light by electric, magnetic, electro-magnetic or acoustic means [G02F 1/00](#) ; transferring the modulation of modulated light [G02F 2/00](#) ; optical logic elements [G02F 3/00](#) ; optical analogue/digital converters [G02F 7/00](#) ; stores using opto-electronic devices [G11C 11/42](#) , { using electro-optical elements [G11C 13/047](#) } ; electric waveguides [H01P](#); transmission of information by optical means [H04B 10/00](#) ; multiplex systems [H04J 14/00](#))
- U G02B 6/12      • • of the integrated circuit kind (production or processing of single crystals [C30B](#) ; electric integrated circuits [H01L 27/00](#){ coupling fibres and integrated optical circuits [G02B 6/30](#)})
- G02B 6/126      • • • using polarisation effects {([G02B 6/1226](#) takes precedence)}
- U G02B 6/24      • Coupling light guides (for electric waveguides [H01P 1/00](#))
- U G02B 6/26      • • Optical coupling means ([G02B 6/36](#) , [G02B 6/42](#) take precedence)
- G02B 6/32      • • • having lens focusing means {positioned between opposed fibre ends (with lens being an integral part of the single fibre end [G02B 6/262](#))}
- G02B 6/34      • • • utilising prism or grating {([G02B 6/293](#) takes precedence)}
- U G02B 7/00**      **Mountings, adjusting means, or light-tight connections, for optical elements**
- G02B 7/02      • for lenses {(supports for magnifying lenses [G02B 25/002](#))}
- G02B 7/14      • • adapted to interchange lenses {([G02B 7/027](#) takes precedence)}
- U G02B 7/18      • for prisms; for mirrors
- U G02B 7/182      • • for mirrors {([G02B 7/181](#) takes precedence; mounting of MEMS mirrors, e.g. DMDs, [G02B 26/0833](#) } ; optical devices or arrangements using movable or deformable optical elements for controlling the intensity, colour, phase, polarisation or direction of light [G02B 26/00](#) ; { mirror arrangements in vehicles [B60R 1/02](#)})}
- U G02B 7/185      • • • with means for adjusting the shape of the mirror surface (mirrors with curved faces [G02B 5/10](#){ not in use, see [G02B 26/06](#) , [G02B 26/0825](#)})
- G02B 7/188      • • • • Membrane mirrors {(not in use, see [G02B 26/06](#) , [G02B 26/0825](#))}
- U G02B 7/192      • • • with means for minimising internal mirror stresses {not in use}
- G02B 7/195      • • • • Fluid-cooled mirrors {(not in use, see [G02B 7/181](#))}

- G02B 7/198
- • • with means for adjusting the mirror relative to its support {(not in use, see [G02B 7/1822](#) and subgroups)}
- U G02B 7/28
- Systems for automatic generation of focusing signals (measuring distance per se [G01C](#), [G01S](#); using such signals to control focus of particular apparatus, see the subclasses for the apparatus, e.g. [G03B](#), [G03F](#), [H04N](#))
- U G02B 7/30
- • using parallax triangle with a base line
- G02B 7/32
- • • using active means, e.g. light emitter {(including both an active and a passive focus detecting device [G02B 7/285](#) ; using ultrasound [G02B 7/40](#))}
- G02B 7/36
- • using image sharpness techniques{, e.g. image processing techniques for generating autofocus signals (in cameras having a solid state image sensor [H04N 5/23212](#) ; image data processing per se [G06T](#))}
- 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 13/00**
- Optical objectives specially designed for the purposes specified below (with variable magnification{in general}[G02B 15/00](#))**
- NOTE
- Unless specified in the title of the subgroups, this group and its subgroups do not cover objectives comprising reflecting surfaces, which are covered by [G02B 17/06](#) , [G02B 17/08](#) and their subgroups
- G02B 13/18
- with lenses having one or more non-spherical face, e.g. for reducing geometrical aberration {([G02B 13/002](#) takes precedence)}
- U **G02B 17/00**
- Systems with reflecting surfaces, with or without refracting elements (microscopes [G02B 21/00](#) ; telescopes, periscopes [G02B 23/00](#) ; for beam splitting or combining [G02B 27/10](#) ; for optical projection [G02B 27/18](#))**
- U G02B 17/02
- Catoptric systems, e.g. image erecting and reversing system
- G02B 17/06
- • using mirrors only {i.e. having only one curved mirror (used in non-imaging applications [G02B 19/00](#))}
- G02B 17/08
- Catadioptric systems {(used in non-imaging applications [G02B 19/00](#))}
- 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](#))**
- G02B 21/16
- adapted for ultra-violet illumination; {Fluorescence microscopes ([G02B 21/0076](#) takes precedence)}
- G02B 21/36
- arranged for photographic purposes or projection purposes ([G02B 21/18](#) takes precedence){or digital imaging or video purposes including associated control and data processing arrangements (image data processing per se [G06T](#))}
- U **G02B 23/00**
- Telescopes, e.g. binoculars; Periscopes; Instruments for viewing the inside of hollow bodies (diagnostic instruments [A61B](#)); Viewfinders (objectives [G02B 9/00](#) , [G02B 11/00](#) , [G02B 15/00](#) , [G02B 17/00](#) ; eyepieces [G02B 25/00](#)); Optical aiming or sighting devices (non-optical aspects of weapon aiming or sighting devices [F41G](#))**
- U G02B 23/02
- involving prisms or mirrors ([G02B 23/14](#) takes precedence)
- G02B 23/08
- • Periscopes {(arrangements on floating structures of underwater viewing devices [B63C 11/49](#) ; arrangement of visual watch equipment on submarines [B63G 8/38](#))}
- U G02B 23/16
- Housings; Caps; Mountings; Supports, e.g. with counterweight (cases or receptacles [A45C](#){ ; for submarine periscopes [G02B 23/08](#))}

- G02B 23/18
- for binocular arrangements {(focusing binocular pairs [G02B 7/06](#) ; adjusting pupillary distance of binocular pairs [G02B 7/12](#))}
- G02B 23/22
- Underwater equipment {(for submarine periscopes [G02B 23/08](#) ; arrangements on floating structures of underwater viewing devices [B63C 11/49](#) ; arrangement of visual watch equipment on submarines [B63G 8/38](#))}
- NOTE
- This group covers housings, mountings, supports or the like for underwater equipment other than periscopes
- U G02B 23/24
- Instruments {or systems}for viewing the inside of hollow bodies, e.g. fibrescopes
- G02B 23/26
- using light guides {(for illumination [G02B 23/2469](#))}
- U 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](#))**
- G02B 26/02
- for controlling the intensity of light {([G02B 26/004](#) takes precedence)}
- U G02B 27/00**
- Other optical systems; Other optical apparatus (means for bringing about special optical effects in shop-windows, show-cases [A47F](#) , e.g. [A47F 11/06](#) ; optical toys [A63H 33/22](#) ; designs or pictures characterised by special light effects [B44F 1/00](#))**
- G02B 27/09
- Beam shaping, e.g. changing the cross-sectional area, not otherwise provided for {(adapting the beam shape of a laser diode [G02B19/B3D](#); adapting the beam shape of an LED [G02B19/B3L](#) ; coupling into light guides using intermediate optical elements [G02B 6/4204](#) ; beam shaping specially adapted for lasers [H01S 3/005](#))}
- G02B 27/18
- for optical projection, e.g. combination of mirror and condenser and objective {(not in use, see the relevant CPC classes according to projector type, e.g. photographic, cine and overhead projectors [G03B 21/00](#) and subgroups, photographic projection printing [G03B 27/32](#) , photolithographic projectors [G03F 7/20](#) , projection television [H04N 5/74](#) , colour projection television [H04N 9/31](#))}
- U G02B 27/22
- for producing stereoscopic or other three dimensional effects (in microscopes [G02B 21/22](#) ; viewing apparatus [G02B 27/02](#) ; stereoscopic television [H04N 13/00](#))
- G02B 27/24
- involving reflecting prisms and mirrors only {(not used, see [G02B 27/22](#) and subgroups)}

**Project: N/A (G02C)**

- 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 7/06
- bifocal; multifocal; { progressive ([G02C 7/041](#) takes precedence)}

**Project: N/A (G02F)**

- U 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.
- U 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 1/11** • • based on acousto-optical elements, e.g. using variable diffraction by sound or like mechanical waves ({elasto-optic effect without wave propagation [G02F 1/0131](#) ; } acousto-optical deflection [G02F 1/33](#))
- G02F 1/116** • • • {using an optically anisotropic medium, wherein the incident and the diffracted light waves have different polarizations, e.g. acousto-optic tunable filter (AOTF) ([G02F 1/125](#) takes precedence)}
- U G02F 1/13** • • based on liquid crystals, e.g. single liquid crystal display cells (liquid crystal materials [C09K 19/00](#))
- U G02F 1/133** • • • Constructional arrangements; Operation of liquid crystal cells; Circuit arrangements (arrangements or circuits for control of liquid crystal elements in a{segment display or a}matrix, not structurally associated with these elements,{ respectively [G09G 3/18](#) and }[G09G 3/36](#))
- U G02F 1/1333** • • • • Constructional arrangements;{Manufacturing methods}([G02F 1/135](#) , [G02F 1/136](#) take precedence)
- G02F 1/1334** • • • • • based on polymer dispersed liquid crystals, e.g. microencapsulated liquid crystals,{(compositions [C09K 19/544](#))}
- G02F 1/1341** • • • • • Filling or closing of the cell {([G02F 1/133365](#) , [G02F 1/1334](#) take precedence)}
- G02F 1/1343** • • • • • Electrodes {(reflective electrodes [G02F 1/133553](#))}

- G02F 1/1347 . . . . Arrangement of liquid crystal layers or cells in which the final condition of one light beam is achieved by the addition of the effects of two or more layers or cells [{\(colour projection displays with liquid crystal valves H04N 9/3197\)}](#)
- G02F 1/135 . . . . Liquid crystal cells structurally associated with a photoconducting or a ferro-electric layer, the properties of which can be optically or electrically varied [{\(G02F 1/133348 takes precedence\)}](#)
- U G02F 1/136 . . . . Liquid crystal cells structurally associated with a semi-conducting layer or substrate, e.g. cells forming part of an integrated circuit [\(G02F 1/135 takes precedence\)](#)
- G02F 1/1362 . . . . Active matrix addressed cells [{\(G02F 1/134336 , G02F 1/134363 take precedence\)}](#)
- G02F 1/1365 . . . . . in which the switching element is a two-electrode device [{\(G02F 1/136277 takes precedence\)}](#)
- G02F 1/1368 . . . . . in which the switching element is a three-electrode device [{\(G02F 1/136277 takes precedence\)}](#)
- G02F 1/15 . . based on electrochromic elements [{\(electrochromic materials C09K 9/00\)}](#)
- U G02F 1/29 . for the control of the position or the direction of light beams, i.e deflection [\({optical coupling means G02B 6/26 ; optical-mechanical scanning in general G02B 26/10} ; static stores with electric or magnetic read-in and optical read-out G11C; lasers provided with means to change the location from which, or the direction in which, laser radiation is emitted H01S 3/101\)](#)
- G02F 1/33 . . Acousto-optical deflection devices [{\(circuit or control arrangements therefor G02F 1/113\)}](#)
- U G02F 1/35 . Non-linear optics (optical bistable devices [G02F 3/02](#) ; lasers using stimulated Brillouin or Raman effect [H01S 3/30](#))
- G02F 1/37 . . for second-harmonic generation [{\(G02F 1/3532 takes precedence\)}](#)
- U G02F 1/377 . . . in an optical waveguide structure
- G02F 1/3775 . . . . {with a periodic structure, e.g. domain inversion, for quasi-phase-matching (QPM) [\(G02F 1/383 takes precedence\)}](#)

**Project: N/A (G03B)****G03B**

**APPARATUS OR ARRANGEMENTS FOR TAKING PHOTOGRAPHS OR FOR PROJECTING OR VIEWING THEM; APPARATUS OR ARRANGEMENTS EMPLOYING ANALOGOUS TECHNIQUES USING WAVES OTHER THAN OPTICAL WAVES; ACCESSORIES THEREFOR (optical parts of such apparatus [G02B](#); systems for automatic generation of focusing signals for optical elements per se [G02B 7/28](#); photosensitive materials or processes for photographic purposes [G03C](#); apparatus for processing exposed photographic materials [G03D](#))**

NOTES

1. This subclass covers, as far as processes are concerned, only processes characterised by the use or manipulation of apparatus classifiable per se in this subclass.

2. This subclass covers:

- apparatus or methods for taking photographs using light sensitive film for image capture, apparatus, or methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means, e.g. mounting of optical elements, flashes, or their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;
- aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they

correspond to those of said apparatus or methods for taking photographs using light sensitive film, i.e. insofar not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, or their related controls insofar they are not peculiar to the presence of the EIS, e.g. exposure, focus, (opto-) mechanical motion blur (anti-shake);

- aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus or methods for projecting or viewing images using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar to the presence of the ESLM, or their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;
- (opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;
- optical viewfinders;
- remote control of cameras and projectors insofar not peculiar to the EIS or ESLM;
- optical aspects of camera modules using electronic image sensors or related constructional details;
- constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM.

3. This subclass does not cover:

- concerning cameras or projectors:
  - arrangements or methods for image capture peculiar to the presence or use of an EIS or image projection peculiar to the presence or use of an ESLM, and their related controls insofar they are peculiar to the presence or use of the EIS or ESLM, which are covered by [H04N](#);
  - processing of electrical image signals from the EIS or provided to the ESLM, which is covered by [H04N](#);
  - electronic viewfinders, e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS, which are covered by [H04N](#);
  - electrical or mechanical aspects of camera modules using electronic image sensors and related constructional details as in webcams or mobile phones, which are covered by [H04M](#), [H04N](#);
  - details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM, which are covered by [H04N](#);
  - remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated electrical image signal, which is covered by [H04N](#);
  - adaptations peculiar to the use of an EIS or ESLM or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS. which are covered by [H04N](#);
  - video cameras, TV cameras, e.g. in studios, CCTV cameras, surveillance cameras and camcorders; constructional and mechanical details related to such cameras, e.g. housings, even when not peculiar to the presence of an EIS, which are covered by [H04N 5/225](#);
  - systems or apparatus wherein the inventive contribution lies in features covered above, concerning cameras when interacting with those to be covered by [G03B](#), e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical motion-blur correction of the lens during exposure, electronic-motion blur correction of the electronic image signal based on output

signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS, which are covered by [H04N](#).

- EIS-sensor read-out, which is covered by [H04N 5/335](#);
  - processing or use of electrical image signals from the EIS for the generation of camera control signals. e.g. focusing, exposure control, electronic blur correction, display in electronic viewfinder, which are covered by [H04N 5/232](#), [H04N 5/235](#).
  - optical parts for apparatus or arrangements for taking photographs or for projecting or viewing them, which are covered by [G02B](#);
  - photosensitive materials for photographic purposes, which are covered by [G03C](#);
  - apparatus for processing exposed photographic materials; accessories therefor, which are covered by [G03D](#).
  - optical elements or arrangements associated with solid state imager structures, which are covered by [H01L 27/146](#);
4. In this subclass the following expression is used with the meaning indicated: subject to the application of Notes 1 and 2 above, "photography" is the process of recording pictures by means of capturing light on a light-sensitive medium, e.g. silver halide based chemical or an electronic image sensor. Light patterns reflected or emitted from objects expose such a light sensitive medium during a timed exposure, usually through a photographic lens in a device known as a camera.
5. In this subclass, as in subclass [H04N](#), the following terms are used with the meaning indicated:
- "camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;
  - "projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an electric image signal into an optical signal using an electronic spatial light modulator;
  - "electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;
  - "additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;
  - "electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.]

- U G03B 42/00** **Obtaining records using waves other than optical waves; Visualisation of such records by using optical means (investigating or analysing materials using electromagnetic or sonic waves [G01N](#); using radar, sonar or analogous techniques [G01S](#); {holography [G03H](#)})**
- U G03B 42/02 . using X-rays (measurement of X-radiation [G01T](#); X-ray apparatus, circuits therefor [H05G 1/00](#))
- U G03B 42/04 . . Holders for X-ray films
- G03B 42/042 . . . {for dental applications (see also [A61B 6/14](#)); (individual packages for X-ray film [G03C 3/003](#))}

**Project: N/A (G03C)**

- U G03C 1/00**      **Photosensitive materials (photosensitive materials for multicolour processes [G03C 7/00](#) ; for diffusion transfer processes [G03C 8/00](#) ; photosensitive glass [G03C 4/04](#))**
- U G03C 1/005      · Silver halide emulsions; Preparation thereof; Physical treatment thereof; Incorporation of additives therein (catalytic amounts of silver halide in dry silver systems{or thermographic systems using noble metal compounds}[G03C 1/494](#))
- U G03C 1/06      · · with non-macromolecular additives ([G03C 1/047](#) takes precedence; { combination of dyes [G03C 1/29](#)})
- U G03C 1/08      · · · Sensitivity-increasing substances
- G03C 1/10      · · · · Organic substances {([G03C 1/061](#) , [G03C 1/067](#) take precedence)}
- G03C 1/32      · · · Matting agents {(see also [G03C 1/95](#))}
- G03C 1/46      · · having more than one photosensitive layer {([G03F 7/0952](#) takes precedence)}
- G03C 1/50      · Compositions containing noble metal salts other than silver salts, as photosensitive substances {(thermographic systems using noble metal compounds [G03C 1/494](#))}
- U G03C 1/76      · Photosensitive materials characterised by the base or auxiliary layers
- U G03C 1/825      · · characterised by antireflection means or visible-light filtering means, e.g. antihalation
- G03C 1/83      · · · Organic dyestuffs therefor {(polymeric dyes [G03C 1/835](#))}
- U G03C 5/00**      **Photographic processes or agents therefor; Regeneration of such processing agents (multicolour processes or agents therefor [G03C 7/00](#) ; diffusion-transfer processes or agents therefor [G03C 8/00](#) ; stereo-photographic processes [G03C 9/00](#) ; photomechanical processes [G03F](#))**
- U G03C 5/26      · Processes using silver-salt-containing photosensitive materials or agents therefor (physical development [G03C 5/58](#))
- U G03C 5/29      · · Development processes or agents therefor ([G03C 5/38](#) , [G03C 5/50](#) take precedence)
- G03C 5/305      · · · Additives other than developers {([G03C 5/264](#) takes precedence)}
- U G03C 5/40      · · Chemically transforming developed images ([G03C 5/50](#) takes precedence)
- G03C 5/42      · · · Reducing; Intensifying {(using couplers [G03C 7/30](#))}
- U G03C 7/00**      **Multicolour photographic processes or agents therefor; Regeneration of such processing agents; Photosensitive materials for multicolour processes (diffusion transfer processes [G03C 8/00](#))**
- U G03C 7/04      · Additive processes using colour screens; Materials therefor; Preparing or processing such materials
- U G03C 7/06      · · Manufacture of colour screens
- U G03C 7/10      · · · with regular areas of colour, e.g. bands, lines, dots
- G03C 7/12      · · · · by photo-exposure {(photomechanical production of optical colour artifacts such as colour screens, for purposes other than for additive colour photography [G03F 7/0007](#))}
- U G03C 7/30      · Colour processes using colour-coupling substances; Materials therefor; Preparing or processing such materials
- G03C 7/388      · · Processes for the incorporation in the emulsion of substances liberating photographically active agents or colour-coupling substances; Solvents therefor {(incorporation of additives other than couplers [G03C 1/005](#))}
- U G03C 7/392      · · Additives ([G03C 7/30](#) to [G03C 7/32](#) take precedence)
- G03C 7/396      · · · Macromolecular additives {([G03C 7/388](#) takes precedence)}

**Project: N/A (G03F)****G03F**

**PHOTOMECHANICAL PRODUCTION OF TEXTURED OR PATTERNED SURFACES, e.g. FOR PRINTING, FOR PROCESSING OF SEMICONDUCTOR DEVICES; MATERIALS THEREFOR; ORIGINALS THEREFOR; APPARATUS SPECIALLY ADAPTED THEREFOR; (phototypographic composing devices [B41B](#); photosensitive materials or processes for photographic purposes [G03C](#); electrophotography, sensitive layers or processes therefor [G03G](#))**

NOTE

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

- "photosensitive" means not only sensitive to electro- magnetic radiation but also to corpuscular radiation;
- "photosensitive compositions" covers photosensitive substances, e.g. quinonediazides, and, if applicable, binders or additives;
- "photosensitive materials" covers the photosensitive compositions, e.g. photoresists, the bases carrying them and, if applicable, auxiliary layers.

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="#">G03F 3/08</a>	covered by	
<a href="#">H04N 1/46</a>		
<a href="#">G03F 7/207</a>	"	<a href="#">G03F 7/20</a>
<a href="#">G03F 7/23</a>	"	<a href="#">G03F 7/22</a>
<a href="#">G03F 9/02</a>	"	<a href="#">G03F 9/00</a>

**G03F 5/00**

**Screening processes; Screens therefor {(plates or light sensitive layers with incorporated screen [G03F 7/004](#))}**

**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 7/008

• • Azides ([G03F 7/075](#) takes precedence)

G03F 7/012

• • • Macromolecular azides; Macromolecular additives, e.g. binders {([G03F 7/0085](#) takes precedence)}

U G03F 7/022

• • Quinonediazides ([G03F 7/075](#) takes precedence)

G03F 7/023

• • • Macromolecular quinonediazides; Macromolecular additives, e.g. binders {([G03F 7/0226](#) takes precedence)}

U G03F 7/06

• • Silver salts ([G03F 7/075](#) takes precedence)

G03F 7/07

• • • used for diffusion transfer {([G03F 7/063](#) takes 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)}

U G03F 7/20

• Exposure; Apparatus therefor (photographic printing apparatus for making copies [G03B 27/00](#))

G03F 7/213

• • Exposing with the same light pattern different positions of the same surface at the same time {([G03F 7/70](#) takes precedence)}

- G03F 7/22
  - • Exposing sequentially with the same light pattern different positions of the same surface {(G03F 7/70 takes precedence)}
- U G03F 7/26
  - Processing photosensitive materials; Apparatus therefor (G03F 7/12 to G03F 7/24 take precedence)
- G03F 7/38
  - • Treatment before imagewise removal, e.g. prebaking {(G03F 7/265 takes precedence)}
- U G03F 7/70
  - {Exposure apparatus for microlithography}
- U G03F 7/70008
  - • {Production of exposure light, i.e. light sources}
- G03F 7/7005
  - • • {by multiple sources {(addressable array sources specially adapted to produce patterns G03F 7/70391)}

**Project: N/A (G03G)**

- 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 13/01
  - for multicoloured copies {(colour correction on photography G03B 27/725 ; picture communication systems H04N 1/46)}
- 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})**
- G03G 15/01
  - For producing multicoloured copies {(colour correction in photography G03C ; colour correction in printing plate production)}
- G03G 16/00
  - Electrographic processes using deformation of thermoplastic layers (layers for surface-deformation imaging G03G 5/022); Apparatus therefor {(shaping of plastic objects with thermoplastic memory effect B29C 61/00 ; digital stores using thermoplastic elements G11C 11/46 ; television signal recording using deformable thermoplastic recording medium H04N 5/82)}**
- U G03G 2215/00
  - Apparatus for electrophotographic processes (not used)**
- U G03G 2215/00362
  - relating to the copy medium handling (not used)
- G03G 2215/00367
  - • The feeding path segment where particular handling of the copy medium occurs, segments being adjacent and non-overlapping. Each segment is identified by the most downstream point in the segment, so that for instance the segment labelled "Fixing device" is referring to the path between the "Transfer device" and the "Fixing device" (not used)

**Project: N/A (G04B)**

- 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)**
- U G04B 19/24
  - Clocks or watches with date {or week-day} indicators,{i.e. calendar clocks or watches}; Clockwork calendars {(combination of the clockwork with an independently settable calendar G04B 47/00)}
- U G04B 19/243
  - • characterised by the shape of the date indicator
- G04B 19/257
  - • • drum-shaped {or three-dimensional shaped (G04B 19/24306 takes precedence; for electrically driven timepieces G04C 17/0083)}

- U G04B 21/00** Indicating the time by acoustic means (at preselected times [G04B 23/00](#); by electro-acoustic means [G04C 21/04](#); { indicating the time by means other than acoustically, or by combined means [G04B 25/00](#); indicating the time by visual means [G04B 19/00](#), [G04C 17/00](#); acoustic signalling arrangements [G08B 3/00](#)})
- G04B 21/005 · {Periodical acoustic signalling arrangements ([G04B 21/02](#) takes precedence); (adjustment of the frequency by setting the length of the pendulum [G04B 18/003](#); metronomes [G04F 5/02](#))}
- U 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](#))}
- U G04B 37/06** · Forming the passage for the winding stem through the case; Divided winding stems {(watertight protection means for the winding stem [G04B 37/10](#); fixing the knob to the case [G04B 37/1466](#); winding and setting the hands with the winding stem with clutch wheel [G04B 27/04](#), with rocking bar [G04B 27/06](#))}
- G04B 37/066 · · {Divided stem (tige brisee) (normal winding stems [G04B 3/041](#))}

**Project: N/A (G05D)**

- 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](#))
- U G05D 1/02** · Control of position or course in two dimensions
- G05D 1/03 · · using near-field transmission systems, e.g. inductive-loop type {([G05D 1/021](#) and subgroups take precedence)}
- U G05D 7/00** Control of flow (level control [G05D 9/00](#) ; ratio control [G05D 11/00](#) ; of media to the human body [A61M 5/168](#) ; weighing apparatus [G01G](#))
- G05D 7/03 · with auxiliary non-electric power {([G05D 7/005](#) takes precedence)}
- G05D 7/06 · characterised by the use of electric means {([G05D 7/005](#) takes precedence)}
- U G05D 13/00** Control of linear speed; Control of angular speed; Control of acceleration or deceleration, e.g. of a prime mover (synchronising telegraph receiver and transmitter [H04L 7/00](#))
- G05D 13/62 · characterised by the use of electric means, e.g. use of a tachometric dynamo, use of a transducer converting an electric value into a displacement {(electric motor control [H02P](#))}

**Project: N/A (G06F)**

- U 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](#))}
- G06F 1/02 · Digital function generators {(evaluating functions by calculating only [G06F 7/544](#) , [G06F 7/60](#) ; generating sawtooth or staircase waveforms [H03K 4/00](#))}
- G06F 1/025 · · for functions having two-valued amplitude, e.g. Walsh functions {(generation of pulse trains in general [H03K 3/00](#))}

- U G06F 1/03
- working, at least partly, by table look-up ([G06F 1/025](#) takes precedence)
- NOTE  
In order to be classified in this group, the table must contain function values of the desired or an intermediate function, not merely coefficients.
- G06F 1/035
- Reduction of table size ([G06F 1/0314](#) takes precedence)
- U G06F 1/04
- Generating or distributing clock signals or signals derived directly therefrom
- G06F 1/06
- Clock generators producing several clock signals ([G06F 1/08](#) to [G06F 1/14](#) take precedence)
- U G06F 1/16
- Constructional details or arrangements (instrument details [G12B](#))
- G06F 1/18
- Packaging or power distribution (for electrical apparatus in general [H05K](#), [H02J](#))
- U G06F 1/181
- Enclosures (for electric apparatus in general [H05K 5/00](#); for portable computers [G06F 1/1613](#))
- G06F 1/182
- with special features, e.g. for use in industrial environments; grounding or shielding against radio frequency interference [RFI] or electromagnetical interference (EMI) (in general [H05K 9/00](#))
- U G06F 3/00**
- 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 [B41J](#); conversion of physical variables [F15B 5/00](#), [G01](#); image acquisition [G06T 1/00](#), [G06F 9/00](#); coding, decoding or code conversion in general [H03M](#); transmission of digital information [H04L](#); (in regulating or control systems [G05B](#)))**
- U G06F 3/01
- Input arrangements or combined input and output arrangements for interaction between user and computer ([G06F 3/16](#) 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](#))
- U G06F 3/023
- Arrangements for converting discrete items of information into a coded form, e.g. arrangements for interpreting keyboard generated codes as alphanumeric codes, operand codes or instruction codes (coding in connection with keyboards or like devices in general [H03M 11/00](#))
- G06F 3/027
- for insertion of decimal point (display of decimal point [G06F 3/1407](#); complete desk- top or hand- held calculators [G06F 15/02](#))
- U G06F 3/03
- Arrangements for converting the position or the displacement of a member into a coded form
- G06F 3/033
- Pointing devices displaced or positioned by the user, e.g. mice, trackballs, pens or joysticks; Accessories therefor (constructional details of joysticks [G05G 9/047](#); arrangement for interfacing a joystick to a computer [G06F 3/038](#))
- U G06F 3/041
- Digitisers, e.g. for touch screens or touch pads, characterized by the transducing means
- G06F 3/042
- by opto-electronic means (pens detecting optically their absolute position with respect to a coded surface [G06F 3/0317](#))
- U G06F 5/00**
- Methods or arrangements for data conversion without changing the order or content of the data handled (by coding or decoding [H03M](#))**
- G06F 5/01
- for shifting, e.g. justifying, scaling, normalising (digital stores in which the information is moved stepwise, e.g. shift-registers [G11C 19/00](#); digital stores in which the information circulates [G11C 21/00](#))

- G06F 5/06
  - for changing the speed of data flow, i.e. speed regularising {or timing, e.g. delay lines, FIFO buffers; over- or underrun control therefor; [G06F 7/78](#) takes precedence}}
- G06F 5/08
  - · having a sequence of storage locations, the intermediate ones not being accessible for either enqueue or dequeue operations, e.g. using a shift register [G06F 5/065](#) takes precedence; shift registers per se [G11C 19/00](#)
- G06F 5/10
  - · having a sequence of storage locations each being individually accessible for both enqueue and dequeue operations, e.g. using random access memory [G06F 5/065](#) takes precedence}}
- 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 7/22
  - Arrangements for sorting or merging computer data on continuous record carriers, e.g. tape, drum, disc
- U G06F 7/24
  - · Sorting, i.e. extracting data from one or more carriers, rearranging the data in numerical or other ordered sequence, and rerecording the sorted data on the original carrier or on a different carrier or set of carriers {sorting methods in general}[G06F 7/36](#) takes precedence)
- G06F 7/26
  - · · the sorted data being recorded on the original record carrier within the same space in which the data had been recorded prior to their sorting, without using intermediate storage {(contains no documents, see [G06F 7/24](#))}
- 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
- U G06F 7/483
  - · · Computations with numbers represented by a non-linear combination of denominational numbers, e.g. rational numbers, logarithmic number system, floating-point numbers (conversion to or from floating-point codes [H03M 7/24](#))[G06F 7/4806](#) , [G06F 7/4824](#) , [G06F 7/49](#) , [G06F 7/491](#) , [G06F 7/544](#) take precedence)}
- G06F 7/485
  - · · · Adding; Subtracting [G06F 7/4833](#) , [G06F 7/4836](#) take precedence}}
- G06F 7/487
  - · · · Multiplying; Dividing [G06F 7/4833](#) , [G06F 7/4836](#) take precedence}}
- G06F 7/491
  - · · Computations with decimal numbers {radix 12 or 20. [G06F 7/4824](#) takes precedence)}
- U G06F 7/50
  - · · Adding; Subtracting ([G06F 7/483](#) to [G06F 7/491](#) , [G06F 7/544](#) take precedence)
- U G06F 7/501
  - · · · Half or full adders, i.e. basic adder cells for one denomination (EXCLUSIVE-OR circuits [H03K 19/21](#))
- G06F 7/502
  - · · · · Half adders; Full adders consisting of two cascaded half adders [G06F 7/5013](#) takes precedence}}
- U G06F 7/52
  - · · Multiplying; Dividing ([G06F 7/483](#) to [G06F 7/491](#) , [G06F 7/544](#) take precedence)
- U G06F 7/535
  - · · · Dividing only
- G06F 7/537
  - · · · · Reduction of the number of iteration steps or stages, e.g. using the Sweeny-Robertson-Tocher (SRT) algorithm [G06F 7/535](#) or [G06F 7/5375](#))}
- G06F 7/58
  - Random or pseudo-random number generators {(random pulse generators [H03K 3/84](#) ; secret telegraphic communication [H04L 9/00](#) ; lottery apparatus [G07C 15/00](#))}

- 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 7/70
- • using stochastic pulse trains, i.e. randomly occurring pulses the average pulse rates of which represent numbers {(conversion of analogue signals into stochastic pulse trains and vice-versa [H03M 1/04](#))}
- U G06F 7/72
- • using residue arithmetic
- G06F 7/723
- • • {Modular exponentiation ([G06F 7/724](#)), ([G06F 7/727](#)), ([G06F 7/728](#) take precedence)}
- G06F 7/74
- Selecting or encoding within a word the position of one or more bits having a specified value, e.g. most or least significant one or zero detection, priority encoders {(with shifting [G06F 5/01](#))}
- U G06F 9/00**
- Arrangements for programme control, e.g. control unit (programme control for peripheral devices [G06F 13/10](#) ; in regulating or control systems [G05B](#))**
- U G06F 9/06
- using stored programme, i.e. using internal store of processing equipment to receive and retain programme
- U G06F 9/30
- • Arrangements for executing machine-instructions, e.g. instruction decode (for executing micro-instructions [G06F 9/22](#) ; for executing subprogrammes **G06F9/40**)
- U G06F 9/34
- • • Addressing or accessing the instruction operand or the result; {Formation of operand address; Addressing modes (address translation [G06F 12/00](#))}
- G06F 9/345
- • • • of multiple operands or results {(addressing multiple banks [G06F 12/06](#))}
- U G06F 9/44
- • Arrangements for executing specific programmes
- G06F 9/445
- • • Programme loading or initiating {(bootstrapping [G06F 9/4401](#) ; movement of software or configuration parameters for network-specific applications [H04L 67/34](#))}
- U G06F 9/455
- • • Emulation; Software simulation{, i.e. virtualisation or emulation of application or operating system execution engines (instruction translation at instruction execution time [G06F 9/3017](#) ; multiprogramming in general [G06F 9/46](#) ; logical partitioning of resources or management or configuration of virtualized resources [G06F 9/5077](#) ; in-circuit emulation [G06F 11/3652](#) ; environments for testing or debugging software [G06F 11/3664](#))}
- U G06F 9/45533
- • • • {Hypervisors; Virtual machine monitors}
- U G06F 9/45558
- • • • • {Hypervisor-specific management and integration aspects}
- G06F 2009/45579
- • • • • • {I/O management (device drivers, storage access) (internal functioning of device drivers [G06F 13/102](#) , loading of device drivers [G06F 9/4411](#))}

- U 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
- U G06F 11/22 · Detection or location of defective computer hardware by testing during standby operation or during idle time, e.g. start-up testing (testing of digital circuits, e.g. of separate computer components [G01R 31/317](#))
- U G06F 11/26 · · Functional testing
- G06F 11/273 · · · Tester hardware, i.e. output processing circuits {([G06F 11/263](#) takes precedence)}
- U G06F 12/00** Accessing, addressing or allocating within memory systems or architectures ({digital input or output to record carriers, e.g. to disc storage units [G06F 3/06](#)}; information storage in general [G11](#))
- G06F 12/16 · Protection against loss of memory contents {(contains no material, see [G06F 11/00](#))}
- 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](#)})
- U G06F 13/38 · Information transfer, e.g. on bus ([G06F 13/14](#) takes precedence)
- G06F 13/40 · · Bus structure {(for computer networks [G06F 15/163](#) ; for optical bus networks [H04B10/20](#))}
- U 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](#))
- G06F 15/16 · Combinations of two or more digital computers each having at least an arithmetic unit, a programme unit and a register, e.g. for a simultaneous processing of several programmes {(coordinating programme control therefor [G06F 9/52](#) ; in regulating and control system [G05B](#))}
- U G06F 17/00** Digital computing or data processing equipment or methods, specially adapted for specific functions
- G06F 17/10 · Complex mathematical operations {(function generation by table look-up [G06F 1/03](#) ; evaluation of elementary functions by calculation [G06F 7/544](#))}
- U G06F 17/20 · Handling natural language data (speech analysis or synthesis [G10L](#))
- U G06F 17/21 · · Text processing ([G06F 17/27](#) , [G06F 17/28](#) take precedence; systems for composing machines [B41B 27/00](#))
- G06F 17/22 · · · Manipulating or registering by use of codes, e.g. in sequence of text characters {(compression [H03M 7/30](#))}
- G06F 17/2247 · · · · {Tree structured documents; Markup, e.g. Standard Generalized Markup Language [SGML], Document Type Definition (DTD) (validation and parsing [G06F 17/2705](#) ; data retrieval [G06F 17/30](#) ; coding and compression [H03M 7/30](#))}
- G06F 17/24 · · · Editing, e.g. insert/delete {([G06F 17/22](#) takes precedence)}

- G06F 17/27
  - • Automatic analysis, e.g. parsing {(speech recognition, analysis or synthesis [G10L](#))}
- 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](#))}
- U 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 17/30182
  - • • {File system types}
- U G06F 17/30194
  - • • • {Distributed file systems}
- U G06F 17/30197
  - • • • • {implemented using NAS architecture (distributed or networked storage systems [G06F 3/067](#) ; protocols for distributed storage of data in a network [H04L 67/1097](#))}
- G06F 17/302
  - • • • • {Details of management specifically adapted to network area storage (NAS)}(management of NAS or SAN [G06F 3/067](#))}
- G06F 21/00**

**Security arrangements for protecting computers, components thereof, programs or data against unauthorised activity {(address-based protection against unauthorised use of memory [G06F 12/14](#) ; record carriers for use with machines and with at least a part designed to carry digital markings [G06K 19/00](#) ; preventing unauthorised reproduction or copying of disk-type recordable media [G11B 20/00](#) ; secret or secure communication [H04L 9/00](#) ; digital watermarking on images [H04N 1/32](#) ; protection in video systems or pay television [H04N 7/16](#))}**

**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
- U G06K 7/10009
  - • {sensing by radiation using wavelengths larger than 0.1 mm, e.g. radio-waves or microwaves}
  - NOTE**  
This group covers electromagnetic interrogation as radiated by the antenna of an interrogation device while interrogating a plurality of wireless electronic memory record carriers, e.g. non-contact smart cards, RFID tags or labels, or transponders
- G06K 7/10019
  - • • {resolving collision on the communication channels between simultaneously or concurrently interrogated record carriers.}(collision between the communication channels used by wireless communication devices, where the solution is not particularly adapted for RFIDs or the like, [H04W 74/08](#))}
- G06K 7/14
  - • using light without selection of wavelength, e.g. sensing reflected white light {([G06K 7/10831](#) to [G06K 7/1097](#) take precedence)}

- U 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 9/03
- Detection or correction of errors, e.g. by rescanning the pattern {(validation or performance evaluation [G06K 9/6261](#))}
- U G06K 9/20**
- G06K 9/34
- Image acquisition
  - Segmentation of touching or overlapping patterns in the image field {(segmentation by quantisation, e.g. thresholding, [G06K 9/38](#) ; edge detection for image feature extraction [G06K 9/4604](#) ; extraction of connected components or edge linking [G06K 9/4638](#) ; segmentation or edge detection for general image processing [G06T 7/0079](#))}
- U 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](#)
- G06K 9/40
- Noise filtering {(restoration for general image processing [G06T 5/001](#) ; morphologic operations for general image enhancement [G06T 5/30](#))}
- G06K 9/44
- Smoothing or thinning of the pattern {(restoration for general image processing [G06T 5/001](#) ; morphologic operations for general image enhancement [G06T 5/30](#))}
- G06K 9/46
- Extraction of features or characteristics of the image {(segmentation of touching or overlapping patterns [G06K 9/34](#) ; edge detection for feature extraction [G06K 9/4604](#) ; segmentation or edge detection for general image processing [G06T 7/0079](#))}
- U G06K 9/4671**
- {Extracting features based on salient regional features, e.g. Scale Invariant Feature Transform [SIFT] keypoints (determination of region of interest for recognition [ROI] [G06K 9/3233](#) ; extraction of specific shape primitives, e.g. corner or loop, or of configurations thereof, [G06K 9/4604](#) ; biologically-inspired systems integrating saliency maps, e.g. for modelling visual attention [G06K 9/4628](#) ; global invariant features [G06K 9/52](#))}

- G06K 9/4676
  - . . . {Extracting features based on a plurality of salient regional features, e.g. "bag of words" (saliency map with interactions such as reinforcement or inhibition [G06K 9/4623](#))}
- U G06K 9/54
  - . . Combinations of preprocessing functions
- G06K 9/56
  - . . . using a local operator, i.e. means to operate on an elementary image point in terms of the immediate surroundings of this point (local operators for general image enhancement [G06T 5/20](#))}
- U G06K 9/62
  - . Methods or arrangements for recognition using electronic means (learning machines [G06F 15/18](#) ; digital correlation [G06F 17/15](#) ; analogue correlation [G06G 7/19](#))
- U G06K 9/6267
  - . . {Classification techniques}
- U G06K 9/6268
  - . . . {relating to the classification paradigm, e.g. parametric or non-parametric approaches}
- G06K 9/6277
  - . . . . {based on a parametric (probabilistic) model, e.g. based on Neyman-Pearson lemma, likelihood ratio, Receiver Operating Characteristic (ROC) curve plotting a False Acceptance Rate (FAR) versus a False Reject Rate (FRR) (segmentation of touching or overlapping patterns involving probabilistic approaches [G06K 9/34](#) ; image connectivity analysis involving probabilistic approaches, e.g. Markov Random Fields techniques, [G06K 9/4638](#) ; segmentation involving probabilistic approaches for general image processing [G06T 7/0087](#))}
- U **G06K 11/00**

**Methods or arrangements for graph-reading or for converting the pattern of mechanical parameters, e.g. force or presence, into electrical signal (combined with character or pattern recognition [G06K 9/00](#) ; feelers for copying devices on machine tools [B23Q 35/00](#) ; arrangements for measuring areas [G01B](#); measuring force [G01L](#); adapted as input devices to computers [G06F 3/00](#) ; systems for transmitting the position of an object with respect to a predetermined reference system, e.g. tele-autographic system, [G08C 21/00](#))**

WARNING

This group and its subgroups are no longer used for the classification of new documents as from 1 January 2006. Documents relating to methods and arrangements for input to a computer are classified under [G06F 3/033](#) and [G06F 3/041](#)
- G06K 11/06
  - . Devices for converting the position of a manually operated writing or tracing member into an electrical signal (not used, see [G06F 3/03](#))}
- 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
- G06K 15/10
  - . . by matrix printers {([G06K 15/028](#) takes precedence)}
- G06K 15/14
  - . . by electrographic printing, e.g. xerography; by magnetographic printing {([G06K 15/12](#) takes precedence)}

**Project: N/A (G06Q)**

- U **G06Q 10/00**

**Administration; Management**
- G06Q 10/04
  - . Forecasting or optimisation, e.g. linear programming, "travelling salesman problem" or "cutting stock problem" (data collection specially adapted for marketing, price determination or demand forecasting [G06Q 30/02](#))}

- G06Q 10/06
- Resources, workflows, human or project management, e.g. organising, planning, scheduling or allocating time, human or machine resources; Enterprise planning; Organisational models [{\(financial asset management G06Q 40/06\)}](#)
- G06Q 10/10
- Office automation, e.g. computer aided management of electronic mail or groupware (electronic mail network systems [H04L 12/58](#) ; electronic mail protocols [H04L 29/06](#)); Time management, e.g. calendars, reminders, meetings or time accounting [{\(organizing, planning, scheduling or allocating time G06Q 10/06\)}](#)
- U G06Q 20/00**      **Payment architectures, schemes or protocols (apparatus for performing or posting payment transactions [G07F 7/08](#) , [G07F 19/00](#) ; electronic cash registers [G07G 1/12](#))**
- U G06Q 20/08
- Payment architectures
- G06Q 20/20
- Point-of-sale [POS] network systems [{\(POS per se G07F or G07G\)}](#)
- U G06Q 30/00**      **Commerce, e.g. shopping or e-commerce**
- U G06Q 30/06
- Buying, selling or leasing transactions
- G06Q 30/08
- Auctions, [{matching or brokerage \(matching or brokerage for stock exchange G06Q 40/04\)}](#)
- U G06Q 40/00**      **Finance; Insurance; Tax strategies; Processing of corporate or income taxes**
- G06Q 40/08
- Insurance, e.g. risk analysis or pensions [{\(processing of insurance policies or claims G06Q 10/10\)}](#)

**Project: N/A (G06T)**

- U G06T 5/00**      **Image enhancement or restoration, e.g. from bit-mapped to bit-mapped creating a similar image**
- G06T 5/10
- by non-spatial domain filtering [{\(applied in cameras using an electronic image sensor \[H04N 5/23229\]\(#\) , \[H04N 5/235\]\(#\) , \[H04N 5/253\]\(#\) , \[H04N 5/367\]\(#\)\)}](#)
- WARNING  
Not complete pending reclassification; see also group [G06T 5/001](#)
- G06T 5/20
- by the use of local operators [{\(applied in cameras using an electronic image sensor \[H04N 5/23229\]\(#\) , \[H04N 5/235\]\(#\) , \[H04N 5/253\]\(#\) , \[H04N 5/367\]\(#\)\)}](#)
- G06T 5/40
- by the use of histogram techniques [{\(applied in cameras using an electronic image sensor \[H04N 5/23229\]\(#\) , \[H04N 5/235\]\(#\)\)}](#)
- G06T 5/50
- by the use of more than one image, e.g. averaging, subtraction [{\(applied in cameras using an electronic image sensor \[H04N 5/23229\]\(#\) , \[H04N 5/235\]\(#\)\)}](#)
- U G06T 7/00**      **Image analysis, e.g. from bit-mapped to non bit-mapped**
- G06T 7/40
- Analysis of texture [{\(depth or shape from texture \[G06T 7/0059\]\(#\)\)}](#)

**Project: N/A (G07B)**

- U G07B 15/00**      **Arrangements or apparatus for collecting fares, tolls or entrance fees at one or more control points (handling coins or paper currency [G07D](#); apparatus for vending or hiring articles or services activated by coins, credit cards, paper currency or the like [G07F 7/00](#) , [G07F 17/00](#))**

NOTES

- Data processing aspects of payment systems or protocols relating to toll, entrance fee or fare collection, e.g. in road pricing or congestion charging, are also classified in [G06Q 20/00](#) .
- { This group covers also:

- car rental systems;
- systems for reserving and using access tickets, e.g. check-in systems }

- U G07B 15/02
- taking into account a variable factor such as distance or time, e.g. for passenger transport, parking systems or car rental systems (G07B 15/06 takes precedence; taximeters G07B 13/00 ; parking meters per se G07F 17/24 ; { car rental systems per se G07B 15/00})
- G07B 15/04
- comprising devices to free a barrier, turnstile, or the like {(turnstile with registering means G07C 9/02 ; coin-freed aspects G07F 17/00)}
- U G07B 17/00
- Franking apparatus (printing aspects B41)**
- G07B 17/02
- with means for computing or counting {(G07B 17/00975 takes precedence)}

**Project: N/A (G07D)**

- U 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 7/02
- using electric means, {e.g. detecting electric properties of banknotes (G07D 7/004, G07D 7/04, G07D 7/06 take precedence)}
- G07D 7/04
- using magnetic means, e.g. detection of magnetic imprint, {detecting magnetic properties of banknotes (G07D 7/004 takes precedence)}
- G07D 7/06
- using wave or particle radiation, {e.g. radiating waves onto the banknote (G07D 7/004 takes precedence)}
- G07D 7/18
- Testing the stiffness { or other mechanical properties, e.g. wear or tear (G07D 7/16 takes precedence)}

**Project: N/A (G07F)**

- G07F 7/00
- Mechanisms actuated by objects other than coins to free or to actuate vending, hiring, coin or paper currency dispensing or refunding apparatus {(handling coins or paper currencies apart from coin-freed or like apparatus G07D; complete banking systems G07F 19/00)}**
- G07F 7/02
- by keys or other credit registering devices {(for producing a coded signal for use together with coded identity cards G07F 7/10)}
- 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 17/38
- Ball games; Shooting apparatus {(ball games, e.g. football, golf, bowls, without coin collection A63B)}

**Project: N/A (G08B)**

- U 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](#))}**
- G08B 7/06
- using electric transmission { e.g. involving audible and visible signalling through the use of sound and light sources (walking aids for blind persons [A61H 3/06](#); facilitating escape from buildings [A62B 3/00](#))}
- U G08B 17/00** **Fire alarms; Alarms responsive to explosion (temperature-responsive elements [G01K](#); { automatic fire-extinguishing and alarm devices [A62C 35/00](#), [A62C 37/00](#); structural combination of lighting devices with smoke detectors [F21V 33/0076](#); arrangement of safety devices on stoves [F24C 7/08](#))}**
- G08B 17/10
- Actuation by presence of smoke or gases {automatic alarm devices for analysing flowing fluid materials by the use of optical means (turbidimetric analysis of gases, e.g. of smoke [G01N 21/534](#))}

**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 1/04
- Deflection circuits {Constructional details not otherwise provided for (electron-optical arrangements [H01J 29/46](#), [H01J 37/04](#), [H01J 37/302](#))}
- G09G 1/06
- using single beam tubes ([G09G 1/26](#), [G09G 1/28](#) take precedence), {e.g. three-dimensional or perspective representation, rotation or translation of display pattern, hidden lines, shadows ([G09G 1/28](#) takes precedence; stereoscopic TV-systems, details thereof [H04N 13/00](#); oscilloscopes for three-dimensional representation [G01R 13/206](#); vectorscopes [G01R 13/208](#))}
- 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-alphanumeric information, solely or in combination with alphanumeric information, e.g. digital display on projected diapositive as background (slide projectors per se [G03B 23/00](#) = 42 HP)}
- 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 3/288**
- • • • using AC panels

**WARNING**

This groups is incomplete pending reclassification; see also group [G09G 3/28](#)

- G09G 3/29
- · · · using self-shift panels { with sequential transfer of the discharges from an input position to a further display position (tubes therefor [H01J 17/49](#))}

**Project: N/A (G10H)****U G10H 5/00 Instruments in which the tones are generated by means of electronic generators ([G10H 7/00](#) takes precedence)**

- G10H 5/007
- {Real-time simulation of [G10B](#), [G10C](#), [G10D](#)-type instruments using recursive or non-linear techniques, e.g. waveguide networks, recursive algorithms (establishing the harmonic content of tones by non-linear elements [G10H 1/16](#); synthesising waveforms using a recursive algorithm [G10H 7/12](#))}

**Project: N/A (G10K)****U G10K 1/00 Devices in which sound is produced by striking a resonating body, e.g. bell, chimes, gong (combinations with clocks or watches [G04B](#) , [G04C](#) ; carillons [G10F 1/10](#) ; { for percussion instruments [G10D 13/00](#))}**

- U G10K 1/06
- the resonating devices having the shape of a bell, plate, rod, or tube (bells for towers [G10K 1/28](#))
- G10K 1/062
- · electrically operated {(self-interrupting relays [H01H 51/34](#))}
- U G10K 1/063
- · · the sounding member being a bell
- U G10K 1/064
- · · · Operating or striking mechanisms therefor
- G10K 1/065
- · · · · for timed or repeated operation {(alarm-clocks [G04C 21/00](#))}
- U G10K 1/07
- · mechanically operated; Hand bells; Bells for animals
- U G10K 1/072
- · · Operating or striking mechanisms therefor
- G10K 1/076
- · · · for timed or repeated operation {(alarm-clocks [G04B 23/00](#))}

**U G10K 7/00 Sirens**

- G10K 7/06
- in which the sound-producing member is driven by a fluid, e.g. by a compressed gas {(fluidically operated vibrators [B06B 1/18](#))}

**U G10K 9/00 Devices in which sound is produced by vibrating a diaphragm or analogous element, e.g. fog horn, vehicle hooter, buzzer (loudspeakers or like acoustic electromechanical transducers [H04R](#){ arrangement or adaptation for ships [B63B 45/08](#) ; mechanically driven vibrators [B06B 1/10](#))}**

- U G10K 9/12
- electrically operated

**NOTE**

This group does not cover the construction of, or circuits for, broadband-transducers such as loudspeakers or microphones, which are covered by subclass [H04R](#) .

- G10K 9/122
- · using piezo-electric driving means {([G10K 9/121](#) takes precedence)}
- G10K 9/128
- · using magnetostrictive driving means {([G10K 9/121](#) takes precedence)}
- G10K 9/18
- Details, e.g. bulb, pump, piston, switch, casing {(cones, diaphragms [G10K 13/00](#))}

- U 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](#))
- U G10K 11/18 · Methods or devices for transmitting, conducting, or directing sound ([G10K 11/02](#), [G10K 11/36](#) take precedence; medical stethoscopes [A61B 7/02](#))
- G10K 11/26 · · Sound-focusing or directing, e.g. scanning {{(horns for impedance matching [G10K 11/02](#); megaphones [G10K 11/08](#))}}
- G10K 11/28 · · · using reflection, e.g. parabolic reflector {{(hearing aids [A61F 11/008](#))}}
- G10K 11/34 · · · using electrical steering of transducer arrays, e.g. beam steering {{(constructional aspects [B06B 1/0607](#), [B06B 1/085](#))}}
- U G10K 15/00** **Acoustics not otherwise provided for**
- G10K 15/08 · Arrangements for producing a reverberation or echo sound {{(modifying acoustic properties to change reverberation time [G10K 11/002](#))}}

**Project: N/A (G11B)**

- U G11B 3/00** Recording by mechanical cutting, deforming or pressing, e.g. of grooves or pits; Reproducing by mechanical sensing; Record carriers therefor ([G11B 11/00](#), {[G11B 13/00](#)}take precedence;{ recording by cutting or deforming using laser beam [G11B 7/00](#), using electron beam [G11B 9/10](#)})
- U G11B 3/02 · Arrangements of heads (styli [G11B 3/44](#))
- G11B 3/04 · · Multiple, convertible, or alternative transducing arrangements {{(contains no documents see [G11B 3/42](#))}}
- G11B 3/08 · · Raising, lowering, traversing otherwise than for transducing, arresting, or holding-up heads against record carriers {{(for transducing [G11B 3/12](#), [G11B 3/34](#))}}
- G11B 3/10 · · Arranging, supporting, or driving of heads or of transducers relatively to record carriers {{(guiding record carriers [G11B 17/00](#), driving record carriers [G11B 19/00](#))}}
- U G11B 3/30 · · · Supporting in an inoperative position
- G11B 3/31 · · · · Construction of arms {{(for transmitting, directing or amplifying sound [G11B 3/003](#))}}
- U G11B 3/44 · Styli, e.g. sapphire, diamond
- G11B 3/46 · · Constructions or forms {Disposition or mounting}, e.g. attachment of point to shank {{(attachment of stylus directly to transducer [H04R 1/16](#))}}
- G11B 3/64 · Re-recording, i.e. transcribing information from one grooved record carrier on to one or more similar or dissimilar record carriers {{(by varying the order of the information [G11B 27/029](#), [G11B 27/036](#))}}

- U 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
- U G11B 5/187     • • Structure or manufacture of the surface of the head in physical contact with, or immediately adjacent to the recording medium; Pole pieces; Gap features ([G11B 5/265](#) , {[G11B 5/29](#) } , [G11B 5/31](#) take precedence)
- G11B 5/23       • • • Gap features {([G11B 5/1871](#) , [G11B 5/1875](#) , [G11B 5/265](#) , [G11B 5/29](#) , [G11B 5/488](#) and subgroups, [G11B 5/4907](#) and subgroups, [G11B 5/4969](#) and subgroups take precedence)}
- G11B 5/235     • • • Selection of material for gap filler {([G11B 5/232](#) takes precedence)}
- G11B 5/245     • • • comprising means for controlling the reluctance of the magnetic circuit {in a head with single gap, for co-operation with one track; {([G11B 5/255](#) takes precedence; for plural gaps or plural tracks [G11B 5/127](#) , [G11B 5/265](#) , [G11B 5/29](#) , [G11B 5/49](#) and subgroups)}
- G11B 5/255     • • • comprising means for protection against wear {(in thin film structures [G11B 5/3106](#))}
- G11B 5/31       • • using thin films {([G11B 5/1274](#) , [G11B 5/1278](#) , [G11B 5/1874](#) , [G11B 5/1875](#) , [G11B 5/33](#) , [G11B 5/49](#) take precedence; magnetic thin film structures [H01F 10/00](#))}
- G11B 5/41       • Cleaning of heads {(of record carriers [G11B 23/50](#))}
- G11B 5/455     • Arrangements for functional testing of heads {(testing of the manufacturing process [G11B 5/127](#))}; Measuring arrangements for heads (measuring electric or magnetic properties [G01R](#) ; { measuring properties for shaping or assembling elements [G11B 5/127](#))}
- 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 5/58       • • 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](#))}
- U G11B 5/584     • • • for track following on tapes
- U G11B 5/588     • • • • by controlling the position of the rotating heads (by controlling the speed of the record carrier [G11B 15/467](#) ; by controlling speed of the heads [G11B 15/473](#) ; { by moving the transducing part of the head relative to the headwheel, in the direction of the scanning movement [G11B 15/1841](#))}
- G11B 5/592     • • • • using bimorph elements supporting the heads {(see provisional also [G11B 5/588](#))}
- 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 5/86
- Re-recording, i.e. transcribing information from one magnetisable record carrier on to one or more similar or dissimilar record carriers {(by varying the order of the information [G11B 27/029](#) , [G11B 27/036](#))}
- 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)**
- G11B 7/004
- Recording, reproducing or erasing methods; Read, write or erase circuits therefor {(magneto-optical systems [G11B 11/105](#))}
- U G11B 7/12
- Heads, e.g. forming of the optical beam spot or modulation of the optical beam (disposition or mounting of head elements within housing or with provision for moving of light source, optical beam or detector, irrelevant to the transducing method [G11B 7/08](#) ; { modulating lasers [H01S 3/10](#) ; controlling the intensity, colour, phase, polarisation or direction of light beams arriving from an independent light source, e.g. switching gating or modulating [G02F 1/00](#))}
- U G11B 7/123
- • Integrated head arrangements, e.g. with source and detectors mounted on the same substrate
- U G11B 7/124
- • • the integrated head arrangements including waveguides
- G11B 7/1245
- • • • the waveguides including means for electro-optical or acousto-optical deflection {(electro- or acousto-optical deflection in general [G02F 1/29](#) , [G02F 1/33](#))}
- G11B 7/125
- • Optical beam sources therefor, e.g. laser control circuitry specially adapted for optical storage devices; Modulators, e.g. means for controlling the size or intensity of optical spots or optical traces {(electro-, magneto-, or acousto-optical modulators [G02F 1/00](#) ; optical diaphragms [G03B 9/02](#))}
- WARNING  
For all subgroups of [G11B 7/125](#) , see also provisional [G11B 7/125](#)
- G11B 7/127
- • • Lasers; Multiple laser arrays {(lasers per se [H01S](#))}
- G11B 7/13
- • Optical detectors therefor {(optical detectors per se [G01J](#); demodulating light, transferring the modulation of modulated light, frequency changing of light [G02F 2/00](#))}
- WARNING  
For all subgroups of [G11B 7/13](#) , see provisional also [G11B 7/13](#)
- U G11B 7/135
- • Means for guiding the beam from the source to the record carrier or from the record carrier to the detector
- WARNING  
For all subgroups of [G11B 7/135](#) , see provisional also [G11B 7/135](#)
- G11B 7/1353
- • • Diffractive elements, e.g. holograms or gratings {(diffraction gratings per se [G02B 5/18](#) ; holograms per se [G02B 5/32](#) ; grating systems [G02B 27/44](#))}
- U G11B 7/1372
- • • Lenses
- G11B 7/1374
- • • • Objective lenses {(optical objectives per se [G02B 9/00](#))}
- G11B 7/1376
- • • • Collimator lenses {(collimators per se [G02B 27/30](#))}
- G11B 7/1392
- • • Means for controlling the beam wavefront, e.g. for correction of aberration {(optical systems for aberration correction per se [G02B 27/00](#))}

- 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
- 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.
  - 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 11/08 • using recording by electric charge or by variation of electric resistance or capacitance [{\(G11B 11/002 , \[G11B 11/10\]\(#\) take precedence\)}](#)
- G11B 11/16 • using recording by mechanical cutting, deforming or pressing [{\(G11B 11/002 takes precedence\)}](#)
- U 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 15/02 • Control of operating function, e.g. switching from recording to reproducing
- G11B 15/12 • • Masking of heads; {circuits for}Selecting or switching of heads between operative and inoperative functions{or between different operative functions or for selection between operative heads}; Masking of beams, e.g. of light beams [{\(track selection by moving the magnetic head \[G11B 5/54}\]\(#\)}](#)
- U G11B 15/18 • Driving; Starting; Stopping; Arrangements for control or regulation thereof [{\(G11B 15/56 takes precedence; handling tapes or filamentary material in general \[B65H 23/00}\]\(#\)}](#)
- G11B 15/38 • • Driving record carriers by pneumatic means [{\(pneumatic control for capstans driving the record carrier by frictional contact \[G11B 15/285}\]\(#\)}](#)
- G11B 15/46 • • Controlling, regulating, or indicating speed [{\(dependent on position of tape in reserve, loop \[G11B 15/56\]\(#\) , \[G11B 15/58}\]\(#\)}](#)
- G11B 15/467 • • • in arrangements for recording or reproducing wherein both record carriers and heads are driven [{\(see provisional also \[G11B 15/1808}\]\(#\)}](#)
- U G11B 15/60 • Guiding record carrier (guiding devices structurally associated with magazines or cassettes [G11B 23/04](#))
- U G11B 15/66 • • Threading; Loading; Automatic self-loading
- U G11B 15/665 • • • by extracting loop of record carrier from container
- U G11B 15/6653 • • • • {to pull the record carrier against drum}
- G11B 15/6655 • • • • • {using one loading ring, i.e. "C-type" ([G11B 15/6658](#) takes precedence)}
- G11B 15/70 • The record carrier being an endless loop record carrier [{\(inside container \[G11B 15/1891}\]\(#\)}](#)
- 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 17/02 • Details
- U G11B 17/022 • • Positioning or locking of single discs

- U G11B 17/028
  - • • of discs rotating during transducing operation
- G11B 17/03
  - • • • in containers or trays [{\(G11B 17/032 , G11B 17/035 take precedence\)}](#)
- G11B 17/032
  - • • • Positioning by moving the door or the cover [{\(G11B 17/035 takes precedence\)}](#)
- G11B 17/04
  - • Feeding or guiding single record carrier to or from transducer unit [{\(guiding during transducing operation G11B 17/34\)}](#)
- G11B 17/32
  - Maintaining desired spacing between record carrier and head, e.g. by fluid-dynamic spacing [{\(damping of vibrations of record carriers on turntables by fluid-dynamic means G11B 19/2018\)}](#)
- 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](#))
- G11B 20/12
  - • Formatting, e.g. arrangement of data block or words on the record carriers [{\(within interface between computers and data recorders G06F 3/06\)}](#)
- G11B 20/24
  - for reducing noise [{\(control of amplification in general, e.g. dependent upon noise level H03G\)}](#)
- U G11B 27/00**      **Editing; Indexing; Addressing; Timing or synchronising; Monitoring; Measuring tape travel**
- G11B 27/002
  - {Programmed access in sequence to a plurality of record carriers or indexed parts, e.g. tracks, thereof; e.g. for editing; [{\(transfer of record carriers from magazine G11B 15/68 , G11B 17/10 ; G11B 17/22\)}](#)}
- U 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](#)
- G11B 27/04
  - • using differential drive of record carrier and head [{\(transferred to G11B 15/1875\)}](#)
- U G11B 27/10
  - Indexing; Addressing; Timing or synchronising; Measuring tape travel
- U G11B 27/11
  - • by using information not detectable on the record carrier
- U G11B 27/13
  - • • the information being derived from movement of the record carrier, e.g. using tachometer
- G11B 27/15
  - • • • using mechanical sensing means [{\(see provisionally also G11B 27/13\)}](#)
- G11B 27/17
  - • • • using electrical sensing means [{\(see provisionally also G11B 27/13\)}](#)
- G11B 27/36
  - Monitoring, i.e. supervising the progress of recording or reproducing [{\(for digital recording G11B 20/00 and s.gr.; for monitoring, testing or measuring of TV recorders of the type covered by H04N 5/76 and subgroups, see H04N 17/06\)}](#)
- U G11B 33/00**      **Constructional parts, details or accessories not provided for in the preceding groups (containers, packaging elements or packages specially adapted for record carriers B65D 85/00)**
- U G11B 33/02
  - Cabinets; Cases; Stands; Disposition of apparatus therein or thereon (furniture aspects [A47B](#) , e.g. [A47B 81/06](#) ; { showing stands, hangers or shelves adapted for particular articles [A47F 7/00](#) ; albums for record carriers, e.g. discs [B42F 5/005](#) ; suspended filing appliances for record carriers, e.g. discs [B42F 15/0005](#) ; fastening devices for wings, e.g. covers [E05C](#) ; for holding wings in one or more opened positions [E05C 17/00](#) ; hinges [E05D](#) ; closers or openers of wings, e.g. with braking or counter-balancing devices [E05F](#)})

- G11B 33/04
  - • modified to store record carriers {(containers, storing means adapted for cooperation with the recording or reproducing apparatus [G11B 23/02](#))}
- G11B 33/10
  - Indicating arrangements; Warning arrangements {([G11B 15/04](#) , [G11B 19/04](#) , [G11B 27/34](#) , [G11B 27/36](#) take precedence)}
- U G11B 33/14
  - Reducing influence of physical parameters, e.g. temperature change, moisture, dust
- U G11B 33/1446
  - • {Reducing contamination, e.g. by dust, debris}
- G11B 33/1466
  - • • {sealing gaskets, (gasket in general [F16J](#))}

**Project: N/A (G11C)**

- U **G11C 5/00** **Details of stores covered by [G11C 11/00](#)**
- U G11C 5/14
  - Power supply arrangements (in general [G05F](#) , [H02J](#) , [H02M](#)),{e.g. Power down/chip (de)selection, layout of wiring/power grids, multiple supply levels}
- G11C 5/143
  - • {Detection of memory cassette insertion/removal; Continuity checks of supply and ground lines (in general [G01R 31/02](#)); Detection of supply variations/interruptions/levels ([G11C 5/148](#) takes precedence); Switching between alternative supplies (back-up supplies per se [H02J 9/061](#)),([G11C 5/141](#) takes precedence)}
- U **G11C 8/00** **Arrangements for selecting an address in a digital store (for stores using transistors [G11C 11/407](#) , [G11C 11/413](#) ; { switching or gating circuits for general use [H03K 17/00](#)})**
- G11C 8/04
  - using a sequential addressing device, e.g. shift register, counter {(FIFO [G06F 5/06](#) ; LIFO [G06F 7/78](#) ; multidimensional memory addressing [G06F 12/0207](#))}
- G11C 8/16
  - Multiple access memory array, e.g. addressing one storage element via at least independent addressing line groups {(multiport memories in general [G11C 7/1075](#))}
- U **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 11/02
  - 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](#))}
- G11C 11/04
  - • using rod-type storage elements {(contains no documents; see [G11C 11/06085](#) , [G11C 11/14](#) , [G11C 11/155](#))}
- 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 11/061
  - • • using element with single aperture or magnetic loop for storage, one element per bit, and for destructive read-out {(contains no documents, see [G11C 11/06007](#) , [G11C 11/06014](#) , [G11C 11/06021](#) , [G11C 11/06028](#))}
- G11C 11/063
  - • • bit organised, such as 2 1/2D, 3D organisation, i.e. for selection of an element by means of at least two coincident parital currents both for reading and for writing {(contains no documents; see [G11C 11/06035](#))}
- G11C 11/065
  - • • word organised, such as 2D organisation, or linear selection, i.e. for selection of all the elements of a word by means of a single full current for reading {(contains no documents; see [G11C 11/06042](#))}
- 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](#))}

- G11C 11/16
  - • using elements in which the storage effect is based on magnetic spin effect [{\(sensors using magnetoresistive multilayer structures G01R 33/093 ; thin layer magnetic read heads for magnetic discs G11B 5/31 ; non-reciprocal magnetic elements in waveguides H01P; composition of ferromagnetic material H01F 1/00 ; gyrators H03H 7/002\)}](#)
- G11C 11/19
  - using non-linear reactive devices in resonant circuits [{\(contains no documents, see G11C 11/20\)}](#)
- U G11C 11/21
  - using electric elements
- G11C 11/22
  - • using ferroelectric elements [{\(using multibit ferroelectric storage elements G11C 11/5657 ; pulse generators using ferroelectric elements H03K 3/45 ; counters using such elements H03K 23/76\)}](#)
- G11C 11/26
  - • using discharge tubes [{\(counters using such elements H03K 25/00\)}](#)
- G11C 11/28
  - • • using gas-filled tubes [{\(counting tubes G11C 11/265 ; pulse generators, electronic switches, logic circuits using such elements H03K 3/37 , H03K 17/52 , H03K 19/04\)}](#)
- G11C 11/30
  - • • using vacuum tubes [{\(counting tubes G11C 11/265 ; pulse generators, electronic switches, logic circuits using such elements H03K 3/37 , H03K 17/52 , H03K 19/04\)}](#)
- G11C 11/34
  - • using semiconductor devices [{\(processes or apparatus for the manufacture or treatment of semiconductor or solid state devices H01L 21/00 ; integrated circuit devices H01L 27/00 ; generating electric pulses, e.g. bistable devices using semiconductor devices H03K 3/00\)}](#)
- G11C 11/35
  - • • with charge storage in a depletion layer, e.g. charged coupled devices [{\(in shift registers G11C 19/282\)}](#)
- 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 11/412
  - • • • using field-effect transistors only [{\(latent image memory G11C 7/20 ; multi-port cells G11C 8/160\)}](#)
- G11C 11/44
  - • using super-conductive elements, e.g. cryotron [{\(pulse generators using such elements H03K 3/38 ; counters H03K 23/001\)}](#)
- G11C 11/48
  - using displaceable coupling elements, e.g. ferromagnetic cores, to produce change between different states of mutual or self-inductance [{\(contains no documents; see G11C 17/00 and subgroups\)}](#)
- U 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](#)**
- G11C 13/02
  - using elements whose operation depends upon chemical change [{\(G11C 13/0009 takes precedence\)}](#); using electrochemical charge [G11C 11/00](#)
- 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 16/00
 

**Erasable programmable read-only memories ([G11C 14/00](#) takes precedence)**
- G11C 16/02
  - electrically programmable [{\(programmable multibit digital storage elements G11C 11/5621\)}](#)

- 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](#))}**
- U G11C 19/02 · using magnetic elements ([G11C 19/14](#) takes precedence)
- G11C 19/08 · · using thin films in plane structure (thin magnetic films and apparatus or processes specially adapted for manufacturing or assembling the same [H01F 10/00](#) , [H01F 41/14](#))}
- G11C 19/0858 · · · {Generating, replicating or annihilating magnetic domains (also comprising different types of magnetic domains, e.g. "Hard Bubbles") ([G11C 19/0866](#) takes precedence)}
- 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](#))}
- G11C 19/18 · using capacitors as main elements of the stages (if capacitors are used as auxiliary stage in between main stages with other elements, the latter take precedence; [G11C 19/005](#) takes precedence)}
- G11C 19/34 · using storage elements with more than two stable states represented by steps, e.g. of voltage, current, phase, frequency (in RAM multistable cells [G11C 11/56](#) ; in capacitive analog stores [G11C 27/04](#))}
- U G11C 21/00** **Digital stores in which the information circulates {continuously}(stepwise [G11C 19/00](#))**
- G11C 21/02 · using electromechanical delay lines, e.g. using a mercury tank (construction of such lines [H03H 9/00](#))}
- G11C 25/00** **Digital stores characterised by the use of flowing media; Storage elements therefor (multiple fluid-circuit element arrangements for performing digital operations [F15C 1/12](#))}**
- G11C 27/00** **Electric analogue stores, e.g. for storing instantaneous values (integrating circuits acting as stores [G06G 7/18](#) ; pulse counters with step by step integration and static storage [H03K 25/00](#))}**
- G11C 29/00** **Checking stores for correct operation; {Subsequent repair}; Testing stores during standby or offline operation (testing of electronic circuits in general [G01R 31/28](#) ; error detection or error correction in computer memories during normal operation [G06F 11/1008](#) , [G06F 11/1666](#) ; testing of computers during standby [G06F 11/22](#))}**
- WARNING**
- Groups [G11C 29/70](#) to [G11C 29/886](#) do not correspond to former or current IPC groups.
- Concordance CPC : IPC for these groups is the following: - [G11C 29/70](#) - [G11C 29/886](#) : [G11C 29/00](#)

**Project: N/A (G21C)**

- U G21C 3/00** **Reactor fuel elements and their assemblies; Selection of substances for use as reactor fuel elements**
- G21C 3/40 · Structural combination of fuel element with thermoelectric element for direct production of electric energy from fission heat (for temperature measurement [G21C 17/10](#)) { or with another arrangement for direct production of electric energy, e.g. a thermionic device (combination with thermoelements for temperature measurements [G21C 17/102](#))}

- U G21C 15/00 Cooling arrangements within the pressure vessel containing the core; Selection of specific coolants**
- G21C 15/02 · Arrangements or disposition of passages in which heat is transferred to the coolant; {Coolant flow control devices (G21C 19/04 takes precedence; coolant flow control through fuel assemblies, e.g. flow restrictors G21C 3/322)}
- G21C 15/28 · Selection of specific coolants (if serving as the moderator G21C 5/12; compositions per se C09K 5/00; {organic coolants G21C 5/123}); {Additions to the reactor coolants, e.g. against moderator corrosion (purification and regeneration of the reactor coolants G21C 19/30)}
- U G21C 19/00 Arrangements for treating, for handling, or for facilitating the handling of, fuel or other materials which are used within the reactor, e.g. within its pressure vessel**
- U G21C 19/28 · Arrangements for introducing fluent material into the reactor core; Arrangements for removing fluent material from the reactor core (pumping coolant G21D)
- G21C 19/30 · · with continuous purification of circulating fluent material, e.g. by extraction of fission products {deterioration or corrosion products, impurities, e.g. by cold traps (purification of circulating fluid fuels G21C 19/50; separation in general B01D)}

**Project: N/A (G21F)**

- U G21F 5/00 Transportable or portable shielded containers**
- U G21F 5/06 · Details of, or accessories to, the containers
- G21F 5/14 · · Devices for handling containers or shipping-casks, e.g. transporting devices {loading and unloading, filling of containers (Cranes, load-engaging elements or devices for cranes, capstans, winches or tackles B66C)}

**Project: N/A (G21K)**

- U G21K 1/00 Arrangements for handling particles or ionizing radiation, e.g. focusing or moderating (production or acceleration of neutrons, electrically-charged particles, neutral molecular beams or neutral atomic beams H05H 3/00 - H05H 15/00)**
- U G21K 1/10 · Scattering devices; Absorbing devices; Ionising radiation filters
- G21K 1/12 · · Resonant absorbers or driving arrangements therefor, e.g. for Moessbauer-effect devices {(motors with reciprocating, oscillating or vibrating magnet, armature or coil system in general H02K 33/00)}
- G21K 1/16 · using polarising devices, e.g. for obtaining a polarised beam {(ion sources, ion guns H01J 27/02 ; polarised targets for producing nuclear reactions H05H 6/005)}

**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**
- H01F 1/0036 · {showing low dimensional magnetism, i.e. spin rearrangements due to a restriction of dimensions, e.g. showing giant magnetoresistivity, (H01F 1/153 , H01F 1/42 and H01F 10/00 take precedence; magnetoresistive sensors G01D 5/16 , G01R 33/06 ; magnetoresistive recording G11B 5/39 ; magnetic-field-controlled resistors H01L 43/08)}
- U H01F 1/01 · of inorganic materials (H01F 1/44 takes precedence)
- H01F 1/03 · · characterised by their coercivity {(H01F 1/40 takes precedence)}
- U H01F 1/032 · · · of hard-magnetic materials

- U H01F 1/10 . . . . Non-metallic substances, e.g. ferrites {e.g. [(Ba,Sr)O(Fe<sub>2</sub>O<sub>3</sub>)<sub>6</sub>] ferrites with hexagonal structure}
- H01F 1/11 . . . . . in the form of particles {(for magnetic record carriers [G11B 5/70626](#))}
- 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
- H01F 1/153 . . . . . Amorphous metallic alloys, e.g. glassy metals {(making ferrous amorphous alloys [C22C 33/003](#))}
- U H01F 1/34 . . . . Non-metallic substances, e.g. ferrites
- H01F 1/36 . . . . . in the form of particles {([H01F 1/346](#) , [H01F 1/348](#) and [H01F 1/38](#) take precedence)}
- H01F 6/00 Superconducting magnets; Superconducting coils {(magnetic resonance assemblies using superconducting coil systems [G01R 33/3815](#))}**
- H01F 6/02 . Quenching; Protection arrangements during quenching {(protection circuits [H02H 7/001](#))}
- U **H01F 7/00 Magnets (superconducting magnets [H01F 6/00](#) ; for separation of solid materials or fluids [B03C 1/00](#) ; for bench or like work-holders [B23B 31/28](#) , [B23Q 3/00](#) ; work-holding devices [B25B 11/00](#) ; lifting magnets [B66C 1/00](#) ; { operating or controlling locks using permanent magnets [E05B 47/0038](#) ; devices for holding a wing, e.g. door or window, by magnetic or electromagnetic attraction [E05C 19/16](#) ; relieving load or bearings using magnetic means [F16C 39/06](#) } ; for electric meters [G01R](#) ; for relays [H01H](#) ; { for electric discharge tubes [H01J](#) , e.g. [H01J 3/24](#) , [H01J 23/10](#) , [H01J 29/68](#) } ; for dynamo-electric machines [H02K](#))**
- H01F 7/06 . Electromagnets; Actuators including electromagnets {(electric coils [H01F 5/00](#) ; devices for holding workpieces using electric force [B23Q 3/15](#) ; load-engaging elements for lifting articles electromagnetically [B66C 1/06](#) ; electromagnetic couplings [F16D 27/00](#) ; magnetic brakes [F16D 63/002](#) ; electromagnetically operated valves [F16K 11/24](#) , [F16K 31/00](#) ; magnetically locked mine lamps [F21L 11/00](#) ; analysing materials by magnetic means [G01N 27/72](#) , [G01N 27/80](#) ; electromagnets for winding mechanical clocks [G04C 1/02](#) ; electromagnetic relays [H01H 51/00](#) ; windings for salient poles of dynamo-electric machines [H02K 3/18](#) ; electromagnets for telegraphic communication [H04L](#) ; for arc lamps [H05B 31/28](#))}
- U H01F 7/08 . . with armatures
- U H01F 7/121 . . . Guiding or setting position of armatures, e.g. retaining armatures in their end position
- H01F 7/122 . . . . by permanent magnets {([H01F 7/1615](#) , [H01F 7/1646](#) take precedence)}
- 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](#))

- H01F 10/13
- • • Amorphous metallic alloys, e.g. glassy metals [{\(H01F 10/3204 takes precedence\)}](#)
- NOTE  
In this group, amorphous metallic alloys are classified in the last appropriate place
- U H01F 10/18
- • • being compounds
- H01F 10/187
- • • Amorphous compounds [{\(H01F 10/3204 takes precedence\)}](#)
- H01F 10/193
- • • Magnetic semiconductor compounds [{\(in general H01F 1/40 ; multilayers, e.g. superlattices H01F 10/3213\)}](#)
- U H01F 10/20
- • • Ferrites
- H01F 10/24
- • • Garnets [{\(in general H01F 1/346 ; multilayers, e.g. superlattices H01F 10/3209 ; applying magnetic garnet films to substrates by sputtering H01F 41/186\)}](#)
- H01F 10/26
- characterised by the substrate or intermediate layers [{\(H01F 10/06 and H01F 10/32 take precedence\)}](#)
- H01F 10/32
- Spin-exchange-coupled multilayers, e.g. nanostructured superlattices [{\(applying spin-exchange-coupled multilayers to substrates H01F 41/302\)}](#)
- U H01F 29/00**      **Variable transformers or inductances not covered by group [H01F 21/00](#) [{\(tap change devices H01H 9/0005\)}](#)**
- U H01F 29/08
- with core, coil, winding, or shield movable to offset variation of voltage or phase shift, e.g. induction regulators
- H01F 29/10
- • having movable part of magnetic circuit [{\(high leakage transformers H01F 38/08 ; dynamo-electric machines with movable part of magnetic circuit H02K 23/44 , H02K 23/48\)}](#)
- U H01F 38/00**      **Adaptations of transformers or inductances for specific applications or functions**
- H01F 38/14
- Inductive couplings [{\(for charging batteries from ac mains by converters H02J 7/025\)}](#)
- U H01F 41/00**      **Apparatus or processes specially adapted for manufacturing or assembling the devices covered by this subclass**
- U H01F 41/02
- for manufacturing cores, coils, or magnets ([H01F 41/14](#) takes precedence; for dynamo-electric machines [H02K 15/00](#))
- U H01F 41/0206
- • {Manufacturing of magnetic cores by mechanical means (magnetic cores per se [H01F 27/24](#))}
- H01F 41/0213
- • • {Manufacturing of magnetic circuits made from strip(s) or ribbon(s) (magnetic cores made by winding a ribbon [H01F 27/25](#))}
- H01F 41/04
- • for manufacturing coils [{\(coils for transformer or inductances H01F 27/28\)}](#)

**Project: N/A (H01J)**

- 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 1/64
  - • • 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 1/68
  - • • 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**
- 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 3/04
  - Ion guns {{(see provisionally also [H01J 27/00](#))}}
- H01J 3/07
  - Arrangements for controlling convergence of a plurality of beams {{(see provisionally also [H01J 29/46](#) to [H01J 29/84](#))}}
- U 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](#))}}
- U 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](#))}}
- U H01J 9/00      Apparatus or processes specially adapted to the manufacture, (installation, removal, maintenance) of electric discharge tubes, discharge lamps, or parts thereof (manufacture of vessels or containers from metal [B21](#), e.g. [B21D 51/00](#) , from glass [C03B](#)); Recovery of material from discharge tubes or lamps**
- U H01J 9/20      • Manufacture of screens on or from which an image or pattern is formed, picked up, converted or stored; Applying coatings to the vessel
- H01J 9/233      • • Manufacture of photo-electric screens or charge-storage screens {{(no documents, see [H01J 29/36](#))}}
- U H01J 9/44      • Factory adjustment of completed discharge tubes or lamps to comply with desired tolerances
- H01J 9/445      • • {Aging of tubes or lamps, e.g. by "spot knocking" (cathode activation [H01J 9/045](#))}
- H01J 11/00      Gas-filled discharge tubes with alternating current induction of the discharge, e.g. AC-PDPs [Alternating Current Plasma Display Panels] (circuits or methods for driving PDPs [G09G 3/28](#)); Gas-filled discharge tubes without any main electrode inside the vessel; Gas-filled discharge tubes with at least one main electrode outside the vessel (discharge lamps [H01J 65/00](#){[H01J 61/00](#) , [H01J 63/00](#))}**
- NOTES
1. When classifying in this group, classification is made in all appropriate places.
  2. In this group, the following term is used with the meaning indicated:
    - "main electrode" means any of a sustain electrode, scan electrode or address electrode.
- U 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 17/38      • Cold-cathode tubes (TR boxes [H01J 17/64](#))
- H01J 17/40      • • with one cathode and one anode, e.g. glow tube, tuning-indicator glow tube, voltage-stabiliser tube, voltage-indicator tube, (cathode-glow lamps [H01J 61/04](#))
- U H01J 27/00      Ion beam tubes ([H01J 25/00](#) , [H01J 33/00](#) , [H01J 37/00](#) take precedence; particle accelerators [H05H](#))**

- U H01J 27/02
- Ion sources; Ion guns (for examination or processing discharge tubes [H01J 37/08](#) ; ion sources, ion guns for particle spectrometer or separator tubes [H01J 49/10](#) ; ion propulsion [F03H 1/00](#)); arrangements for handling particles, e.g. focusing, {charge exchanging, polarising} , [G21K 1/00](#) ; generating ions to be introduced into non-enclosed gases [H01T 23/00](#) ; generating plasma [H05H 1/24](#))
- H01J 27/04
- • using reflex discharge, e.g. Penning ion sources (Electron bombardment ion sources [H01J 27/08](#));
- 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 29/02
- Electrodes; Screens; Mounting, supporting, spacing or insulating thereof
- U H01J 29/10
- • Screens on or from which an image or pattern is formed, picked up, converted or stored
- U H01J 29/18
- • • Luminescent screens
- H01J 29/187
- • • • {screens with more than one luminescent material (as mixtures for the treatment of the screens) (for several superimposed luminescent layers [H01J 29/26](#) ; for adjacent dots or lines of different luminescent material [H01J 29/32](#))}
- H01J 29/20
- • • • characterised by the luminescent material (for luminescent screens for X-ray purposes [G21K 4/00](#))}
- U H01J 29/36
- • • Photoelectric screens; Charge-storage screens
- H01J 29/38
- • • • not using charge storage, e.g. photo-emissive screen, extended cathode (electrodes using photo-emission in general [H01J 1/34](#))}
- H01J 29/39
- • • • Charge-storage screens (H01J 29/395 takes precedence)}
- H01J 29/41
- • • • • using secondary emission, e.g. for supericonoscope (electrodes using secondary emission in general [H01J 1/32](#) ; secondary emission tubes [H01J 43/00](#))}
- H01J 29/44
- • • • • exhibiting internal electric effects caused by particle radiation, e.g. bombardment-induced conductivity (particle detectors exhibiting internal electric effects [G01T 1/26](#))}
- H01J 29/45
- • • • • exhibiting internal electric effects caused by electromagnetic radiation, e.g. photo-conductive screen, photo-dielectric screen, photovoltaic screen (photoconductive layers for electrography [G03G 5/00](#))}
- 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 29/52
- • Arrangements for controlling intensity of ray or beam, e.g. for modulation (H01J 29/467 takes precedence)}
- H01J 29/54
- • Arrangements for centring ray or beam (H01J 29/467 takes precedence)}
- H01J 29/56
- • Arrangements for controlling cross-section of ray or beam; Arrangements for correcting aberration of beam, e.g. due to lenses (H01J 29/467 takes precedence)}
- H01J 29/58
- • Arrangements for focusing or reflecting ray or beam (H01J 29/467 , [H01J 29/585](#) take precedence)}
- H01J 29/80
- • Arrangements for controlling the ray or beam after passing the main deflection system, e.g. for post-acceleration or post-concentration, for colour switching (H01J 29/701 takes precedence)}
- U H01J 29/86
- Vessels; Containers; Vacuum locks

- H01J 29/89
- • Optical or photographic arrangements structurally combined (or co-operating) with the vessel [{\(H01J 29/866 and H01J 29/868 take precedence\)}](#)
- H01J 29/94
- Selection of substances for gas fillings; Means for obtaining or maintaining the desired pressure within the tube e.g. by gettering [{\(exhausting, degassing, gettering of electric discharge tubes in general H01J 9/38\)}](#)
- 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](#))**
- H01J 31/02
- having one or more output electrodes which may be impacted selectively by the ray or beam, and onto, from, or over which the ray or beam may be deflected or de-focused [{\(pulse counting circuits therewith H03K 29/06\)}](#)
- 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
- U H01J 31/12**
- • • with luminescent screen
- H01J 31/14
- • • • Magic-eye or analogous tuning indicators [{\(mounting of visual indicators in a radio set H03J 1/04 ; circuits for timing indicators H03J 3/14\)}](#)
- H01J 31/15
- • • • with ray or beam selectively directed to luminescent anode segments [{\(printing by application of radiation B41J 2/447\)}](#)
- H01J 31/16
- • • • with mask carrying a number of selectively displayable signs, e.g. charactron, numeroscope [{\(tubes with a mask carrying a matrix of openings, a selection of which permits a sign to be displayed H01J 31/128\)}](#)
- H01J 31/18
- • • • with image written by a ray or beam on a grid-like charge-accumulating screen, and with a ray or beam passing through and influenced by this screen before striking the luminescent screen, e.g. direct-view storage tube [{\(charge storage grids exhibiting triode effect H01J 29/395\)}](#)
- H01J 31/20
- • • for displaying images or patterns in two or more colours [{\(circuits for colour television H04N 9/16 to H04N 9/28\)}](#)
- H01J 31/24
- • • with screen acting as light valve by shutter operation, e.g. eidophor [{\(projection arrangements for image reproduction, e.g. using eidophor H04N 5/74\)}](#)
- U H01J 31/26**
- • Image pick-up tubes having an input of visible light and electric output (tubes without defined electron beams and having a light ray scanning photo-emissive screen [H01J 40/20](#))
- H01J 31/46
- • • Tubes in which electrical output represents both intensity and colour of image [{\(colour television cameras with only one tube H04N 9/07\)}](#)
- H01J 31/58
- • Tubes for storage of image or information pattern or for conversion of definition of television or like image, i.e. having electrical input and electrical output [{\(electrostatic memories using electron beam tubes G11C 11/23\)}](#)
- U H01J 33/00**      **Discharge tubes with provision for emergence of electrons or ions from the vessel [{\(irradiation devices G21K\)}](#) ; particle accelerators [H05H](#)); Lenard tubes**
- H01J 33/02
- Details [{\(vessels for operation at high tension H01J 5/06\)}](#)
- 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

- U H01J 35/04
  - • Electrodes {mutual position thereof and constructional adaptations of the electrodes therefor}
- H01J 35/06
  - • • Cathodes {(electron guns in general [H01J 3/02](#))}
- H01J 35/08
  - • • Anodes; Anti cathodes {(anti-cathodes serving as windows [H01J 35/18](#))}
- H01J 35/12
  - • • • Cooling non-rotary anodes {(mounting the tube within a closed housing, e.g. for cooling purposes [H05G 1/04](#))}
- H01J 35/14
  - • Arrangements for concentrating, focusing, or directing the cathode ray {(for cathode ray tubes in general [H01J 29/46](#))}
- H01J 35/16
  - • Vessels; Containers; Shields associated therewith {(vessels for high tension operation in general [H01J 5/06](#) ; mounting the tube within a closed housing [H05G 1/04](#))}
- 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
- 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](#))}
- 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 37/18
  - • Vacuum locks; {Means for obtaining or maintaining the desired pressure within the vessel (vacuum locks for electron-beam tubes in general [H01J 29/865](#))}
- H01J 37/20
  - • Means for supporting or positioning the objects or the material; Means for adjusting diaphragms or lenses associated with the support {(introducing the objects [H01J 37/18](#) ; preparing specimens for investigation [G01N 1/06](#) , [G01N 1/28](#))}
- H01J 37/21
  - • Means for adjusting the focus {(adjusting the focus while observing the image by photographic or optical means [H01J 37/22](#) ; means for observing the object or the point of impact on the object in tubes for the localised treatment of materials [H01J 37/3005](#))}
- H01J 37/22
  - • Optical or photographic arrangements associated with the tube {(using a CRT for the display of the image in a scanning electron microscope [H01J 37/28](#) ; observing the object or the point of impact on the object in tubes for the localised treatment of materials [H01J 37/3007](#))}
- U H01J 37/30
  - Electron-beam or ion-beam tubes for localised treatment of objects
- H01J 37/305
  - • for casting, melting, evaporating or etching {(methods for casting or melting of metals with electron beam or gas discharges [C22B 9/22](#))}
- H01J 37/31
  - • for cutting or drilling {(methods for cutting or drilling metals with electron beams [B23K 15/00](#))}
- H01J 37/315
  - • for welding {(methods for welding metals with electron beams [B23K 15/00](#))}

- U H01J 37/32
- Gas-filled discharge tubes, {e.g. for surface treatment of objects such as coating, plating, etching, sterilising or bringing about chemical reactions} {{general methods or devices for heat treatments of ferrous or non-ferrous metals or alloys by cathodic discharges [C21D 1/38](#) ; methods of carburising or nitriding of metals in general [C23C 8/00](#) ; methods for coating, plating or surface treating of or with metallic material [C23C 8/36](#) , [C23C 14/32](#) , [C23C 16/50](#) ; methods for coating, plating or surface treating of or with semiconductors [H01L 21/00](#) ; }heating by discharge [H05B](#))
- H01J 37/36
- for cleaning surfaces while plating with ions of materials introduced into the discharge, e.g. introduced by evaporation {{(condensing of electrically charged vapour onto a surface for covering materials with metals [C23C 14/32](#))}}
- U H01J 43/00
- Secondary-emission tubes; Electron-multiplier tubes (dynamic electron-multiplier tubes [H01J 25/76](#) ; secondary-emission detectors for measurement of nuclear or X-radiation [G01T 1/28](#))**
- H01J 43/04
- Electron multipliers {{(if forming part of electron gun [H01J 3/023](#))}}
- U H01J 43/06
- Electrode arrangements
- U H01J 43/18
- Electrode arrangements using essentially more than one dynode
- U H01J 43/24
- Dynodes having potential gradient along their surfaces
- H01J 43/246
- {Micro-channel plates [MCP]} (image amplification tubes using MCP [H01J 31/507](#))
- H01J 45/00
- Discharge tubes functioning as thermionic generators** {{(structural combination of fuel element with thermoelectric element [G21C 3/40](#) ; nuclear power plants using thermionic converters [G21D 7/04](#) ; structural combination of a radioactive source with a thermionic converter, e.g. radioisotope batteries [G21H 1/10](#) ; generators in which thermal or kinetic energy is converted into electrical energy by ionisation of a fluid and removal of the charge therefrom [H02N 3/00](#))}}
- U H01J 47/00
- Tubes for determining the presence, intensity, density or energy of radiation or particles** {{(discharge tubes using igniting by associated radioactive materials or fillings, e.g. current stabilising tubes [H01J 17/32](#) ; photoelectric discharge tubes not involving the ionisation of a gas [H01J 40/00](#) ; { discharge tubes for measuring the pressure, partial pressure of introduced gas or for detecting presence of gas [H01J 41/02](#) ; ionisation chambers using a solid dielectric [G01T 3/008](#))}}
- H01J 47/08
- Geiger-Müller counter tubes {{(gas filling with very short deionisation times [H01J 17/64](#) , [H01T](#))}}
- H01J 47/14
- Parallel electrode spark or streamer chambers; Wire spark or streamer chambers {{(circuit arrangements with multi-wire or parallel-plate chambers for recording of movements or tracks of particles [G01T 5/12](#))}}
- U H01J 49/00
- Particle spectrometer or separator tubes**
- NOTE
- In classifying particle separators, no distinction is made between spectrometry and spectrography, the difference being only in the manner of detection which in the first case is electrical and in the second case is by means of a photographic film.
- U H01J 49/02
- Details
- H01J 49/022
- {Circuit arrangements, e.g. for generating deviation currents or voltages (regulating electric or magnetic variables in general e.g. current, magnetic field [G05F](#)); Components associated with high voltage supply (high voltage supply per se [H02M](#))}
- U H01J 49/10
- Ion sources; Ion guns



**Project: N/A (H01L)**

- U 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
- 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](#))}
- U H01L 21/0445** · · · {the devices having semiconductor bodies comprising crystalline silicon carbide (multistep processes for the manufacture of said devices [H01L 29/66053](#))}
- H01L 21/0475** · · · · {Changing the shape of the semiconductor body, e.g. forming recesses, (etching of the semiconductor body [H01L 21/302](#))}
- H01L 21/18** · · · the devices having semiconductor bodies comprising elements of the fourth group of the Periodic System or AllIBV 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 AllIBV 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)}
- 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 21/24** · · · · Alloying of impurity materials, e.g. doping materials, electrode materials, with a semiconductor body {([H01L 21/182](#) takes precedence)}
- H01L 21/26** · · · · Bombardment with radiation {([H01L 21/3105](#) takes precedence)}
- U H01L 21/263** · · · · · with high-energy radiation ([H01L 21/261](#) takes precedence)
- U H01L 21/265** · · · · · producing ion implantation (ion beam tubes for localised treatment [H01J 37/30](#))

**WARNING**

The groups [H01L 21/26566](#), [H01L 21/2658](#) and [H01L 21/26593](#) are not complete, see provisionally also [H01L 21/26506](#) and [H01L 21/2654](#) and their subgroups

- H01L 21/266 . . . . . using masks {(H01L 21/26586 takes precedence)}
- U 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)
- U H01L 21/302 . . . . . to change their surface-physical characteristics or shape, e.g. etching, polishing, cutting
- H01L 21/304 . . . . . Mechanical treatment, e.g. grinding, polishing, cutting {(H01L 21/30625 takes precedence)}
- U 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 21/58 . . . . {Insulative} mounting semiconductor devices on supports {(H01L 21/563 , H01L 23/49513 take precedence)}
- WARNING  
This group is no longer used for the classification of new documents as from June 1, 2010. The backlog of this group is being continuously reclassified to H01L 24/80 and subgroups
- U H01L 21/67 . Apparatus specially adapted for handling semiconductor or electric solid state devices during manufacture or treatment thereof; Apparatus specially adapted for handling wafers during manufacture or treatment of semiconductor or electric solid state devices or components; {Apparatus not specifically provided for elsewhere (processes per se H01L 21/30 , H01L 21/46 , H01L 23/00 ; simple temporary support means, e.g. using adhesives, electric or magnetic means H01L 21/68 , H01L 21/302 ; apparatus for manufacturing arrangements for connecting or disconnecting semiconductor or solid-state bodies and for methods related thereto H01L 24/74 ;)}
- NOTE  
In this subgroup the term substrate designates a semiconductor or electric solid state device or component, or a wafer
- U H01L 21/683 . . for supporting or gripping (for conveying H01L 21/677 , for positioning, orientation or alignment H01L 21/68)
- H01L 21/687 . . . . using mechanical means, e.g. chucks, clamps or pinches {(using electrostatic chucks H01L 21/6831)}
- 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)
- U H01L 21/76 . . . Making of isolation regions between components
- H01L 21/763 . . . . Polycrystalline semiconductor regions {(H01L 21/76264 takes precedence)}
- H01L 21/764 . . . . Air gaps {(H01L 21/76264 takes precedence)}

- H01L 21/765 . . . . by field effect [{\(H01L 21/76264 takes precedence\)}](#)
- U 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](#)
- U H01L 21/76801 . . . . {characterised by the formation and the after-treatment of the dielectrics, e.g. smoothing}
- U H01L 21/76822 . . . . {Modification of the material of dielectric layers, e.g. grading, after-treatment to improve the stability of the layers, to increase their density etc.}
- WARNING  
Groups [H01L 21/76822](#) - [H01L 21/76837](#) are not complete; see provisionally [H01L 21/76801](#)
- H01L 21/76825 . . . . . {by exposing the layer to particle radiation, e.g. ion implantation, irradiation with UV light or electrons etc. [\(plasma treatment H01L 21/76826\)}](#)}
- U 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 23/02 . Containers; Seals ([H01L 23/12](#) , [H01L 23/34](#) , [H01L 23/48](#) , [H01L 23/552](#) , [{H01L 23/66}](#) take precedence; { for memories [G11C](#)})
- U H01L 23/04 . . characterised by the shape {of the container or parts, e.g. caps, walls}
- U H01L 23/053 . . . the container being a hollow construction and having an insulating {or insulated} base as a mounting for the semiconductor body
- H01L 23/055 . . . . the leads having a passage through the base [{\(H01L 23/057 takes precedence\)}](#)
- U H01L 23/12 . Mountings, e.g. non-detachable insulating substrates
- H01L 23/14 . . characterised by the material or its electrical properties [{\(printed circuit boards H05K 1/00\)}](#)
- H01L 23/15 . . . Ceramic or glass substrates [{\(H01L 23/142](#) , [H01L 23/145](#) , [H01L 23/147](#) take precedence)}
- U H01L 23/16 . Fillings or auxiliary members in containers {or encapsulations}, e.g. centering rings ([H01L 23/42](#) , [H01L 23/552](#) take precedence)

- U 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](#)
- H01L 23/24
- • • Solid or gel at the normal operating temperature of the device {([H01L 23/3135](#) takes precedence)}
- U H01L 23/34
- Arrangements for cooling, heating, ventilating or temperature compensation; {Temperature sensing arrangements (thermal treatment apparatus [H01L 21/00](#))}
- H01L 23/36
- • Selection of materials, or shaping, to facilitate cooling or heating, e.g. heatsinks {([H01L 23/28](#) , [H01L 23/40](#) , [H01L 23/42](#) , [H01L 23/44](#) , [H01L 23/46](#) take precedence; heating [H01L 23/345](#))}
- H01L 23/367
- • • Cooling facilitated by shape of device {([H01L 23/38](#) , [H01L 23/40](#) , [H01L 23/42](#) , [H01L 23/44](#) , [H01L 23/46](#) take precedence)}
- H01L 23/40
- • Mountings or securing means for detachable cooling or heating arrangements {(heating [H01L 23/345](#)); fixed by friction, plugs or springs}
- U H01L 23/42
- • Fillings or auxiliary members in containers {or encapsulations}selected or arranged to facilitate heating or cooling ({heating [H01L 23/345](#) } ; characterised by selection of materials for the device [H01L 23/373](#))
- H01L 23/427
- • • Cooling by change of state, e.g. use of heat pipes {(by liquefied gas [H01L 23/445](#))}
- H01L 23/44
- • the complete device being wholly immersed in a fluid other than air {([H01L 23/427](#) takes precedence)}
- U H01L 23/46
- • involving the transfer of heat by flowing fluids ([H01L 23/42](#) , [H01L 23/44](#) take precedence)
- H01L 23/467
- • • by flowing gases, e.g. air {([H01L 23/473](#) takes precedence)}
- H01L 23/473
- • • by flowing liquids {([H01L 23/4332](#) , [H01L 23/4338](#) take precedence)}
- 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](#)
- H01L 23/482
- • consisting of lead-in layers inseparably applied to the semiconductor body {(electrodes [H01L 29/40](#))}
- WARNING  
The documents of this group dealing with arrangements for connecting semiconductor or other solid state bodies are being continuously reclassified to [H01L 24/01](#) and subgroups
- H01L 23/485
- • • consisting of layered constructions comprising conductive layers and insulating layers, e.g. planar contacts {([H01L 23/4821](#) , [H01L 23/4822](#) , [H01L 23/4824](#) , [H01L 23/4825](#) take precedence; materials [H01L 23/532](#) , bond pads [H01L 24/02](#) , bump connectors [H01L 24/10](#))}
- WARNING  
The documents of this group dealing with arrangements for connecting semiconductor or other solid state bodies are being continuously reclassified to [H01L 24/01](#) and subgroups

- H01L 23/488
  - • consisting of soldered {or bonded} constructions {(bump connectors [H01L 24/01](#))}
- U H01L 23/52
  - Arrangements for conducting electric current within the device in operation from one component to another, {i.e. interconnections, e.g. wires, lead frames (optical interconnections [G02B 6/00](#))}
- U H01L 23/522
  - • including external interconnections consisting of a multilayer structure of conductive and insulating layers inseparably formed on the semiconductor body
- H01L 23/528
  - • • {Geometry or} layout of the interconnection structure {(H01L 27/0207 takes precedence; algorithms [G06F 17/50](#))}
- H01L 23/535
  - • including internal interconnections, e.g. cross-under constructions {(internal lead connections [H01L 23/481](#))}

**U 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 23/58](#) 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

WARNING

[H01L 21/4885](#) , [H01L 21/58](#) , [H01L 23/48](#) , [H01L 23/482](#) , [H01L 23/485](#) , [H01L 23/488](#)

- U H01L 24/80
    - {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}
- WARNING
1. Pending reorganisation see provisionally also **H01L 21/60** 2. Subgroups of this group are not complete; see also this group and the other subgroups
- H01L 24/82
    - • {by forming build-up interconnects at chip-level, e.g. for high density interconnects [HDI]} (interconnection structure between a plurality of semiconductor chips [H01L 23/5389](#))}

- U H01L 25/00** **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** [H01L 23/49575](#); **assembling 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**, [H01L 21/50](#);} **devices consisting of a plurality of solid state components formed in or on a common substrate** [H01L 27/00](#); **photovoltaic modules or arrays of photovoltaic cells** [H01L 31/042](#){, [H01G 9/20](#)})
- 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](#))}
- U 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 27/12**
- • the substrate being other than a semiconductor body, e.g. an insulating body
- H01L 27/13**
- • • combined with thin-film or thick-film passive components {(passive two-terminal components without a potential-jump or surface barrier for integrated circuits, details thereof and multistep manufacturing processes therefor [H01L 28/00](#))}
- U H01L 27/14**
- including semiconductor components sensitive to infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation and specially adapted either for the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation (radiation-sensitive components structurally associated with one or more electric light sources only [H01L 31/14](#) ; couplings of light guides with optoelectronic elements [G02B 6/42](#))
- U H01L 27/144**
- • Devices controlled by radiation
- U H01L 27/146**
- • • Imager structures
- H01L 27/148**
- • • • Charge coupled imagers {(individual charge coupled devices [H01L 29/765](#))}
- H01L 27/15**
- including semiconductor components with at least one potential-jump barrier or surface barrier specially adapted for light emission {(monolithically integrated components including semiconductor laser components [H01S 5/026](#))}

- U H01L 27/28
- including components using organic materials as the active part, or using a combination of organic materials with other materials as the active part
- H01L 27/30
- · with components specially adapted for sensing infra-red radiation, light, electromagnetic radiation of shorter wavelength, or corpuscular radiation; with components specially adapted for either the conversion of the energy of such radiation into electrical energy or for the control of electrical energy by such radiation {(combination of organic light sensitive components with organic light emitting components, e.g. optocoupler [H01L 27/288](#))}
- H01L 27/32
- · with components specially adapted for light emission, e.g. flat-panel displays using organic light-emitting diodes (OLED) {(combination of organic light sensitive components with organic light emitting components, e.g. optocoupler [H01L 27/288](#))}
- U 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 29/06
- · characterised by their shape; characterised by the shapes, relative sizes, or dispositions of the semiconductor regions;{characterised by the concentration or distribution of impurities within semiconductor regions}
- U H01L 29/0603
- · · {characterised by particular constructional design considerations, e.g. for preventing surface leakage, for controlling electric field concentration or for internal isolations regions (isolation regions between components [H01L 21/76](#) ; design considerations for integrated circuits [H01L 27/00](#) ; geometrical design considerations for devices [H01L 29/0657](#))}
- U H01L 29/0607
- · · · {for preventing surface leakage or controlling electric field concentration}
- U H01L 29/0611
- · · · · {for increasing or controlling the breakdown voltage of reverse biased devices ([H01L 29/0661](#) takes precedence)}
- H01L 29/0615
- · · · · {by the doping profile or the shape or the arrangement of the PN junction, or with supplementary regions, e.g. junction termination extension (JTE)}(LDD or drain offset regions [H01L 29/7833](#))}
- U H01L 29/12
- · characterised by the materials of which they are formed
- H01L 29/16
- · · including, apart from doping materials or other impurities, only elements of the fourth group of the Periodic System in uncombined form {(including SiC [H01L 29/24](#))}
- H01L 29/167
- · · further characterised by the doping material {([H01L 29/1604](#) takes precedence)}
- U H01L 29/20
- · · including, apart from doping materials or other impurities, only AIIIBV compounds

- H01L 29/207 . . . further characterised by the doping material [{\(H01L 29/2006 takes precedence\)}](#)
  - U H01L 29/22 . . . including, apart from doping materials or other impurities, only AIBVI compounds
  - H01L 29/227 . . . further characterised by the doping material [{\(H01L 29/2206 takes precedence\)}](#)
  - U H01L 29/40 . Electrodes;{Multistep manufacturing processes therefor}
  - U H01L 29/43 . . characterised by the materials of which they are formed
  - H01L 29/47 . . . Schottky barrier electrodes [{\(H01L 29/435 takes precedence\)}](#)
  - U H01L 29/49 . . . Metal-insulator-semiconductor electrodes,{e.g. gates of MOSFET [\(H01L 29/435 takes precedence\)}](#)
- NOTE  
This group covers also devices using any other conductor material in place of metal
- H01L 29/51 . . . Insulating materials associated therewith [{\(for MIS structures on thin film semiconductor H01L 29/4908\)}](#)
  - U H01L 29/66 . Types of semiconductor device;{Multistep manufacturing processes therefor}
  - U H01L 29/66007 . . {Multistep manufacturing processes}
  - U H01L 29/66075 . . . {of devices having semiconductor bodies comprising group 14 or group 13/15 materials (comprising semiconducting carbon [H01L 29/66015](#) ; comprising crystalline silicon carbide [H01L 29/66053](#))}
  - U H01L 29/66227 . . . {the devices being controllable only by the electric current supplied or the electric potential applied, to an electrode which does not carry the current to be rectified, amplified or switched, e.g. three-terminal devices}
  - U H01L 29/66234 . . . . {Bipolar junction transistors [BJT]}
  - H01L 29/66242 . . . . . {Heterojunction transistors [HBT] [\(with an active layer made of a group 13/15 material H01L 29/66318\)}](#)
  - U H01L 29/66409 . . . . . {Unipolar field-effect transistors}
  - H01L 29/66416 . . . . . {Static induction transistors [SIT] [\(with an active layer made of a group 13/15 material H01L 29/66454\)}](#)
  - 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 29/70 . . . Bipolar devices
  - U H01L 29/72 . . . . Transistor-type devices, i.e. able to continuously respond to applied control signals
  - H01L 29/739 . . . . . controlled by field-effect,{e.g. bipolar static induction transistors (BSIT) [\(unijunction transistors H01L 29/705\)}](#)
  - H01L 29/74 . . . . Thyristor-type devices, e.g. having four-zone regenerative action [{\(two-terminal thyristors H01L 29/87\)}](#)
  - U H01L 29/76 . . . Unipolar devices,{e.g. field effect transistors}
  - U H01L 29/762 . . . . Charge transfer devices
  - H01L 29/765 . . . . . Charge-coupled devices [{\(peripheral circuits for CCD storage devices G11C 19/285\)}](#)
  - U H01L 29/778 . . . . with two-dimensional charge carrier gas channel, e.g. HEMT;{with two-dimensional charge-carrier layer formed at a heterojunction interface [\(H01L 29/803 takes precedence\)}](#)
  - H01L 29/78 . . . . . with field effect produced by an insulated gate [{\(H01L 29/7725 , H01L 29/775 , H01L 29/778 take precedence\)}](#)

- H01L 29/788 . . . . . with floating gate {(H01L 29/78391 takes precedence)}
- U H01L 29/80 . . . . . with field effect produced by a PN or other rectifying junction gate,{i.e. potential-jump barrier}
- H01L 29/812 . . . . . with a Schottky gate {(H01L 29/7725 , H01L 29/775 , H01L 29/778 , H01L 29/806 take precedence; with Schottky contact on top of heterojunction gate H01L 29/802)}
- 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
- U H01L 31/028 . . . . including, apart from doping material or other impurities, only elements of the fourth group of the Periodic System
- H01L 31/0284 . . . . {comprising porous silicon as part of the active layer(s) (porous silicon as antireflective layer for photodiodes H01L 31/0216 ; for solar cells H01L 31/02168)}
- U H01L 51/00** **Solid state devices using organic materials as the active part, or using a combination of organic materials with other materials as the active part; Processes or apparatus specially adapted for the manufacture or treatment of such devices, or of parts thereof (devices consisting of a plurality of components formed in or on a common substrate H01L 27/28 ; thermoelectric devices using organic material H01L 35/00 , H01L 37/00 ; piezoelectric, electrostrictive or magnetostrictive elements using organic material H01L 41/00)**
- H01L 51/50 . specially adapted for light emission, e.g. organic light emitting diodes [OLED] or polymer light emitting devices (PLED); (organic semiconductor lasers H01S 5/36 ; { circuit arrangements for OLED or PLED H05B 33/0896 ; control arrangements for organic electroluminescent displays G09G 3/3208})
- U H01L 2225/00** **Details relating to assemblies covered by the group H01L 25/00 but not provided for in its subgroups**
- U 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 2225/04 . . the devices not having separate containers
- U H01L 2225/065 . . . the devices being of a type provided for in group H01L 27/00
- U H01L 2225/06503 . . . . Stacked arrangements of devices
- H01L 2225/06541 . . . . Conductive via connections through the device, e.g. vertical interconnects, through silicon via [TSV] (manufacturing via connections per se H01L 21/76898)

**Project: N/A (H01M)**

- U H01M 2/00**      **Constructional details or processes of manufacture of the non-active parts**
- U H01M 2/20      • Current conducting connections for cells
- H01M 2/34      • • with provision for preventing undesired use or discharge, { e.g. complete cut of current (safety devices [H01M 2200/00](#))}

**Project: N/A (H01P)**

- U H01P 1/00**      **Auxiliary devices (coupling devices of the waveguide type [H01P 5/00](#))**
- H01P 1/30      • for compensation of, or protection against, temperature or moisture effects; {for improving power handling capability ([H01P 1/04](#), [H01P 1/08](#) 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

- 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.
- 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.

- U H01Q 1/12      • Supports; Mounting means ({for the purpose of scanning [H01Q 3/00](#) ; mounting structure for reflecting surfaces [H01Q 15/14](#) ; Towers, masts, or poles [E04H 12/00](#) } ; supporting conductors in general [H02G 7/00](#))
- H01Q 1/18      • • Means for stabilising aerials on an unstable platform, {(reducing wind-induced forces [H01Q 1/005](#))}
- H01Q 1/22      • • by structural association with other equipment or articles, {(portable transceivers [H04B 1/3827](#))}
- H01Q 1/2291      • • • {used in bluetooth or WI-FI devices of Wireless Local Area Networks (WLAN)} ([H01Q 1/241](#) takes precedence; WLAN in general [H04W](#))
- U 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)
- H01Q 1/46      • • Electric supply lines or communication lines, {(circuits for signal transmission via power distribution lines [H04B 3/56](#))}
- H01Q 1/52      • Means for reducing coupling between aerials; Means for reducing coupling between an aerial and another structure, {(absorbing means [H01Q 17/00](#))}
- H01Q 3/00**      **Arrangements for changing or varying the orientation or the shape of the directional pattern of the waves radiated from an aerial or aerial system, {(means for positioning [H01Q 1/125](#))}**
- H01Q 3/12      • using mechanical relative movement between primary active elements and secondary devices of aerials or aerial systems, {(positioning [H01Q 1/1264](#))}
- U H01Q 3/26      • varying the relative phase or relative amplitude of energisation between two or more active radiating elements; varying the distribution of energy across a radiating aperture ( {[H01Q 3/12](#) } , [H01Q 3/22](#) , [H01Q 3/24](#) take precedence; { use of steered beams for mobile service area coverage [H04Q7/3615](#) )}
- U H01Q 3/30      • • varying the {relative}phase {between the radiating elements of an array ([H01Q 3/2605](#) , [H01Q 3/2658](#) , [H01Q 3/2682](#) , [H01Q 3/44](#) take precedence)}
- U H01Q 3/34      • • • by electrical means (active lenses or reflecting arrays [H01Q 3/46](#))

- H01Q 3/36 . . . with variable phase-shifters {(combined with time delay devices [H01Q 3/2682](#))}
- H01Q 3/42 . . . using frequency-mixing {(H01Q 3/2676 takes precedence)}
- H01Q 13/00 Waveguide horns or mouths; Slot aeriels; Leaky-waveguide aeriels; Equivalent structures causing radiation along the transmission path of a guided wave {(multimode aeriels [H01Q 25/04](#))}**
- H01Q 13/20 . Non-resonant leaky-waveguide or transmission-line aeriels; Equivalent structures causing radiation along the transmission path of a guided wave {(varying the phase velocity [H01Q 3/443](#) ; near-field transmission systems using leaky cable [H04B 5/0018](#))}
- H01Q 13/22 . Longitudinal slot in boundary wall of waveguide or transmission line {(H01Q 13/203 takes precedence)}
- U H01Q 15/00 Devices for reflection, refraction, diffraction, or polarisation of waves radiated from an aerial, e.g. quasi-optical devices (variable for purpose of altering directivity [H01Q 3/00](#) ; arrangements of such devices for guiding waves [H01P 3/20](#) ; variable for purpose of modulation [H03C 7/02](#))**
- U H01Q 15/02 . Refracting or diffracting devices, e.g. lens, prism
- H01Q 15/12 . functioning also as polarisation filter {(polarisation converters [H01Q 15/242](#))}
- H01Q 15/14 . Reflecting surfaces; Equivalent structures {(electromagnetic shields [H01Q 1/526](#) ; radar-reflecting targets in general [F41J 2/00](#))}
- H01Q 15/18 . comprising plurality of mutually inclined plane surfaces, e.g. corner reflector {(H01Q 15/16 takes precedence)}
- H01Q 15/22 . functioning also as polarisation filter {(in combination with polarising devices [H01Q 15/24](#))}
- H01Q 17/00 Devices for absorbing waves radiated from an aerial; Combinations of such devices with active aerial elements or systems {(anechoic chambers [G01R 29/105](#))}**
- H01Q 19/00 Combinations of primary active aerial elements and units with secondary devices, e.g. with quasi-optical devices, for giving the aerial a desired directional characteristic {(combination of horns with slotted waveguide array [H01Q 13/0233](#))}**
- H01Q 19/02 . Details {(fastening of an element on a boom [H01Q 1/1228](#))}
- H01Q 19/06 . using refracting or diffracting devices, e.g. lens {(radome [H01Q 1/42](#))}
- H01Q 19/08 . for modifying the radiation pattern of a radiating horn in which it is located {(corrugated horns [H01Q 13/0208](#) ; producing a circular polarisation [H01Q 13/0241](#))}
- U H01Q 21/00 Aerial arrays or systems (producing a beam the orientation or the shape of the directional pattern of which can be changed or varied [H01Q 3/00](#); {combination of imbricated aeriels or arrays operating on different wavebands [H01Q 5/40](#);} electrically-long aeriels [H01Q 11/00](#))**
- NOTE**
- This group includes:
- arrays comprising two or more individually energised similar active aerial units spaced apart;
  - combinations of different types of active aeriels or arrays;
  - combinations of substantially independant non-interacting active aeriels or arrays.
- U H01Q 21/06 . Arrays of individually energised active aerial units similarly polarised and spaced apart

- U H01Q 21/061
  - • {Two dimensional planar arrays}
- H01Q 21/062
  - • • {using dipole aerials; ([H01Q 21/067](#) , [H01Q 21/068](#) take precedence)}
- H01Q 21/08
  - • the units being spaced along or adjacent to a rectilinear path {(waveguide fed [H01Q 21/0037](#))}
- H01Q 21/20
  - • the units being spaced along or adjacent to a curvilinear path {(slotted waveguide arrays [H01Q 21/005](#) ; circularly or helically slotted waveguides [H01Q 21/0062](#))}
- H01Q 21/24
  - Combinations of aerial elements or aerial units polarised in different directions for transmitting or receiving circularly and elliptically polarised waves or waves linearly polarised in any direction {(circularly polarised patch antennas [H01Q 9/0428](#) ; circularly polarised horns [H01Q 13/0241](#) ; cross-polarised horns [H01Q 13/0258](#) ; polarisation converters [H01Q 15/242](#) ; cross-polarised rear feeds [H01Q 19/136](#) ; crossed polarisation dual antenna [H01Q 25/001](#))}
- H01Q 21/28
  - Combinations of substantially independent non-interacting aerial units or systems {(multiple beam [H01Q 25/00](#))}
- U H01Q 25/00
 

**Aerials or aerial systems providing at least two radiating patterns (arrangements for changing or varying the orientation or the shape of the directional pattern [H01Q 3/00](#))**
- H01Q 25/04
  - Multimode aerials {(corrugated horns [H01Q 13/0208](#))}

## Project: N/A (H01R)

- 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](#))}**
- H01R 13/58
  - Means for relieving strain on wire connection, e.g. cord grip, { for avoiding loosening of connections between wires and terminals within a coupling device terminating a cable (for flat or ribbon cables [H01R 12/771](#); for distribution boxes [H02G 3/0616](#))}
- U H01R 13/62
  - Means for facilitating engagement or disengagement of coupling parts or for holding them in engagement
- H01R 13/629
  - • Additional means for facilitating engagement or disengagement of coupling parts, e.g. aligning or guiding means, levers, gas pressure { electrical locking indicators, manufacturing tolerances (separate tools or apparatus [H01R 43/26](#))}
- U H01R 23/00
 

**Two-part coupling devices having four or more poles, with or without additional protective earth connection; Separate parts thereof**

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 24/00](#) and its subgroups. See also [H01R107/00](#) as part of the indexing scheme associated with group [H01R 24/00](#) and its subgroups, relating to the number of poles in a two-part coupling device.
- H01R 23/68
  - for connection to or between printed circuits; { Non printed connecting arrangements of printed circuit boards (PCB's) ([H01R 23/668](#) takes precedence)}

WARNING

This group and it subgroups is no longer used for the classification of new documents as from January 01, 2011. The backlog of this group and it subgroups is being continuously reclassified to [H01R 12/00](#), [H01R 12/70](#) and their respective subgroups.

- U H01R 39/00 Rotary current collectors, distributors, or interrupters (cam-operated switches [H01H 19/00](#); structural association with dynamo-electric machine [H02K 13/00](#))**
- H01R 39/02 · Details { for dynamo electric machines (for current collectors not particularly for dynamo electric machines [H01R 39/60](#), [H01R 39/64](#))}

**Project: N/A (H01S)**

- U H01S 1/00 Lasers, i.e. devices for generation, amplification, modulation, demodulation, or frequency-changing, using stimulated emission, of electromagnetic waves of wavelength longer than that of infra-red waves**
- H01S 1/06 · gaseous,{i.e. beam masers (atomic clocks [G04F 5/14](#) ; circuits using beam masers as a reference frequency for regulating frequency of oscillators [H03L 7/26](#) ; molecular or atomic beam generation [H05H 3/02](#))}
- 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 3/02 · Constructional details {(housings or packages of fibre lasers [H01S 3/06704](#))}
- H01S 3/03 · · of gas laser discharge tubes {(gas discharge tubes in general [H01J 17/00](#) , [H01J 61/00](#))}
- U H01S 3/04 · · Cooling arrangements
- H01S 3/041 · · · for gas lasers {([H01S 3/0401](#) takes precedence)}
- H01S 3/042 · · · for solid state lasers {([H01S 3/0401](#) takes precedence)}
- U H01S 3/05 · Construction or shape of optical resonators; Accomodation of active medium therein; Shape of active medium
- U H01S 3/06 · · Construction or shape of active medium
- H01S 3/063 · · · Waveguide lasers,{i.e. whereby the dimensions of the waveguide are of the order of the light wavelength (waveguide gas lasers [H01S 3/0315](#))}
- H01S 3/067 · · · · Fibre lasers {(optical pumping thereof [H01S 3/094003](#) ; controlling the output parameters [H01S 3/10](#) ; stabilisation of the output parameters [H01S 3/13](#) ; characterised by scattering effects, i.e. stimulated Brillouin or Raman effects, [H01S 3/302](#))}
- U H01S 3/06708 · · · · · {Constructional details of the fibre, e.g. compositions, cross-section, shape or tapering (optical fibres as passive waveguides [G02B 6/02](#))}
- H01S 3/06716 · · · · · · {Fibre compositions (per se [C03C 13/04](#))or doping with active elements (lasing materials in general [H01S 3/14](#))}
- H01S 3/08 · · Construction or shape of optical resonators or components thereof {(waveguide lasers [H01S 3/063](#) ; controlling the laser output [H01S 3/10](#) ; stabilising [H01S 3/13](#))}
- H01S 3/081 · · · comprising more than two reflectors {(folded-path gas lasers [H01S 3/076](#))}
- H01S 3/082 · · · · defining a plurality of resonators, e.g. for mode selection {(single longitudinal mode control [H01S 3/08022](#))}
- U H01S 3/09 · Processes or apparatus for excitation, e.g. pumping
- H01S 3/095 · · using chemical or thermal pumping {(generating plasma, e.g. by combustion [H02K 44/00](#) , [H05H 1/24](#))}
- H01S 3/0955 · · using pumping by high energy particles {([H01S 3/0903](#) , [H01S 3/0906](#) , [H01S 3/09707](#) take precedence)}
- U H01S 3/097 · · by gas discharge of a gas laser
- H01S 3/0977 · · · having auxiliary ionisation means {([H01S 3/09713](#) takes precedence)}

- U 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](#)
- U H01S 3/106
- by controlling a device placed within the cavity ([H01S 3/10076](#), [H01S 3/13](#) take precedence)
- H01S 3/107
- using an electro-optical device, e.g. exhibiting Pockels- or Kerr-effect ([H01S 3/1061](#), [H01S 3/1063](#), [H01S 3/1065](#) take precedence)
- H01S 3/108
- using a non-linear optical device, e.g. exhibiting Brillouin- or Raman-scattering ((mode locking using a non-linear element [H01S 3/1112](#)))
- U H01S 3/14
- characterised by the material used as the active medium
- U H01S 3/16
- Solid materials
- H01S 3/17
- amorphous, e.g. glass ((glass manufacture, shaping or supplementary processes [C03B](#); compositions for laserable glass [C03C 4/0071](#)))
- H01S 5/00**
- Semiconductor lasers ((superluminescent diodes [H01L 33/0045](#)))**
- U H01S 5/02
- Structural details or components not essential to laser action
- H01S 5/0206
- {Substrates, e.g. growth, shape, material, removal or bonding; (specific crystal orientation [H01S 5/3202](#))}
- H01S 5/024
- Cooling arrangements ((cooling solid state junction devices [H01L 23/34](#); Heating arrangements; [H01S 5/0261](#) takes precedence)
- U H01S 5/04
- Processes or apparatus for excitation, e.g. pumping, (e.g. by electron beams) ([H01S 5/06](#) takes precedence)
- H01S 5/042
- Electrical excitation; {Circuits therefor (discrete or monolithically integrated laser drive components on mountings [H01S 5/0261](#))}
- H01S 5/10
- Construction or shape of the optical resonator, (e.g. extended or external cavity, coupled cavities, bent-guide, varying width, thickness or composition of the active region) ([H01S 5/20](#) takes precedence)
- H01S 5/12
- the resonator having a periodic structure, e.g. in distributed feed-back lasers (DFB-lasers) ([H01S 5/18](#) takes precedence) ((forward coupled structures, i.e. DFC lasers, [H01S 5/1028](#)))
- H01S 5/14
- External cavity lasers ((external cavity elements, their control or stabilisation [H01S 3/08](#), [H01S 3/10](#) and [H01S 3/13](#)))
- NOTE**  
in this group external cavity elements correspond to elements inside the laser cavity but outside the monolithic semiconductor body. These elements correspond to intra cavity elements in [H01S 3/00](#)
- U H01S 5/20
- Structure or shape of the semi-conductor body to guide the optical wave; {Confining structures perpendicular to the optical axis, e.g. index- or gain-guiding, stripe geometry, broad area lasers, gain tailoring, transverse or lateral reflectors, special cladding structures, MQW barrier reflection layers}
- U H01S 5/22
- having a ridge or stripe structure
- H01S 5/223
- Buried stripe structure (([H01S 5/227](#) takes precedence))
- U H01S 5/30
- Structure or shape of the active region; Materials used for the active region

H01S 5/34

- comprising quantum well, or superlattice structures, e.g. single quantum well lasers (SQW lasers), multiple quantum well lasers (MQW lasers), graded index separate confinement heterostructure lasers (GRINSEL lasers) ([H01S 5/36](#) takes precedence)

**Project: N/A (H02G)****U H02G 1/00**

**Methods or apparatus specially adapted for installing, maintaining, repairing or dismantling electric cables or lines**

U H02G 1/06

- for laying cables, e.g. laying apparatus on vehicle (combined with trench digging or back-filling machines or dredgers [E02F 5/00](#))

H02G 1/08

- through tubing or conduit, e.g. rod or draw wire for pushing or pulling {(inserting electrical cables into tubes using wallbores [E21B 17/206](#) ; for optical cables [G02B 6/4401](#))}

**U H02G 7/00**

**Overhead installations of electric lines or cables (installations of bus-bars [H02G 5/00](#) ; trolley wires or contact lines for electric railways [B60M](#) ; fastening conductors to insulators [H01B 17/00](#) , e.g. [H01B 17/06](#) , [H01B 17/16](#) , [H01B 17/22](#) ; protection against abnormal electric conditions [H01H](#) ; hook contacts for temporary connections to overhead lines [H01R 11/14](#))**

H02G 7/14

- Arrangements or devices for damping mechanical oscillations of lines, e.g. for reducing production of sound {(damping spacers [H02G 7/125](#))}

**U H02G 15/00****Cable fittings**

H02G 15/34

- Cable fittings for cryogenic cables {(superconductive cables per se [H01B 12/00](#))}

**Project: N/A (H02H)**

H02H 3/00

**Emergency protective circuit arrangements for automatic disconnection directly responsive to an undesired change from normal electric working condition with or without subsequent reconnection (specially adapted for specific types of electric machines or apparatus or for sectionalised protection of cable or line systems [H02H 7/00](#); systems for change-over to standby supply [H02J 9/00](#)){integrated protection (for motors [H02H 7/0822](#))}**

**Project: N/A (H02M)****U H02M 3/00**

**Conversion of dc power input into dc power output {(converters specially adapted for use in combination with a battery [H02J 7/0065](#))}**

U H02M 3/02

- without intermediate conversion into ac

U H02M 3/04

- by static converters

U H02M 3/06

- using resistors or capacitors, e.g. potential divider

H02M 3/07

- using capacitors charged and discharged alternately by semiconductor devices with control electrode, { e.g. charge pumps (for substrate bias voltage generators [G05F 3/205](#); for static stores [G11C 5/145](#), [G11C 16/06](#); charge pumping structures for internal polarisation [H01L 27/0222](#))}

**Project: N/A (H03B)****U H03B 1/00****Details**

H03B 1/02

- Structural details of power oscillators, e.g. for heating {(construction of transmitters [H04B](#) ; features of generators for heating by electromagnetic fields [H05B 6/00](#))}

- 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
- U 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 5/1206 · · · {using multiple transistors for amplification}
- H03B 5/1209 · · · · {the amplifier having two current paths operating in a differential manner and a current source or degeneration circuit in common to both paths e.g. a long-tailed pair. (H03B 5/1215 takes precedence)}
- 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)}**
- H03B 29/00** **Generation of noise currents and voltages {(gasfilled discharge tubes with solid cathode specially adapted as noise generators H01J 17/005)}**

**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 1/18 · · by use of distributed coupling {i.e. distributed amplifiers (distributed amplifiers using coupling networks with distributed constants H03F 3/605)}
- H03F 1/30 · Modifications of amplifiers to reduce influence of variations of temperature or supply voltage { or other physical parameters (in differential amplifiers H03F 3/45479)}

**Project: N/A (H03G)**

- H03G 1/00** **Details of arrangements for controlling amplification {(for arrangements combined with means for generating a controlling signal, or these means per se, see the other main groups of H03G)}**
- U H03G 3/00** **Gain control in amplifiers or frequency changers {without distortion of the input signal}(gated amplifiers H03F 3/72 ; peculiar to television receivers H04N)**
- U H03G 3/20 · Automatic control {(H03G 3/005 takes precedence } ; combined with volume compression or expansion H03G 7/00)
- U H03G 3/30 · · in amplifiers having semiconductor devices
- U H03G 3/34 · · · Muting amplifier when no signal is present {or when only weak signals are present, or caused by the presence of noise signals, e.g. squelch systems}
- H03G 3/344 · · · · {Muting responsive to the amount of noise (noise squelch) (H03G 3/345 takes precedence)}
- H03G 7/00** **Volume compression or expansion in amplifiers {(frequency dependent H03G 9/00)}**

**Project: N/A (H03H)**

- 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](#))**
- H03H 7/30 · Time-delay networks {(analogue shift registers [G11C 27/04](#))}
- U H03H 9/00** **Networks comprising electromechanical or electro-acoustic devices; Electromechanical resonators (making single crystals [C30B](#); selection of materials thereof [H01L](#); piezo-electric, electrostrictive or magnetostrictive devices per se [H01L 41/00](#) ; electromechanical transducers [H04R](#))**
- U H03H 9/02 · Details
- U H03H 9/05 · · Holders; Supports
- H03H 9/10 · · · Mounting in enclosures {(constructional combinations of enclosure with electromechanical and other electronic elements [H03H 9/0538](#))}
- H03H 9/25 · Constructional features of resonators using surface acoustic waves {(devices for manipulating acoustic surface waves in general [G10K 11/36](#))}
- U H03H 9/30 · Time-delay networks
- H03H 9/42 · · using surface acoustic waves {(devices for manipulating acoustic surface waves in general [G10K 11/36](#))}
- U H03H 9/46 · Filters (multiple-port electromechanical filters [H03H 9/70](#))
- U H03H 9/54 · · comprising resonators of piezo-electric or electrostrictive material ([H03H 9/64](#) takes precedence)
- U H03H 9/58 · · · Multiple crystal filters
- H03H 9/60 · · · · Electric coupling means therefor {([H03H 9/0095](#) takes precedence)}
- U H03H 17/00** **Networks using digital techniques**
- H03H 17/02 · Frequency selective networks {(digital computers for complex mathematical operations [G06F 17/10](#))}

**Project: N/A (H03K)**

- U H03K 23/00** **Pulse counters comprising counting chains; Frequency dividers comprising counting chains ([H03K 29/00](#) takes precedence)**
- H03K 23/80 · using semiconductor devices having only two electrodes, e.g. tunnel diode, multi-layer diode, {e.g. with a negative resistance characteristic (unijunction transistors [H03K 23/84](#))}

**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](#))**
- U H03M 1/06 · Continuously compensating for, or preventing, undesired influence of physical parameters (periodically, {e.g. by using stored correction values,} [H03M 1/10](#))
- H03M 1/08 · · of noise {([H03M 1/0617](#) takes precedence)}
- U 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)
- U H03M 1/14 · · Conversion in steps with each step involving the same or a different conversion means and delivering more than one bit
- H03M 1/16 · · · with scale factor modification, i.e. by changing the amplification between the steps {([H03M 1/141](#) takes precedence)}
- U H03M 1/34 · · Analogue value compared with reference values ([H03M 1/48](#) takes precedence)

- H03M 1/36
- • • simultaneously only, i.e. parallel type [{\(thermometer to binary encoders H03M 7/165\)}](#)
- U H03M 3/00**      **Conversion of analogue values to or from differential modulation**
- H03M 3/02
- Delta modulation, i.e. one-bit differential modulation [{\(H03M 3/30 takes precedence\)}](#)
- 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 7/14
- Conversion to or from non-weighted codes
- H03M 7/20
- • Conversion to or from n-out-of-m codes [{\(number-of-one counters G06F 7/607\)}](#)
- H03M 7/30
- Compression (speech analysis-synthesis for redundancy reduction [G10L 19/00](#) ; for image communication [H04N](#)); Expansion; Suppression of unnecessary data, e.g. redundancy reduction [{\(for data acquisition G06F 17/40 ; for image data processing G06T 9/00 ; redundancy reduction in data recording G11B 20/14 ; for transmission H04B 1/66\)}](#)
- U H03M 7/3002
- • {Conversion to or from differential modulation}
- H03M 7/3048
- • • {Conversion to or from one-bit differential modulation only, e.g. delta modulation [DM] [\(H03M 7/3004 takes precedence\)}](#)
- U H03M 7/40
- • Conversion to or from variable length codes, e.g. Shannon-Fano code, Huffman code, Morse code
- H03M 7/42
- • • using table look-up for the coding or decoding process, e.g. using read-only memory [{\(H03M 7/4006 takes precedence\)}](#)
- U 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](#)})**
- U H03M 13/03
- Error detection or forward error correction by redundancy in data representation, i.e. code words containing more digits than the source words
- H03M 13/05
- • using block codes, i.e. a predetermined number of check bits joined to a predetermined number of information bits [{\(H03M 13/2906 takes precedence\)}](#)
- H03M 13/09
- • • Error detection only, e.g. using cyclic redundancy check [CRC] codes or single parity bit [{\(error detection or correction by redundancy in data representation G06F 11/08\)}](#)
- WARNING  
Not complete, see also **G06F11/10B**
- U H03M 13/11
- • • using multiple parity bits
- U H03M 13/1102
- • • • {Codes on graphs and decoding on graphs, e.g. low-density parity check [LDPC] codes}
- U H03M 13/1148
- • • • • {Structural properties of the code parity-check or generator matrix}
- H03M 13/1151
- • • • • • {Algebraically constructed LDPC codes, e.g. LDPC codes derived from Euclidean geometries [EG-LDPC codes] [\(H03M 13/116](#) , [H03M 13/1174](#) take precedence)}

- H03M 13/25
  - Error detection or forward error correction by signal space coding, i.e. adding redundancy in the signal constellation, e.g. Trellis Coded Modulation [TCM] {(modulation codes [H03M 13/31](#))}
- H03M 13/33
  - Synchronisation based on error coding or decoding {(for transmission [H04L 7/048](#))}
  - WARNING
  - Groups [H03M 13/333](#) - [H03M 13/336](#) are not complete pending reclassification; see also this group

**Project: N/A (H04B)****U 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 1/02
  - Transmitters (spatial arrangements of component circuits in radio pills for living beings [A61B 5/07](#))
- H04B 1/03
  - • Constructional details, e.g. casings, housings {(adapted for airplanes [B64D](#))}
- H04B 1/034
  - • • Portable transmitters {(distress beacons [G01S 1/68](#) ; means for indicating the location of accidentally buried persons [A63B 29/021](#))}
- U H04B 1/06
  - Receivers (control of amplification [H03G](#) ; television receivers [H04N 5/44](#) , [H04N 5/64](#))
- U H04B 1/10
  - • Means associated with receiver for limiting or suppressing noise or interference {induced by transmission (interference reduction in spread spectrum systems [H04B 1/7097](#) ; equalising on HF or IF [H04B 7/005](#) ; diversity systems [H04B 7/02](#) ; elimination of image frequencies [H03D 7/18](#) ; noise suppression by control of amplification [H03G 3/00](#) , [H03G 5/00](#) , [H03G 7/00](#) ; squelching [H03G 3/26](#) , [H03G 3/34](#))}
- H04B 1/12
  - • • Neutralising, balancing, or compensation arrangements {(balancing ripple filters [H04B 15/005](#) , [H02M 1/143](#))}
- H04B 1/16
  - • Circuits {(demodulators [H03D](#))}
- H04B 1/62
  - for providing a predistortion of the signal in the transmitter and corresponding correction in the receiver, e.g. for improving the signal/noise ratio {(for optical transmitters [H04B 10/58](#))}
- H04B 1/64
  - • Volume compression or expansion arrangements {(for amplifiers [H03G 7/00](#))}
- H04B 1/74
  - for increasing reliability, e.g. using redundant or spare channels or apparatus {(replacing by standby devices for amplifiers [H03F 1/52](#) , [H03F 1/542](#))}
- 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](#))}
- H04B 7/145
  - • Passive relay systems {(construction of passive reflectors [G01S 13/02](#))}
- U H04B 7/15
  - • Active relay systems
- U H04B 7/155
  - • • Ground-based stations ([H04B 7/204](#) takes precedence; { for satellite systems [H04B 7/18517](#))}

- H04B 7/15507
- • • {Relay station based processing for cell extension or control of coverage area, (network planning with network coordinated processing with regard to cell extension [H04W 16/26](#) ; network topologies using dedicated repeater stations [H04W 84/047](#) ; terminal devices adapted for relaying to or from an other terminal [H04W 88/04](#))}
- 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 7/2621
- • • {using frequency division multiple access [FDMA] ([H04B 7/2615](#) takes precedence)}
- H04B 7/2628
- • • {using code-division multiple access [CDMA] or spread spectrum multiple access [SSMA] ([H04B 7/2618](#) takes precedence)}
- H04B 7/2643
- • • {using time-division multiple access [TDMA] ([H04B 7/2615](#) , [H04B 7/2618](#) take precedence)}
- U 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
- WARNING
- Group [H04B 10/2572](#) does not correspond to former or current IPC groups. Concordance CPC:IPC for this group is as follows: - [H04B 10/2572](#) : [H04B 10/2507](#)
- U H04B 10/03
- Arrangements for fault recovery
- WARNING
- This group and its subgroups are not complete pending reclassification; see also [H04B 10/07](#) and subgroups [H04B 10/071](#) - [H04B 10/0799](#)
- H04B 10/032
- • using working and protection systems {([H04J 14/0287](#) takes precedence)}
- H04B 10/25
- Arrangements specific to fibre transmission {(optical fibres per se, structural details of arrangements comprising optical fibres or other optical elements [G02B 6/00](#))}
- WARNING
- This group and its subgroups are not complete pending reclassification; see also [H04B 10/12](#) and its subgroups
- U H04B 10/2507
- • for the reduction or elimination of distortion or dispersion
- U H04B 10/2513
- • • due to chromatic dispersion
- H04B 10/2519
- • • • using Bragg gratings {(Bragg gratings per se [G02B 6/02076](#) ; devices using fibre gratings for dispersion control per se [G02B 6/29316](#))}
- H04B 10/2525
- • • • using dispersion-compensating fibres {(dispersion-tailored or dispersion compensation fibres per se [G02B 6/02214](#))}
- H04B 10/2543
- • • due to fibre non-linearities, e.g. Kerr effect {(non-linear optical devices [G02F 1/35](#))}
- H04B 10/2575
- • Radio-over-fibre, e.g. radio frequency signal modulated onto an optical carrier {(sub-carrier multiplexing [H04J 14/0298](#))}
- H04B 10/2581
- • Multimode transmission {(mode multiplex systems [H04J 14/04](#))}

- H04B 10/27
  - Arrangements for networking {(free-space networks [H04B 10/11](#) , WDM networks [H04J 14/0278](#) , specific to radio-over-fibre [H04B 10/25753](#))}
- U H04B 10/29
  - Repeaters
- H04B 10/291
  - • in which processing or amplification is carried out without conversion of the main signal from optical form {(fibre optical amplifiers per se [H01S 3/067](#))}
- U H04B 10/2912
  - • • {characterised by the medium used for amplification or processing}
- H04B 10/2914
  - • • • {using lumped semiconductor optical amplifiers [SOA] (semiconductor optical amplifiers per se [H01S 5/50](#))}
- U H04B 10/293
  - • • Signal power control
- H04B 10/294
  - • • • in a multiwavelength system, e.g. gain equalisation {(for general power control in WDM systems, see also [H04J 14/0221](#))}
- H04B 10/2942
  - • • • • {using automatic gain control [AGC] ([H04B 10/296](#) takes precedence)}

**Project: N/A (H04H)**

- U H04H 60/00
  - **Arrangements for broadcast applications with a direct linking to broadcast information or broadcast space-time; Broadcast-related systems**
- U H04H 60/68
  - Systems specially adapted for using specific information, e.g. geographical or meteorological information
- H04H 60/72
  - • using EPGs [Electronic Programme Guides] (focusing on identifying broadcast space-time [H04H 60/39](#); { menu type display of EPG in television receivers [H04N 5/44543](#))}

**Project: N/A (H04J)**

- U H04J 1/00
  - **Frequency-division multiplex systems ([H04J 14/00](#) takes precedence)**
- U H04J 1/02
  - Details
- H04J 1/04
  - • Frequency-transposition arrangements {(modulation with carrier or side-band suppression [H03C 1/52](#) , [H03C 1/60](#) ; single-band suppression [H04B 1/00](#) , [H04B 15/00](#) ; telegraphic communication [H04L 27/02](#) , [H04L 25/49](#) ; transference of modulation from one carrier to another, e.g. frequency-changing [H03D 7/00](#) ; demodulation or transference of modulation of modulated electromagnetic waves [H03D 9/00](#))}
- H04J 1/06
  - • Arrangements for supplying the carrier waves {Arrangements for supplying synchronisation signals (carrier supply [H04L 5/10](#) ; frequency multiplication [H03B 19/00](#) , [H03B 21/00](#) ; mixing [H03D 7/00](#) , [H03D 9/00](#) ; synchronisation in general [H03B](#))}
- H04J 1/08
  - • Arrangements for combining channels {(branching filters [H01P 1/213](#) , [H03H 7/46](#))}
- H04J 1/10
  - • Intermediate station arrangements, e.g. for branching, for tapping-off {(repeater circuits [H04B 3/36](#) , [H04B 3/58](#) ; two-way amplifiers [H03F 3/62](#))}
- 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 1/16
  - • Monitoring arrangements {(for transmission in general [H04B 17/00](#) ; for amplifiers [H03F 1/52](#) , [H03F 1/523](#))}
- 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](#))}

- H04J 3/06
  - • Synchronising arrangements {(for television systems [H04N 5/04](#) ; bit-synchronisation [H04L 7/00](#))}
- 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](#))}
- H04J 3/0652
  - • • • • {Synchronisation among time division multiple access [TDMA] nodes, e.g. time triggered protocol [TTP] (bus network with centralized control in which slots are of a TDMA packet structure [H04L 12/4035](#))}
- H04J 3/14
  - • Monitoring arrangements {(for SDH/SONET rings [H04J 3/085](#))}
- H04J 3/17
  - in which the transmission channel allotted to a first user may be taken away and re-allotted to a second user if the first user becomes inactive, e.g. TASI {(speech analysis or identification [G10L](#))}
- H04J 3/22
  - in which the sources have different rates or codes {(simultaneous speech and digital data or video transmission [H04M 11/06](#) ; see provisional also [H04J 3/16](#))}
- U **H04J 11/00**
**Orthogonal multiplex systems,{e.g. using WALSH codes}([H04J 13/00](#) takes precedence)**
- H04J 11/0069
  - {Cell search, i.e. determining cell identity [cell-ID] (design of multiplexing codes [H04J 13/00](#) ; processing access restriction or access information [H04W 48/16](#) ; discovery of network devices for network data management [H04W 8/005](#) ; sounding signals for channel estimation [H04L 25/0226](#) ; structure of reference signals in multicarrier modulation systems [H04L 27/2613](#) ; frame, time or carrier synchronisation in multicarrier modulation systems [H04L 27/2655](#))}
- U **H04J 14/00**
**Optical multiplex systems (optical coupling, mixing or splitting, per se [G02B](#))**
- U H04J 14/02
  - Wavelength-division multiplex systems
- U H04J 14/0227
  - • {Operation, administration, maintenance or provisioning [OAMP] of WDM network, e.g. media access, routing or wavelength allocation (monitoring of optical transmission parameters in general [H04B 10/07](#))}
- U H04J 14/0254
  - • • {Optical medium access}
- H04J 14/0267
  - • • • {Optical signalling or routing, (routing in packet switched systems [H04L 12/5689](#))}

**Project: N/A (H04K)**

- U **H04K 3/00**
**Jamming of communication; Counter-measures (counter-measures used in radar or analogous systems [G01S 7/00](#); { in radar [G01S 7/36](#), [G01S 7/38](#); in lidar [G01S 7/495](#); in sonar [G01S 7/537](#))}**

NOTES

1. This group covers: "Jamming", only when it means purposefully trying to interfere with the physical transmission and reception of communication. Provided this condition is met, this group covers devices and methods for:

- a. jamming of communication:
  - i. jamming by intentionally decreasing the signal to noise ratio
  - ii. deceptive jamming
  - iii. passive jamming
  - iv. destructive jamming
- b. countermeasures against jamming
- c. countermeasures against undesired self-jamming resulting from jamming
- d. countermeasures against surveillance, interception or detection
- e. other electronic countermeasures using or against electromagnetic or acoustic waves

- f. signal detection techniques used in relation to
  - i. jamming: for interception and monitoring of the jamming target signal
  - ii. anti-jamming: for jamming detection,
  - iii. anti-surveillance: for surveillance detection
- g. jamming for testing or assessing countermeasures
- h. jamming used to prevent:
  - cellular phone communication
    - i. in a vehicle during motion
    - ii. in particular areas, including prisons, hospitals, planes, petrol stations, theatres
    - iii. to trigger RCIEDs - reception of positioning data using GPS
  - wireless communication in ad hoc networks or in sensor networks
  - exchange of data between wirelessly connected devices or device units, on Bluetooth, infrared or near field links
  - unauthorized access to network, service or information, including:
    - i. access to a WLAN network
    - ii. access to information stored in contactless carriers, including RFID carriers
  - transmission of an alarm, against burglary or vehicle theft
  - remote control of devices
  - surveillance
    - i. of speech in meeting rooms
    - ii. of electromagnetic emissions from a computer screen
  - interception or detection of a wirelessly transmitted signal]

2. In this group, the following acronyms are used: GPS = global positioning system RCIED = remote controlled improvised explosive device RFID = radio frequency identification WLAN= wireless local area network

#### WARNING

Groups [H04K 3/00](#) -[H04K 3/94](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04K 3/00](#) - [H04K 3/94](#) : [H04K 3/00](#)

- U H04K 3/20
  - {Countermeasures against jamming (in radar [G01S 7/36](#); interference suppression in receivers [H04B 1/10](#))}
- H04K 3/25
  - • {based on characteristics of target signal or of transmission (as countermeasure against surveillance [H04K 3/827](#)), e.g. using direct sequence spread spectrum or fast frequency hopping (spread spectrum techniques [H04B 1/69](#))}
- U H04K 3/80
  - {Jamming or countermeasure characterized by its function}
- U H04K 3/82
  - • {related to preventing surveillance, interception or detection}
- H04K 3/827
  - • • {using characteristics of target signal or of transmission (as countermeasure against jamming [H04K 3/25](#)), e.g. using direct sequence spread spectrum or fast frequency hopping (spread spectrum techniques [H04B 1/69](#))}

#### 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 1/08
  - by repeating transmission, e.g. Verdun system {([H04L 1/1858](#) and [H04L 1/189](#) take precedence)}
- 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 5/02           · Channels characterised by the type of signal
- U H04L 5/06           · · the signals being represented by different frequencies (combined with time-division multiplexing [H04L 5/26](#))
- H04L 5/08           · · · each combination of signals in different channels being represented by a fixed frequency {(e.g. twinplex; see [H04L 27/16](#))}
- H04L 5/20           · using different combinations of lines, e.g. phantom working {(phantom interconnection between telephone switching centres [H04M 7/08](#) ; coupling arrangements therefor [H04L 25/0272](#))}
- H04L 5/22           · using time-division multiplexing {(in general [H04J 3/00](#))}
- 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](#))}**
- H04L 7/02           · Speed or phase control by the received code signals, the signals containing no special synchronisation information {([H04L 7/0075](#) takes precedence; tuning or selecting resonant circuits [H03J](#) ; using the properties of error detecting or correcting codes [H04L 7/048](#))}
- H04L 7/04           · Speed or phase control by synchronisation signals {([H04L 7/0075](#) takes precedence)}
- H04L 9/00**           **{Cryptographic mechanisms or cryptographic}arrangements for secret or secure communication {(network architectures or network communication protocols for network security [H04L 63/00](#) or for wireless network security [H04W 12/00](#) ; security arrangements for protecting computers or computer systems against unauthorized activity [G06F 21/00](#))}**

#### NOTES

1. This group covers: 1.1 Cryptographic mechanisms including cryptographic protocols and cryptographic algorithms, whereby a cryptographic protocol is a distributed cryptographic algorithm defined by a sequence of steps precisely specifying the actions required of two or more entities to achieve specific security objectives (e.g. cryptographic protocol for key agreement), and whereby a cryptographic algorithm is specifying the steps followed by a single entity to achieve specific security objectives (e.g. cryptographic algorithm for symmetric key encryption). 1.2 [H04L 9/00](#) focuses on cryptographic mechanisms such as encryption schemes, digital signatures, hash functions, random number generation, key management, said cryptographic mechanisms providing information security such as privacy or confidentiality, data integrity, message authentication, entity authentication, authorization, validation, certification, time-stamping, anonymity, revocation, non-repudiation. 1.3 [H04L 9/00](#) covers also countermeasures against attacks on cryptographic mechanisms.

2. This group does not cover: 2.1 Networking architectures or network communication protocols for securing the traffic flowing through data packet networks and providing secure exchanges among applications communicating through data packet networks, which are covered by [H04L 63/00](#) . Attention is drawn to the Note 1. after group [H04L 63/00](#) 2.2 Security arrangements for protecting computers or computer systems against unauthorised activity, which are covered by [G06F 21/00](#)

- H04L 9/08           · Key distribution {or management, e.g. generation, sharing or updating, of cryptographic keys or passwords (network architectures or network communication protocols for supporting key management in a packet data network [H04L 63/06](#))}

#### WARNING

The former subgroup [H04L 9/08](#) was a 2-dot subgroup placed under [H04L 9/06](#) . However since the former subgroup [H04L 9/08](#) comprises both symmetric and

asymmetric key distribution the subgroup [H04L 9/08](#) was promoted to one-dot-level, unlike the corresponding IPC subgroup

- U H04L 9/0816
  - {Key establishment, i.e. cryptographic processes or cryptographic protocols whereby a shared secret becomes available to two or more parties, for subsequent use}
- H04L 9/0819
  - • {Key transport or distribution, i.e. key establishment techniques where one party creates or otherwise obtains a secret value, and securely transfers it to the other(s) (network architectures or network communication protocols for key distribution in a packet data network [H04L 63/062](#))}
- H04L 9/10
  - with particular housing, physical features or manual controls {(not used; see [H04L 9/00](#))}
- H04L 9/14
  - using a plurality of keys or algorithms {(network architectures or network communication protocols wherein the sending and receiving network entities apply hybrid encryption, i.e. combination of symmetric and asymmetric encryption [H04L 63/045](#))}
- U H04L 9/18
  - Encryption by serially and continuously modifying data stream elements, e.g. stream cipher systems

WARNING  
This subgroup is no longer used for the classification of new documents as from 1.02.2012 and the backlog of this subgroup is being continuously reclassified to [H04L 9/065](#)
- H04L 9/20
  - • Pseudorandom key sequence combined element-for-element with data sequence {(not used; see [H04L 9/18](#))}
- U H04L 9/22
  - • • with particular pseudorandom sequence generator

WARNING  
This subgroup is no longer used for the classification of new documents as from 1.02.2012 and the backlog of this subgroup is being continuously reclassified to [H04L 9/065](#)
- H04L 9/24
  - • • • sequence produced by more than one generator {(not used; see [H04L 9/22](#))}
- H04L 9/34
  - Bits, or blocks of bits, of the telegraphic message being interchanged in time {(for speech signals [H04K 1/06](#))}
- U **H04L 12/00** **Data switching networks (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units [G06F 13/00](#))**
- U H04L 12/02
  - Details
- H04L 12/14
  - • {Metering,}charging {or billing}arrangements {specially adapted for data wireline or wireless communications (payment schemes, architectures or protocols per se [G06Q 20/00](#))}
- U H04L 12/16
  - • Arrangements for providing special services to substations {contains provisionally no documents}
- H04L 12/18
  - • • for broadcast or conference{, e.g. multicast {(multicast or broadcast switches [H04L 49/201](#))}
- U H04L 12/28
  - characterised by path configuration, e.g. local area networks (LAN), wide area networks (WAN)
- U H04L 12/42
  - • Loop networks
- H04L 12/437
  - • • Ring fault isolation or reconfiguration {(for SDH/SONET ring networks [H04J 3/085](#))}
- U H04L 12/46
  - • Interconnection of networks

H04L 12/4641

- • • {Virtual LANs, VLANs, e.g. virtual private networks [VPN] (virtual private networks for security [H04L 29/06612](#) ; routing of packets [H04L 12/5689](#) ; encapsulation techniques [H04L 12/4633](#) ; LAN interconnection over a bridge based backbone [H04L 12/462](#) ; packet switches [H04L 12/5696](#))}

**NOTES**

1. This group covers:

- a group of hosts with a common set of requirements that communicate as if they were attached to the same broadcast domain, regardless of their physical location.

2. This group does not cover:

- group multicasting, which is covered by [H04L 12/18](#)
- configuration of switches supporting VLANs, which is covered by [H04L 12/2424](#)
- multiprotocol label switching [MPLS], which is covered by [H04L 12/5689](#)
- spanning tree protocol [STP], which is covered by [H04L 12/462](#)
- arrangements for network security, which is covered by [H04L 29/06612](#)
- encapsulation techniques, which is covered by [H04L 12/4633](#)
- access arrangements, which is covered by [H04L 12/2856](#)

3. In this group the following terms or expressions are used with the meaning indicated:

- B-Tag means Backbone VLAN Tag
- C-Tag means Customer VLAN Tag
- GARP means Generic Attribute Registration Protocol
- GVRP means GARP VLAN Registration Protocol
- I-SID means Service Instance Identifier
- MVRP means Multiple VLAN Registration Protocol
- PBB means Provider Backbone Bridges
- S-Tag means Service VLAN Tag
- VLAN means Virtual Local Area Network
- VPN means Virtual Private Network
- VTP means VLAN Trunking Protocol]

**U H04L 25/00****Baseband systems**

H04L 25/02

- Details (circuits in general for handling pulses [H03K](#) ; in line transmission systems in general [H04B 3/02](#)); {Arrangements for supplying electrical power along data transmission lines (systems for transmitting signals via power distribution lines [H04B 3/54](#))}

H04L 25/06

- • Dc level restoring means; Bias distortion correction {decision circuits providing symbol by symbol detection (detection of unique words or other known elements [H04L 7/00](#) , [H04J 3/0602](#))}

H04L 25/10

- • Compensating for variations in line balance {(balancing during the coupling of signals [H04L 25/0282](#))}

H04L 25/12

- • Compensating for variations in line impedance {(impedance matching in coupling arrangements [H04L 25/0278](#))}

U H04L 25/20

- • Repeater circuits; Relay circuits

H04L 25/24

- • • Relay circuits using discharge tubes or semiconductor devices {([H04L 25/22](#) takes precedence)}

U H04L 25/38

- Synchronous or start-stop systems, e.g. for Baudot code

U H04L 25/40

- • Transmitting circuits; Receiving circuits (repeater circuits, relay circuits{[H04L 25/20](#)})

- H04L 25/49
- • • using code conversion at the transmitter; using predistortion; using insertion of idle bits for obtaining a desired frequency spectrum; using three or more amplitude levels; {Baseband coding techniques specific to data transmission systems (spectral shaping [H04L 25/03828](#))}
- H04L 25/497
- • • • by correlative coding, e.g. partial response coding or echo modulation coding (transmitters and receivers for partial response systems (transversal equalizers [H04L 25/03](#) ; partial response continuous phase modulation systems [H04L 27/18](#)))
- 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](#))}**
- H04L 27/01
- Equalisers {(baseband equalisers [H04L 25/03](#) ; control of amplification [H03G](#) ; in analogue transmission systems [H04B 3/04](#) , [H04B 7/005](#))}
- U H04L 27/10
- Frequency-modulated carrier systems, i.e. using frequency-shift keying ([H04L 27/32](#) takes precedence; { continuous phase systems [H04L 27/18](#))}
- H04L 27/12
- • Modulator circuits (in general [H03C](#){[H03K 7/06](#)}); Transmitter circuits {(continuous phase modulation [H04L 27/20](#))}
- H04L 27/14
- • Demodulator circuits (in general [H03D](#){[H03K 9/06](#)}); Receiver circuits {(for continuous phase modulation systems [H04L 27/22](#))}
- U 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 29/06176
- • • {Arrangements for real-time multimedia communications (data switching systems for broadcast or conference [H04L 12/18](#) ; message switching systems [H04L 12/58](#) ; television systems [H04N 7/00](#) ; interconnection arrangements between switching centres for working between exchanges having different types of switching equipment where the types of switching equipment comprise PSTN/ISDN equipment and equipment of networks other than PSTN/ISDN [H04M 7/1205](#) ; systems providing special services to telephonic subscribers [H04M 3/42](#) ; network applications in general [H04L 29/08081](#))}

#### NOTES

##### 1. [N: This group covers:

- only communications which fulfil the following two conditions:
  1. they are based on packet data;
  2. there is real-time or pseudo-real-time temporal association between source and destination, or source and network, or destination and network;
- provided that the above two conditions are met, this group covers arrangements relating to
  1. the transmission of the multimedia data itself,
  2. the user-to-user, user-to-network, inter-network or intra-network signalling supporting:
    - a. the establishment of a session for the subsequent transmission of the multimedia data, or
    - b. the maintenance of the session or

- c. the application services available to the user during the session (unless explicitly excluded in certain cases).
2. This group does not cover:
  - non-real-time multimedia file transfer, which is covered by [H04L 29/08117](#) .
  - multimedia store or forward messaging as in e-mail, MMS or the like, which is covered by [H04L 12/58](#)
  - analogue multimedia streaming, as in analogue television systems, which is covered by [H04N 7/00](#) and [H04N 5/00](#)
  - bit streaming, i.e. not packet-based, as in ISDN which is covered by [H04Q 11/04](#)
  - instant messaging, which is covered by [H04L 12/581](#)
  - any other multimodal data communications which do not meet the conditions of being packet-based and real-time or pseudo-real-time.
3. In this group the following terms or expressions are used with the meaning indicated:
  - H.323 means International Telecommunication Union Recommendation no. 323, series H, entitled "Packet-based multimedia communications systems"
  - IP means Internet Protocol
  - IMS means IP Multimedia Subsystem
  - ISDN means Integrated Services Digital Network
  - MGC means Media Gateway Control/Controller
  - MGCP means Media Gateway Control Protocol
  - MMS means Multimedia Messaging Service
  - PBX means Private Branch Exchange
  - PSTN means Public Switched Telephone Network
  - QoS means Quality of Service
  - RTP means Real Time Protocol
  - RTCP means Real Time Control Protocol
  - SIP means Session Initiation Protocol
  - SPAM means unsolicited electronic mail
  - SPIT means SPAM Prevention in IP Telephony

]

4.

WARNING

Group [H04L 29/06176](#) or subgroups are not complete pending reorganisation. See also [H04L 29/06027](#)

- |   |               |   |
|---|---------------|---|
| U | H04L 29/06183 | . . . . {Signalling, control or architecture (selecting or control in telephonic networks <a href="#">H04Q 3/00</a> ; data network management <a href="#">H04L 12/24</a> ; data network testing or monitoring <a href="#">H04L 12/26</a> )} |
| U | H04L 29/0621  | . . . . . {Network architectures, gateways, control or user entities}   |
|   | H04L 29/06217 | . . . . . {IMS [IP multimedia subsystem] (wireless communication networks <a href="#">H04W</a> )}   |
| U | H04L 29/06319 | . . . . . {Session control}   |
| U | H04L 29/0634  | . . . . . {Screening (arrangements for screening incoming telephone calls <a href="#">H04M 3/436</a> ; arrangements for network security <a href="#">H04L 29/06551</a> )}   |
|   | H04L 29/06346 | . . . . . {of unsolicited session attempts, e.g. SPIT [SPAM prevention in IP telephony] (message switching systems <a href="#">H04L 12/58</a> )}  |
| 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 <a href="#">H04L 12/58</a> ; protocols for multimedia communication <a href="#">H04L 29/06027</a> ; protocols for telewriting <a href="#">H04L 29/06034</a> )}       |

- H04L 29/0809 . . . . {involving the use of web-based technology, e.g. Hyper Text Transfer Protocol (HTTP), (information retrieval from the Internet [G06F 17/30861](#))}
- H04L 29/08108 . . . . {adapted for terminals or networks with limited resources and for terminal portability, e.g. Wireless Application Protocol [WAP] (services or facilities specially adapted for wireless communication networks [H04W 4/00](#))}
- H04L 29/08648 . . . . {Arrangements for service discovery, e.g. Service Location Protocol [SLP] (address allocation to terminals or nodes connected to a network [H04L 29/12009](#))}
- U 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 29/08981 . . . . . {involving the movement of software and/or configuration parameters, e.g. applets, (programme loading or initiating [G06F 9/445](#))}
- U H04L 29/12 . . . . . characterised by the data terminal {contains provisionally no documents}
- U H04L 29/12009 . . . . . {Arrangements for addressing and naming in data networks}
- NOTES
- [H04L 61/00](#) covers aspects of data networks, excluding pure telephone solutions ( [H04M 7/00](#) ) or addressing within a device, e.g. process, memory etc. ( [G06F 13/42](#) or [G06F 12/00](#) ) .
  - Aspects relating to switching and routing are classified in [H04L 12/56](#) .
  - Main aspects covered by this groups are: address resolution; directories and name-to-address resolution; allocation of addresses; conversion of addresses; logical names and non-standard use of addresses
- WARNING  
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 61/00](#)
- U H04L 29/12594 . . . . {Arrangements for managing names, e.g. use of aliases or nicknames (retrieval from the Internet by using information identifiers, e.g. URLs [G06F 17/30876](#) ; name-to-address mapping [H04L 29/12047](#))}
- WARNING  
This subgroup is no longer used for classification as from 01.05.2012. The backlog of this subgroup is being continuously reclassified to [H04L 61/30](#)

- U H04L 29/12622 . . . . {Name registration, generation or assignment}
- WARNING  
This subgroup is no longer used for classification as from 01.05.2012.  
The backlog of this subgroup is being continuously reclassified to [H04L 61/3015](#)
- H04L 29/12632 . . . . {Administrative registration, e.g. for domain names at internet corporation for assigned names and numbers [ICANN] (data processing for administration [G06Q 10/00](#))}
- WARNING  
This subgroup is no longer used for classification as from 01.05.2012.  
The backlog of this subgroup is being continuously reclassified to [H04L 61/302](#)
- U H04L 41/00 {Arrangements for maintenance or administration or management of packet switching networks}**
- WARNING  
Groups [H04L 41/00](#) - [H04L 41/5096](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows:- [H04L 41/00](#) - [H04L 41/5096](#) : [H04L 12/24](#)
- U H04L 41/02 . {involving integration or standardization}
- H04L 41/024 . . {using relational databases for representation of network management data, e.g. managing via structured query language [SQL] (information retrieval in structured data stores [G06F 17/30286](#))}
- H04L 41/0246 . . {exchanging or transporting network management information using Internet , e.g. aspects relating to embedding network management web servers in network elements, web service for network management purposes, aspects related to Internet applications or services or web-based protocols, simple object access protocol [SOAP] (web-based network application protocols [H04L 67/02](#) ; web-based network application protocols for remote control of end-devices or monitoring of remote application data [H04L 67/025](#) ; proprietary application protocols for remote control of end-devices in special networking environments [H04L 67/125](#) ; retrieval from the Internet [G06F 17/30861](#))}
- U H04L 41/50 . {Network service management, i.e. ensuring proper service fulfillment according to an agreement or contract between two parties, e.g. between an IT-provider and a customer}
- U H04L 41/5003 . . {Managing service level agreement [SLA] or interaction between SLA and quality of service [QoS]}
- H04L 41/5009 . . . {Determining service level performance, e.g. measuring SLA quality parameters, determining contract or guarantee violations, response time or mean time between failure [MTBF] (monitoring performance metrics on a simple network level [H04L 43/08](#))}
- U H04L 47/00 {Traffic regulation in packet switching networks (arrangements for detecting or correcting errors in the information received [H04L 1/00](#))}**
- NOTE  
This group covers:
1. Flow control or congestion control
  2. Queue scheduling

3. Admission control or resource allocation

WARNING

Groups [H04L 47/00](#) -[H04L 47/829](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for this groups is as follows:

- [H04L 47/00](#) - [H04L 47/829](#) : [H04L 12/56](#)

- U H04L 47/10
  - {Flow control or congestion control}
- H04L 47/24
  - • {depending on the type of traffic, e.g. priority or quality of service [QoS] (Network arrangements for networked applications for scheduling or organising the servicing of application requests whereby quality of service or priority requirements are taken into account [H04L 67/322](#))}

**U H04L 51/00 {Arrangements for user-to-user messaging in packet-switching networks, e.g. e-mail or instant messages}**

WARNING

Groups [H04L 51/00](#) - [H04L 51/38](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows:

- [H04L 51/00](#) - [H04L 51/38](#) : [H04L 12/58](#)

- H04L 51/04
  - {Real-time or near real-time messaging, e.g. instant messaging [IM] (network arrangements or protocols for real-time communications [H04L 65/00](#))}

**U H04L 61/00 {Network arrangements or network protocols for addressing or naming}**

NOTE

This group does not cover:

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](#) .

WARNING

Groups [H04L 61/00](#) - [H04L 61/6095](#) do not correspond to former or current IPC groups.

Concordance CPC : IPC for these groups is as follows:

- [H04L 61/00](#) - [H04L 61/6095](#) :  
[H04L 61/6095](#) - [H04L 61/6095](#) : [H04L 29/12](#)

- U 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}
- U H04L 61/256
  - • • {Network address translation [NAT] traversal}
- H04L 61/2564
  - • • • {for a higher-layer protocol, e.g. for session initiation protocol [SIP] (SIP for real-time communications [H04L 65/1006](#))}
- 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 61/3015
  - • {Name registration, generation or assignment}
- H04L 61/302
  - • • {Administrative registration, e.g. for domain names at internet corporation for assigned names and numbers [ICANN] (data processing specially adapted for administration or management [G06Q 10/00](#))}



- H04L 67/1065
- • • {Discovery involving distributed pre-established resource-based relationships among peers, e.g. based on distributed hash tables [DHT] (pre-configuration of logical or physical connections [H04L 67/1053](#))}
- H04L 67/1097
- {for distributed storage of data in a network, e.g. network file system [NFS], transport mechanisms for storage area networks [SAN] or network attached storage [NAS] (temporary storage of data at an intermediate stage [H04L 67/2842](#) ; dedicated interfaces to storage systems [G06F 3/0601](#))}
- H04L 67/40
- {Protocols for remote procedure calls [RPC] (remote procedure calls [G06F 9/547](#))}
- U H04L 69/00**
- {Application independent communication protocol aspects or techniques in packet data networks (interconnection arrangements between CPUs, memories, or peripherals within a single computer [G06F 13/00](#) ; data switching networks [H04L 12/00](#); flow control [H04L 12/569](#) ; routing of packets [H04L 12/5689](#) ; network management [H04L 12/24](#) ; network monitoring or testing [H04L 12/26](#) ; network topologies, i.e. networks characterized by the path configuration, media access control [H04L 12/28](#) ; intermediate storage or scheduling [H04L 12/5694](#) ; packet switches and switching fabrics [H04L 12/5696](#) ; message switching systems, e.g. email, [H04L 12/58](#) ; broadcast or multicast [H04L 12/18](#) ; hybrid switching systems [H04L 12/64](#) ; gateways [H04L 12/66](#) ; networks specially adapted for wireless communication [H04W](#); transmission systems [H04B](#))}**
- WARNING**
- Groups [H04L 69/00](#) - [H04L 69/40](#) do not correspond to former or current IPC groups. Concordance CPC : IPC for these groups is as follows: - [H04L 69/00](#) -
- |                            |                             |                            |                            |                            |
|----------------------------|-----------------------------|----------------------------|----------------------------|----------------------------|
| <a href="#">H04L 69/28</a> | :                           | <a href="#">H04L 29/06</a> | -                          | <a href="#">H04L 69/30</a> |
| -                          | <a href="#">H04L 69/329</a> | :                          | <a href="#">H04L 29/08</a> | -                          |
| <a href="#">H04L 69/40</a> | :                           | <a href="#">H04L 29/14</a> | ]                          |                            |
- H04L 69/16
- {Transmission control protocol/internet protocol [TCP/IP] or user datagram protocol [UDP] (transport layer addressing aspects [H04L 61/6063](#) ; network layer protocol adaptations for supporting mobility, e.g. mobile IP, [H04W 80/04](#) ; flow control or congestion control in data switching networks [H04L 12/569](#) ; adapting video multiplex streams to a specific network [H04N 21/2381](#) ; special adaptations of TCP, UDP or IP for interworking of IP based networks with other networks [H04L 69/169](#))}

**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 1/247
- Telephone sets including user guidance or features selection means facilitating their use; { Fixed telephone terminals for accessing a variety of communication services via the PSTN network}
- H04M 1/2473
- {Telephone terminals interfacing a personal computer, e.g. using an API (Application Programming Interface) (details of API [H04M 7/0021](#))}
- U H04M 1/64
- Automatic arrangements for answering calls; Automatic arrangements for recording messages for absent subscribers; Arrangements for recording conversations (centralised dictation systems [H04M 11/10](#))
- H04M 1/65
- • Recording arrangements {for recording a message from the calling party (in the exchange [H04M 3/50](#))}

- U H04M 3/00 Automatic or semi-automatic exchanges {(constructional details of telephone exchanges [H04Q 1/02](#))}**
- U H04M 3/42  
H04M 3/436
- Systems providing special services or facilities to subscribers
  - Arrangements for screening incoming calls, { i.e. evaluating the characteristics of a call before deciding whether to answer it (based on the calling party profile [H04M 3/42059](#); based on location [H04M 3/42348](#); based on presence [H04M 3/42365](#); diversion [H04M 3/54](#))}

**Project: N/A (H04N)**

H04N

**PICTORIAL COMMUNICATION, e.g. TELEVISION (measuring, testing [G01](#); systems for autographic writing, e.g. writing telegraphy, which involve following an outline{[G08C 21/00](#)}; information storage based on relative movement between record carrier and transducer [G11B](#); coding, decoding or code conversion, in general [H03M](#); broadcast distribution or the recording of use made thereof [H04H](#))**

NOTES

1. This subclass covers :

- {generation, recording or} transmission of pictures or their transient or permanent reproduction either locally or remotely {and the corresponding electronic image capture and reproduction process employing image representative electric signals,} by methods or arrangements {involving at least one of} the following steps:
  - a. the {electronic acquisition or} scanning of a picture {or scene} , i.e. resolving the whole picture-containing area into individual picture-elements and the derivation of picture-representative electric signals related thereto, simultaneously or in sequence {, e.g. by reading an electronic solid-state image sensor [SSIS] pickup device (e.g. CCD or CMOS image sensor) as electronic image sensor converting optical image information into said electrical signals;}
  - b. the reproduction of the whole picture-containing area {or scene} by the reproduction of individual picture-elements into which the picture is resolved by means of picture representative electric signals derived therefrom, simultaneously or in sequence by converting an electric image signal into light e.g. with an electronic spatial light modulator;
- concerning cameras or projectors:
  - video cameras or TV cameras, e.g. in studios, CCTV cameras, surveillance cameras, camcorders; constructional or mechanical details related to such cameras even when not peculiar to the presence of an electronic image sensor [EIS] e.g. housings;
  - arrangements or methods for image capture using an EIS or image projection using an electronic spatial light modulator [ESLM], i.e.
    - i. sensor read-out;
    - ii. processing of electrical image signals from the EIS or provided to the ESLM for the generation of respective camera or projector control signals,
      - for controlling the EIS or its read-out for e.g. exposure, scene selection for auto focussing, or electronic image enhancement or processing of the image signals captured by the EIS, e.g. white balance, electronic motion blur correction, noise suppression [H04N 5/00](#) ,
      - for controlling the ESLM, e.g. control of the light source based on electronic image signal, light conditioning specially adapted for the ESLM, or
      - for controlling other camera functions, e.g. exposure, shaking by influencing optical parts of the camera (generation of control signals for focussing for optical elements [G02B 7/28](#) ; using such signals to control

focus of particular apparatus, see the subclasses for the apparatus, e.g. [G03B](#), [G03F](#), [H04N](#));

- electronic image data storage (data storage in general [G11B](#), [G11C](#));
  - in-camera image processing e.g. correction of lens distortion, defect pixel correction, noise suppression, removal of motion blur, improving of the dynamic range of the image, in-projector image processing, electronic image data manipulation, e.g. during display or projection (image processing per se [G06T](#));
  - electronic viewfinders e.g. control of image pickup devices based on information indicated by the electronic viewfinder displaying an image signal generated by the EIS ;
  - electrical or mechanical aspects of camera modules using electronic image sensors, as well as related constructional details as in webcams or mobile phones (see [H04M 1/0264](#) for mounting structure in mobile phones);
  - details of projectors peculiar to the use of an ESLM, e.g. dichroic or polarizing arrangements specially adapted for the ESLM (dichroic or polarizing arrangements in general [G02B](#), [G03B](#));
  - remote control of cameras or projectors peculiar to the EIS or the ESLM, e.g. affecting their operation, or based on a generated image signal;
  - adaptations peculiar to the use of a EIS or ESLM and/or the display, the transmission, recording or other use of electrical image data and related circuitry, e.g. mounting of EIS or ESLM, integrated cleaning system for the EIS, dust mapping, cooling of the EIS, controlling the operation of the EIS by external input signals;
  - systems or apparatus wherein the inventive contribution lies in the interaction between features covered in Notes 1 above, concerning cameras and projectors, when interacting with those covered in Note 1 of [G03B](#), e.g. switch-over between electronic motion-blur correction of electronic viewfinder during focussing and optical motion-blur correction of the lens during exposure, electronic motion blur correction of the electronic image sensor based on output signals of additional sensor, or interaction between mechanical shutter and electronic control of the charge accumulation period of the EIS;]
  - (in group [H04N 1/00](#) ) systems for the transmission or the reproduction of arbitrarily composed pictures or patterns in which the local light variations composing a picture are not subject to variation with time, e.g. documents (both written and printed), maps, charts, photographs (other than cinematograph films);
  - circuits specially designed for dealing with pictorial communication signals, e.g. television signals, as distinct from merely signals of a particular frequency range.
2. This subclass does not cover :
- circuits or other parts of systems which form the subject of other subclasses, which are covered by the corresponding subclasses, e.g. [H03C](#), [H03F](#), [H03J](#), [H04B](#), [H04H](#);
  - systems in which legible alphanumeric or like character forms are analysed according to step (a) of Note (1) to derive an electric signal from which the character is recognised by comparison with stored information, which are covered by subclass [G06K](#);
  - systems for the direct photographic copying of an original picture in which an electric signal representative of the picture is derived according to the said step (a) of and employed to modify the operation of the system, e.g. to control exposure, which are covered by class [G03](#);
  - systems for the reproduction according to step (b) of Note (1) of pictures comprising alphanumeric or like character forms but involving the production of the equivalent of a signal which would be derived according to the abovementioned step (a), e.g. by cams, punched card or tape,

- coded control signal, or other means, which are covered by the subclass for the application, e.g. [G01D](#), [G06T](#), [H04L](#);
- systems for the reproduction to the above-mentioned step (b) of pictures comprising alphanumeric or like character forms and involving the generation according to the abovementioned step (a) of picture-representative electric signals from a pre-arranged assembly of such characters, or records thereof, forming an integral part of the systems, which are covered by the subclass for the application, e.g. [B41B](#), [G06K](#), subject to those applications which are covered by this subclass;
  - printing, duplication or marking methods, or materials or processes therefor, which are covered by the relevant subclasses, e.g. [B41C](#), [B41M](#), [G03C](#), [G03F](#), [G03G](#);
  - apparatus or methods for taking photographs using light sensitive film for image capture, apparatus/methods for printing, for projecting or viewing images using film stock, photographic film or slides by optical means, e.g. mounting of optical elements, flashes, and their related controls, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake), cooling, beam shaping;
  - aspects of apparatus or methods for taking photographs using an electronic image sensor [EIS] for image capture, insofar as they correspond to those of said apparatus methods for taking photographs using light sensitive film, i.e. insofar as not peculiar to the presence of the EIS, e.g. mounting of optical elements or flashes not peculiar to the presence of the EIS, and their related controls insofar as they are not peculiar to the presence or use of the EIS, e.g. exposure, focus, (opto-)mechanical motion blur (anti-shake);
  - aspects of apparatus or methods for projecting or viewing images using an electronic spatial light modulator [ESLM], insofar as they correspond to those of said apparatus/ methods for projecting or viewing images using film stock, photographic film or slides, i.e. insofar as not peculiar to the presence of the ESLM, e.g. mounting of optical elements not peculiar to the presence of the ESLM, and their related controls not peculiar to the presence of the ESLM, e.g. cooling, beam shaping, optical keystone correction;
  - (opto-)mechanical image enhancement in printers or projectors, e.g. keystone correction;
  - optical viewfinders;
  - remote control of cameras and projectors insofar not peculiar to the EIS or ESLM, e.g. not affecting their operation, or being based on a generated image signal;
  - optical aspects of camera modules using electronic image sensors and related constructional details (optical elements or arrangements associated with solid state imager structures [H01L 27/14625](#));
  - constructional aspects of projectors, e.g. cooling, beam shaping, light integrating means not peculiar to the ESLM;]
3. In this subclass, the following expression is used with the meaning indicated: "television systems" means those systems for the {electronic generation} , transmission and reproduction of arbitrarily composed pictures in which the local light variations composing a picture may change with time, e.g. natural "live" scenes, {electronic} recordings of such scenes such as cinematograph films].
4. In this subclass, as in subclass [G03B](#) , the following terms are used with the meaning indicated:
- "camera": a device capturing image information represented by light patterns reflected or emitted from objects, and exposing a light sensitive film or a main electronic image sensor during a timed exposure, usually through a photographic lens, and producing an image on a light sensitive film or an electrical image information signal respectively;

- "projector": a device displaying image information by projection of light patterns, usually through an optical lens, wherein the light patterns are generated by illuminating an image, e.g. film or slide, or by converting an electric image signal into an optical signal using an electronic spatial light modulator;
- "electronic image sensor [EIS]": optoelectronic transducer, converting optical image information into an electrical signal susceptible of being processed, stored, transmitted or displayed;
- "additional sensor": a sensor, other than the main electronic image sensor, used for controlling a camera;
- "electronic spatial light modulator [ESLM]": optoelectronic transducer converting electric signals representing image information into optical image information.]

**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 :

- H04N 5/31 covered by [G01S 7/52](#), [G01S 15/89](#)
- H04N 5/761 covered by [H04N 5/782](#)
- H04N 5/7613 covered by [H04N 5/782](#)
- H04N 5/7617 covered by [H04N 5/782](#)
- H04N 5/922 covered by [H04N 5/92](#)
- H04N 5/924 covered by [H04N 5/92](#)
- H04N 9/815 covered by [H04N 9/81](#)
- H04N 11/24 covered by [H04N 11/002](#)
- H04N 15/00 covered by [H04N 13/00](#)

**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 1/024 • Details of scanning heads;{Means for illuminating the original (circuit details thereof [H04N 1/40](#))}
- U H04N 1/028 • • for picture information pick-up
- H04N 1/029 • • • Heads optically focused on only one picture element at a time {(H04N 1/0281 takes precedence)}
- U H04N 1/032 • • for picture information reproduction
- H04N 1/034 • • • using ink, e.g. ink-jet heads {(H04N 1/0323 takes precedence)}
- U H04N 1/04 • Scanning arrangements,{i.e. arrangements for the displacement of active reading or reproducing elements relative to the original or reproducing medium, or vice versa}(H04N 1/387 takes precedence; { scanning by varying the direction of light in general [G02B 26/10](#))}
- H04N 1/10 • • using flat picture-bearing surfaces {(H04N 1/113 , H04N 1/195 take precedence; arrangements for the main-scanning [H04N 1/12](#))}
- U H04N 1/19 • • using multi-element arrays
- U H04N 1/191 • • • the array comprising a one-dimensional array,{or a combination of one-dimensional arrays, or a substantially one-dimensional array, e.g. an array of staggered elements}
- H04N 1/192 • • • • Simultaneously {or substantially simultaneously}scanning picture elements on one main scanning line {(details of the sub-scanning [H04N 1/10](#) , [H04N 1/12](#))}
- 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 1/32101
  - • {Display, printing, storage or transmission of additional information, e.g. ID code, date and time or title}
- U H04N 1/32106
  - • • {separate from the image data, e.g. in a different computer file}
- H04N 1/32117
  - • • • {in a separate transmission or protocol signal prior to or subsequent to the image data transmission, e.g. in digital identification signal (DIS), in non standard setup (NSS) or in non standard field (NSF)}{(for mode signalling [H04N 1/333](#))}
- H04N 1/327
  - • Initiating, continuing or ending a single-mode communication; Handshaking therefor {(H04N 1/32614 takes 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)}
- H04N 1/46
  - Colour picture communication systems {(colorimetry [G01J 3/46](#))}
- U H04N 1/56
  - • Processing of colour picture signals ([H04N 1/52](#) takes precedence)
- H04N 1/60
  - • • Colour correction or control {(H04N 1/54 takes precedence)}
- 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)}
- U 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 5/222
  - Studio circuitry; Studio devices; Studio equipment;{Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, TV cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles}
- U H04N 5/225
  - • Television cameras;{Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles (optical systems [G02B](#); associated working of recording or reproducing apparatus with TV camera or receiver in which the television signal is not significantly involved [G11B 31/006](#) ; tubes [H01J](#))}
- H04N 5/247
  - • • Arrangements of television cameras {(constructional details of cameras [H04N 5/2251](#) ; stereoscopic picture signal generators [H04N 13/0239](#) ; [H04N 13/0242](#))}
- 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 5/32
  - • Transforming X-rays {(image transformers [H01J 31/00](#))}

- 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
- H04N 5/351
- • • Control of the SSIS depending on the scene, e.g. brightness or motion in the scene [{\(circuitry for evaluating the brightness variations of the object H04N 5/2351\)}](#)
- H04N 5/353
- • • • Control of the integration time [{\(circuitry for compensating for variation in the brightness of the object by influencing the exposure time H04N 5/2353\)}](#)
- U H04N 5/357
- • • Noise processing, e.g. detecting, correcting, reducing or removing noise
- H04N 5/3572
- • • • {the noise resulting only from the lens unit, e.g. flare, shading, vignetting or "cos4"} [\(suppressing or minimizing noise in picture signal generation H04N 5/217\)}](#)
- U H04N 5/369
- • • SSIS architecture; Circuitry associated therewith
- H04N 5/372
- • • • Charge-coupled device [CCD] sensors; Time delay and integration [TDI] registers or shift registers specially adapted for SSIS [{\(charge coupled imager structure H01L 27/148\)}](#)
- H04N 5/374
- • • • Addressed sensors, e.g. MOS or CMOS sensors [{\(MOS imager structure H01L 27/14643\)}](#)
- U H04N 5/38
- Transmitter circuitry ([H04N 5/14](#) takes precedence)
- H04N 5/40
- • Modulation circuits [{\(in general H03C 1/00 , H03C 3/00 , H03C 5/00\)}](#)
- U H04N 5/44
- Receiver circuitry ([H04N 5/14](#) takes precedence)
- H04N 5/52
- • Automatic gain control [{\(in general H03G\)}](#)
- H04N 5/60
- • for the sound signals [{\(for silent tuning, i.e. muting H04N 5/505\)}](#)
- H04N 5/62
- • • Intercarrier circuits, i.e. heterodyning sound and vision carriers [{\(H04N 5/607 takes precedence\)}](#)
- U H04N 5/66
- Transforming electric information into light information (scanning details [H04N 3/00](#) ; { electro- or magneto optic devices [G02F 1/00](#) ; CRT's [H01J](#)})
- H04N 5/68
- • Circuit details for cathode-ray display tubes [{\(deviation circuits H04N 3/16 , H03K 4/00\)}](#)
- 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](#))
- U H04N 5/91
- • Television signal processing therefor (of colour signals [H04N 9/79](#))
- H04N 5/911
- • • for the suppression of noise [{\(H04N 5/932 takes precedence\)}](#)
- H04N 5/92
- • • Transformation of the television signal for recording, e.g. modulation, frequency changing; Inverse transformation for playback [{\(transmitter circuitry H04N 5/38 ; receiver circuitry H04N 5/44\)}](#)
- H04N 5/923
- • • • using preemphasis of the signal before modulation and deemphasis of the signal after demodulation [{\(volume compression or expansion in amplifiers in general H03G 7/00\)}](#)
- U H04N 5/93
- • • Regeneration of the television signal or of selected parts thereof
- H04N 5/95
- • • • Time-base error compensation [{\(H04N 5/932 takes precedence\)}](#)

- 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 7/025 · Systems for the transmission of digital non-picture data, e.g. of text during the active part of a television frame {(transmission of digital non-picture data during the vertical blanking interval only [H04N 7/088](#))}
- H04N 7/04 · Systems for the transmission of one television signal, i.e. both picture and sound, by a single carrier {([H04N 7/084](#) , [H04N 7/087](#) take precedence)}
- H04N 7/06 · Systems for the simultaneous transmission of one television signal, i.e. both picture and sound, by more than one carrier {([H04N 7/084](#) , [H04N 7/087](#) take precedence)}
- U H04N 7/16** · Analogue secrecy systems; Analogue subscription systems
- H04N 7/167 · · Systems rendering the television signal unintelligible and subsequently intelligible {(secret communication in general [H04K 1/00](#))}
- H04N 7/18 · Closed circuit television systems, i.e. systems in which the signal is not broadcast {(television transmission of measured quantities [G01D 5/39](#) ; intruder alarm or detection by television surveillance [G08B 13/196](#))}
- U H04N 7/24** · Systems for the transmission of television signals using pulse code modulation ([H04N 21/00](#) takes precedence)
- U H04N 7/52** · · Systems for transmission of a pulse code modulated video signal with one or more other pulse code modulated signals, e.g. an audio signal or a synchronizing signal (assembling of a multiplex stream by combining a video stream with other content or additional data, remultiplexing of multiplex streams, insertion of stuffing bits into the multiplex stream, assembling of a packetised elementary stream at server side [H04N 21/236](#) ; disassembling of a multiplex stream, remultiplexing of multiplex streams, extraction or processing of Service Information, disassembling of packetised elementary stream at client side [H04N 21/434](#))
- H04N 7/54 · · · the signals being synchronous {([H04N 21/23602](#) , [H04N 21/23614](#) , [H04N 21/2365](#) , [H04N 21/2368](#) , [H04N 21/4341](#) , [H04N 21/4342](#) , [H04N 21/4347](#) , [H04N 21/4348](#) take precedence)}
- U H04N 9/00** **Details of colour television systems**
- U H04N 9/12** · Picture reproducers (devices or arrangements for the electro-, magneto- or acousto-optical modulation or deflection of light beams [G02F](#))
- H04N 9/30 · · using solid-state colour display devices {(indicating devices using static means to present variable information [G09G](#))}
- H04N 9/31 · · Projection devices for colour picture display {e.g. using electronic spatial light modulators [ESLM]} (projection devices using film stock, photographic film or slides, [G03B 21/00](#) and subgroups)}
- U H04N 9/64** · Circuits for processing colour signals ([H04N 9/77](#) takes precedence)
- H04N 9/647 · · {I.F amplifiers,}(amplifiers in general [H03F](#))}
- U H04N 9/79** · Processing of colour television signals in connection with recording
- U H04N 9/87** · · Regeneration of colour television signals ([H04N 9/80](#) takes precedence)
- H04N 9/898 · · · using frequency multiplication of the reproduced colour signal carrier with another auxiliary reproduced signal, e.g. a pilot signal carrier {([H04N 9/83](#) takes precedence)}
- U H04N 13/00** **Stereoscopic {or multiview}television systems; Details thereof**

**NOTE**

This group covers systems where a three-dimensional effect or different views according to the viewpoint location are provided to one or more viewers by means of electronic signals representing a plurality of images or signals including

depth information, e.g. taken from different viewpoint locations representing the interocular distance (optical systems for producing stereoscopic or other three dimensional effects [G02B 27/22](#) )]

H04N 13/04

· Picture reproducers {(optical systems for producing stereoscopic or other three dimensional effects [G02B 27/22](#))}

H04N 21/00

**Selective content distribution, e.g. interactive television, VOD [Video On Demand] (broadcast communication [H04H](#) ; arrangements, apparatus, circuits or systems for communication control or processing being characterised by a protocol [H04L 29/06](#) ; { broadcast or conference over packet-switching networks [H04L 12/18](#) , } real-time bi-directional transmission of motion video data [H04N 7/14](#))**

#### NOTES

1. This group covers :

- interactive video distribution processes, systems, or elements thereof, which are characterised by point-to-multipoint system configurations, and which are mainly used for motion video data unidirectional distribution or delivery resulting from interactions between systems operators, e.g. access or service providers, or users e.g. subscribers, and system elements.
- such systems include dedicated communication systems, such as television distribution systems, which primarily distribute or deliver motion video data in the manner indicated, which may, in addition, provide a framework for further, diverse data communications or services in either unidirectional or bi-directional form. However, video will occupy most of the downlink bandwidth in the distribution process.
- typically, system operators interface with transmitter-side elements or users' interface with receiver-side elements in order to facilitate, through interaction with such elements, the dynamic control of data processing or data flow at various points in the system. This interaction is typically occasional or intermittent in nature.
- processes, systems or elements thereof specially adapted to the generation, distribution and processing of data, which is either associated with video content, e.g. metadata, ratings, or related to the user or his environment and which has been actively or passively gathered. This data is either used to facilitate interaction or to alter or target the content.

2. In this main group, at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place

3. In this main group, the following terms and expressions are used with the meaning indicated:

additional data - designates still pictures, textual, graphical or executable data such as software. It is used to convey supplemental information and can be generated prior to or during the distribution process itself, e.g. metadata, keys.

content designates video or audio streams, which may be combined with additional data. Video data will always be present and occupy most of the downlink bandwidth in the distribution process

server - designates an apparatus designed for adapting the content received from the content provider to the distribution network. It also manages the distribution to client devices or intermediate components over a network. Further servers may also be present for gathering or generating additional data, e.g. rights management server

additional data server - designates a server, which sole purpose is the distribution or management of additional data. It is not in charge of the distribution of video or audio data

client - designates an apparatus such as a TV receiver, a set-top-box, a PC-TV, a mobile appliance (e.g. mobile phone or receiver in a vehicle), for receiving video, audio and possibly additional data from one or several

servers or intermediate components via a network for further processing, storing or displaying. It can also transmit this data on a home-based local network to further devices, e.g. a home server transmitting video to PCs and set-top-boxes within a home.

local network - pertains to a restricted area, e.g. a home or a vehicle, and designates the link between a client and its peripheral devices

network - is to be distinguished from "local network": "network" designates the link between the server and the clients, or between the server and the intermediate components, or between the intermediate components and the clients, or between remotely located clients

distribution - encompasses broadcasting, multicasting and unicasting techniques for transmitting content from one or more sources to one or more receiving stations. The distribution follows a request by a receiving station to the source, e.g. VOD or from a customization of the content by the source, e.g. targeting advertisements to a demographic group in a unidirectional or bidirectional system. Additionally, distribution encompasses techniques where the client acts as a source and another client acts as a receiving station, e.g. a peer-to-peer system for sharing video among client devices

end-user - designates a physical person, e.g. a TV viewer, who consumes the content using the client device. He is the final recipient of the content distributed by the server

interaction - covers actions occurring between or among two or more objects that have an effect upon one another, wherein objects comprise users, system operators, system elements, or content. The user may interact with content locally at the client device, e.g. for requesting additional data stored within the client device. The user may interact with content remotely through a server e.g. for VOD playback control or for uploading video to a server. The client device may interact with the content e.g. selecting content based upon the user profile. The client device may interact with a server using a return channel, e.g. for authenticating client or uploading client hardware capabilities. The server may interact with a client device, e.g. to force a client to tune to an advertisement channel

upstream - designates the direction of data flow towards the source, e.g. a server receiving a request via a mobile phone network

ownstream - designates the direction of data flow towards a client, e.g. a client receiving data originating from a server elementary stream An elementary stream (ES) as defined by the MPEG system layer designates the output of an audio or video encoder

- U H04N 21/20      • {Servers specifically adapted for the distribution of content, e.g. VOD servers; Operations thereof}
- U H04N 21/23      • • {Processing of content or additional data; Elementary server operations; Server middleware}
- H04N 21/236      • • • Assembling of a multiplex stream, e.g. transport stream, by combining a video stream with other content or additional data, e.g. inserting a Uniform Resource Locator [URL] into a video stream, multiplexing software data into a video stream; Remultiplexing of multiplex streams; Insertion of stuffing bits into the multiplex stream, e.g. to obtain a constant bit-rate; Assembling of a packetized elementary stream {(multiplexing of data packets for data networks, e.g. RTP/UDP [H04L 65/00](#) ; stereoscopic image multiplexing or transmission [H04N 13/0003](#))}

- H04N 21/242
  - • • {Synchronization processes, e.g. processing of Program Clock References [PCR] (synchronisation arrangements in time-division multiplex systems [H04J 3/06](#) ; arrangements for synchronising broadcast or distribution via plural systems in broadcast distribution systems [H04H 20/18](#) ; arrangements for synchronising receiver with transmitter [H04L 7/00](#) ; synchronising circuits with arrangements for extending range of synchronisation at the transmitter end [H04N 5/067](#))}
- U H04N 21/25
  - • {Management operations performed by the server for facilitating the content distribution or administrating data related to end-users or client devices, e.g. end-user or client device authentication, learning user preferences for recommending movies (maintenance or administration in data networks [H04L 12/24](#))}
- U H04N 21/254
  - • • {Management at additional data server, e.g. shopping server, rights management server (arrangements for maintenance or administration in data networks [H04L 12/24](#) ; Protocols involving third party service providers for network applications in communication control or processing [H04L 29/08666](#))}
- H04N 21/2543
  - • • • Billing {e.g. for subscription services (payment schemes, architectures or protocols [G06Q 20/00](#) ; e-commerce [G06Q 30/00](#); arrangements for billing for the use of broadcast information or broadcast-related information [H04H 60/21](#) ; charging arrangements in data networks [H04L 12/14](#))}
- U H04N 21/266
  - • • {Channel or content management, e.g. generation and management of keys and entitlement messages in a conditional access system, merging a VOD unicast channel into a multicast channel}
- H04N 21/26606
  - • • • {for generating or managing entitlement messages, e.g. Entitlement Control Message [ECM] or Entitlement Management Message [EMM] (arrangements for conditional access to broadcast information or to broadcast-related services [H04H 60/14](#))}
- U H04N 21/40
  - Client devices specifically adapted for the reception of or interaction with content, e.g. set-top-box [STB]; Operations thereof {(arrangements for distribution where lower stations, e.g. receivers, interact with the broadcast [H04H 20/38](#) ; arrangements specially adapted for receiving broadcast information [H04H 40/00](#))}
- U H04N 21/41
  - • {Structure of client; Structure of client peripherals}
- U H04N 21/414
  - • • {Specialised client platforms, e.g. receiver in car or embedded in a mobile appliance}
- H04N 21/4147
  - • • • {Personal Video Recorder [PVR] ([H04N 5/76](#) takes precedence; arrangements for broadcast specially adapted for accumulation-type receivers [H04H 20/40](#))}
- H04N 21/422
  - • • {using}Input-only peripherals {i.e. input devices connected to specially adapted client devices (input devices also receiving signals from specially adapted client devices [H04N 21/4104](#))}, e.g. Global Positioning System [GPS] (input arrangements or combined input and output arrangements for interaction between user and computer [G06F 3/01](#))}
- U H04N 21/43
  - • {Processing of content or additional data, e.g. demultiplexing additional data from a digital video stream; Elementary client operations, e.g. monitoring of home network, synchronizing decoder's clock; Client middleware (demultiplexing of data packets for data networks, e.g. RTP/UDP [H04L 29/06176](#))}

- H04N 21/434
  - • • Disassembling of a multiplex stream, e.g. demultiplexing audio and video streams, extraction of additional data from a video stream; Remultiplexing of multiplex streams; Extraction or processing of SI; Disassembling of packetized elementary stream {(demultiplexing of data packets for data networks, e.g. RTP/UDP [H04L 65/00](#) ; stereoscopic image multiplexing or transmission [H04N 13/0003](#))}
- H04N 21/441
  - • • Acquiring end-user identification {(authentication in wireless communication networks [H04W 12/06](#))e.g. using personal code sent by the remote control or by inserting a card (restricting access to computer systems by authenticating users using a predetermined code [G06F 21/33](#))}
- U H04N 21/443
  - • • {OS processes, e.g. booting a STB, implementing a Java virtual machine in a STB, power management in a STB (arrangements for program loading or initiating [G06F 9/445](#) ; boot device selection; loading of operating system [G06F 9/4406](#) ; program loading or initiating in general using non-volatile memory from which the program can be directly executed [G06F 9/44568](#))}
- H04N 21/4437
  - • • • {Implementing a Virtual Machine [VM] (virtual machines in general [G06F 9/45533](#))}
- U H04N 21/45
  - • {Management operations performed by the client for facilitating the reception of or the interaction with the content or administrating data related to the end-user or to the client device itself, e.g. learning user preferences for recommending movies, resolving scheduling conflicts}
- U H04N 21/454
  - • • {Content or additional data filtering, e.g. blocking advertisements (filtering and selective blocking of messages over packet-switching networks [H04L 12/585](#))}
- H04N 21/4545
  - • • • Input to filtering algorithms, e.g. filtering a region of the image {(filtering for image enhancement or restoration [G06T 5/00](#))}
- H04N 21/458
  - • • • Scheduling content for creating a personalized stream, e.g. by combining a locally stored advertisement with an incoming stream; Updating operations, e.g. for OS modules{(time-related management operations (arrangements for replacing or switching information during the broadcast or during the distribution [H04H 20/10](#))}
- U H04N 21/462
  - • • {Content or additional data management e.g. creating a master electronic program guide from data received from the Internet and a Head-end, controlling the complexity of a video stream by scaling the resolution or bit-rate based on the client capabilities}
- H04N 21/4623
  - • • • {Processing of entitlement messages, e.g. Entitlement Control Message [ECM], Entitlement Management Message [EMM] (arrangements for conditional access to broadcast information or to broadcast-related services [H04H 60/14](#))}
- H04N 21/4627
  - • • • Rights management{(associated to the content (protecting software against unauthorised usage in a vending or licensing environment [G06F 21/10](#) ; security in data switching network management [H04L 12/2461](#) ; security management or policies for network security [H04L 29/06986](#) ; access security in wireless networks [H04W 12/08](#))}
- U H04N 21/47
  - • {End-user applications (interaction techniques for graphical user interfaces [G06F 3/048](#) ; receiver circuitry for displaying additional information [H04N 5/445](#) ; software engineering for user interfaces [G06F 8/20](#) ; services or applications for real-time multimedia communications [H04L 29/06387](#))}
- U H04N 21/478
  - • • {Supplemental services, e.g. displaying phone caller identification, shopping application}
- H04N 21/4782
  - • • • Web browsing{(, e.g. WebTV (information retrieval from the Internet [G06F 17/30861](#) ; protocols for network applications involving the use of web-based technology [H04L 29/0809](#))}

- U H04N 21/60
- {using}Network structure or processes {specifically adapted}for video distribution between server and client or between remote clients (data switching networks [H04L 12/00](#) ; wireless communication networks [H04W](#)); Control signaling {specific to video distribution}between clients, server and network components{, e.g. to video encoder or decoder}; Transmission of management data between server and client {e.g. sending from server to client commands for recording incoming content stream}; Communication details between server and client (Protocols for communication control and processing in data networks [H04L 29/06](#) ; Protocols for client-server architecture [H04L 67/42](#))
- U H04N 21/63
- · Control signaling {related to video distribution}between client, server and network components; Network processes for video distribution between server and clients {or between remote clients}, e.g. transmitting basic layer and enhancement layers over different transmission paths, setting up a peer-to-peer communication via Internet between remote STB's; Communication protocols; Addressing (signalling, control or architecture for real-time multimedia communications [H04L 29/06183](#) ; arrangements for peer-to-peer communications [H04L 29/08306](#))
- U H04N 21/637
- · · {Control signals issued by the client directed to the server or network components}
- H04N 21/6373
- · · · for rate control{e.g. request to the server to modify its transmission rate (flow control in packet networks [H04L 12/569](#))}
- U H04N 21/80
- {Generation or processing of content or additional data by content creator independently of the distribution process; Content per se (arrangements for generating broadcast information [H04H 60/02](#))}
- U H04N 21/83
- · {Generation or processing of protective or descriptive data associated with content; Content structuring}
- U H04N 21/835
- · · {Generation of protective data, e.g. certificates (protecting software against unauthorised usage in a vending or licensing environment [G06F 21/10](#))}
- H04N 21/8358
- · · · involving watermark {(protecting executable software by watermarking [G06F 21/16](#) ; image watermarking in general [G06T 1/0021](#) ; watermarks inserted in still images for transmission purposes [H04N 1/32144](#) ; inserting watermarks during video coding [H04N 19/467](#))}
- U H04N 21/85
- · {Assembly of content; Generation of multimedia applications}
- U H04N 21/854
- · · {Content Authoring}
- H04N 21/8543
- · · · {using a description language, e.g. Multimedia and Hypermedia information coding Expert Group [MHEG], eXtensible Markup Language [XML]}(information retrieval of semistructured data, the underlying structure being taken into account, e.g. mark-up language structure data [G06F 17/30908](#))}
- U H04N 2201/00**      **Indexing scheme relating to scanning, transmission or reproduction of documents or the like, and to details thereof**
- U 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 2201/0091
- · Digital copier; digital 'photocopier' ([H04N 2201/0093](#) and [H04N 2201/0094](#) take precedence)

**Project: N/A (H04R)**

- U H04R 1/00**      **Details of transducers,{loudspeakers or microphones}**

- 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
- U H04R 1/20
- Arrangements for obtaining desired frequency or directional characteristics (for stereophonic purpose [H04R 5/00](#))
- H04R 1/32
- • for obtaining desired directional characteristic only {(specially adapted for hearing aids [H04R 25/40](#))}
- H04R 1/34
- • • by using a single transducer with sound reflecting, diffracting, directing or guiding means {(specially adapted for hearing aids [H04R 25/402](#))}
- H04R 1/40
- • • by combining a number of identical transducers {(specially adapted for hearing aids [H04R 25/405](#))}
- U H04R 3/00**
- Circuits for transducers{, loudspeakers or microphones}**
- H04R 3/005
- {for combining the signals of two or more microphones (specially adapted for hearing aids [H04R 25/407](#))}
- H04R 3/02
- for preventing acoustic reaction{, i.e. acoustic oscillatory feedback (specially adapted for hearing aids [H04R 25/453](#))}
- H04R 3/12
- for distributing signals to two or more loudspeakers {(specially adapted for hearing aids [H04R 25/407](#))}
- U H04R 5/00**
- Stereophonic arrangements (stereophonic pick-ups [H04R 9/16](#) , [H04R 11/12](#) , [H04R 17/08](#) , [H04R 19/10](#))**
- NOTE**
- In this group, the expression "stereophonic arrangements" covers quadraphonic or similar arrangements.
- H04R 5/033
- Headphones for stereophonic communication {(details thereof, e.g. relating to batteries, cables or control elements [H04R 1/10](#))}
- H04R 5/04
- Circuit arrangements,{e.g. for selective connection of amplifier inputs/outputs to loudspeakers, for loudspeaker detection, or for adaptation of settings to personal preferences or hearing impairments (combinations of amplifiers [H03F 3/68](#) ; stereophonic systems [H04S](#))}
- H04R 29/00**
- Monitoring arrangements; Testing arrangements {(for hearing aids [H04R 25/30](#) ; detection of loudspeaker connection [H04R 5/04](#) ; sound-field adaptation dependent on speaker detection [H04S 7/308](#))}**
- H04R 31/00**
- Apparatus or processes specially adapted for the manufacture of transducers or diaphragms therefor {(manufacture of microstructural arrangements of deformable or non-deformable structures in general [B81C 1/00182](#))}**

**Project: N/A (H04W)**

- H04W 4/00** {Mobile application}services or facilities specially adapted for wireless communication networks {(network arrangements or communication protocols for networked applications [H04L 67/00](#) ; network arrangements or protocols for real-time communications [H04L 65/00](#) ; network arrangements or network protocols for addressing or naming [H04L 61/00](#) ; application independent communication protocol aspects and techniques in packet data networks [H04L 69/00](#) ; network architectures or network communication protocols for network security [H04L 63/00](#) ; wireless network security [H04W 12/00](#) ; message switching systems [H04L 12/58](#) ; arrangements for broadcast or conference [H04L 12/18](#) ; telephonic communication, substation extension arrangements, cordless telephones, portable communication terminals with improved user interface to control a main telephone operation mode or to indicate the communication status [H04M 1/72522](#) ; automatic or semi-automatic exchanges for telephonic communication - systems providing special services or facilities to subscribers [H04M 3/42](#)}}
- NOTES**
1. This groups covers mobile application services or application service signalling for communication over wireless networks.
  2. This group focuses on application services specially adapted for wireless networks or adjusted to the wireless environment
- H04W 4/005** · {for Machine-to-Machine communication [M2M, MTC], e.g. 3GPP M2M, OMA M2M, 3GPP MTC or Wireless Sensor Networks [WSN] (self-organizing networks [H04W 84/18](#) ; network arrangements or communication protocols for networked applications adapted for proprietary or special purpose networking environments, e.g. medical networks, sensor networks, networks in a car, remote metering networks [H04L 67/12](#) ; mechanical means for transferring the output of a sensing member [G01D 5/00](#))}
- H04W 4/06** · Selective distribution or broadcast {application services; Mobile application}services to user groups; One-way selective calling services {(connection management for selective distribution or broadcast [H04W 76/002](#) ; resource management for broadcast services [H04W 72/005](#))}
- H04W 4/10** · · Push-to-Talk {mobile application services}or Push-on-Call {mobile application}services {(arrangements for real-time multimedia Push-to-X-Services [H04L 65/4061](#) ; connection management for Push-to-Talk or Push-on-Call services [H04W 76/005](#))}
- H04W 4/12** · {Mobile application service signalling using}messaging, e.g. SMS [Short Message Service]; {Mobile application service signalling using}mailboxes; {Mobile application service signalling using}announcements, e.g. informing users on the status or progress of a communication request {(message switching systems [H04L 12/58](#) ; voice mail systems [H04M 3/533](#) ; arrangements for providing announcements [H04M 3/487](#))}
- H04W 4/16** · {Mobile application service signalling using}communication-related supplementary services, e.g. call-transfer or call-hold {(automatic or semi-automatic exchange systems providing special services or facilities to subscribers [H04M 3/42](#))}
- H04W 4/18** · {Customizing content of application services or}information format or content conversion, e.g. adaptation by the network of the transmitted or received information for the purpose of wireless delivery to users or terminals {(network arrangements or communication protocols for networked applications involving intermediate processing or storage in the network, e.g. proxy, [H04L 67/28](#) ; message adaptation based on network or terminal capabilities for message switching systems [H04L 12/5825](#))}

- H04W 4/22
- {Mobile application service}emergency connection handling {or mobile application services handling urgent or hazardous situations, e.g. 3GPP earthquake and tsunami warning system [ETWS] (connection management for emergency connection handling [H04W 76/007](#) ; centralised arrangements for answering calls for emergency applications requiring operator intervention [H04M 3/5116](#))}

**U H04W 28/00****Network traffic or resource management**

- U H04W 28/02
- Traffic management, e.g. flow control or congestion control
- H04W 28/0268
- • {using specific QoS parameters for wireless networks, e.g. QoS class identifier [QCI] or guaranteed bit rate [GBR]} (negotiating SLA or negotiating QoS [H04W 28/24](#))}
- H04W 28/0273
- • {adapting protocols for flow control or congestion control to wireless environment, e.g. adapting transmission control protocol [TCP] (wireless network protocols or protocol adaptations to wireless operation, e.g. wireless application protocol [H04W 80/00](#))}
- H04W 28/04
- • Error control{, e.g. treating errors, collisions, noise or interference (arrangements for detecting or preventing errors in the information received [H04L 1/00](#))}

**H04W 52/00****Power Management, e.g. TPC [Transmission Power Control], power saving or power classes {(gain control in transmitters or power amplifiers [H03G 3/3042](#))}**

- H04W 52/02
- Power saving arrangements {(in wired systems [H04L 12/12](#) ; signaling of mobile application services, e.g. low battery notifications [H04W 4/20](#))}

**U H04W 80/00****Wireless network protocols or protocol adaptations to wireless operation, e.g. WAP [Wireless Application Protocol]**

- H04W 80/08
- Upper layer protocols {(network arrangements or communication protocols for networked applications [H04L 67/00](#))}
- H04W 80/10
- • adapted for {application}session management, e.g. SIP [Session Initiation Protocol] {(connection management [H04W 76/00](#) ; arrangements for session management [H04L 67/14](#))}

**Project: N/A (H05B)****U H05B 37/00****Circuit arrangements for electric light sources in general {(vehicle lights [B60L 1/14](#), [B60Q](#); railways light signals [B61L](#); lighting for photographic purposes [G03B 15/02](#), for advertising purposes [G09F](#))}**

- U H05B 37/03
- Detecting lamp failure {(monitoring vehicle lamps [B60Q 11/00](#); changing to a reserve source of current [H02J 9/00](#))}
- H05B 37/04
- • Circuits providing for substitution of the light source in case of its failure {e.g. by switching over to a reserve light source (incandescent lamps with reserve body [H01K](#))}

**U H05B 39/00****Circuit arrangements or apparatus for operating incandescent light sources and not adapted to a particular application {(incandescent lamps per se [H01K](#))}**

- U H05B 39/04
- Controlling (regulating voltage in general [G05F](#))
- H05B 39/08
- • by shifting phase of trigger voltage applied to gas-filled controlling tubes {also in controlled semiconductor devices (in converters [H02M 5/00](#); with regulation [G05F 1/44](#))}

**Project: N/A (H05G)****U H05G 1/00****X-ray apparatus involving X-ray tubes; circuits therefor**

- U H05G 1/08 · Electrical details
- U H05G 1/26 · · Measuring, controlling, protecting (measuring electric values [G01R](#); measuring X-ray intensity [G01T](#))
- U H05G 1/30 · · · Controlling
- H05G 1/36 · · · · temperature of anode; brightness of image {power (electrical temperature regulating in general [G05D 23/19](#))}
- H05G 1/70 · · Circuit arrangements for X-ray tubes with more than one anode; Circuit arrangements for apparatus comprising more than one X ray tube { or more than one cathode ([H05G 1/58](#) takes precedence)}

**Project: N/A (H05H)**

- U H05H 7/00 **Details of devices of the types covered by groups [H05H 9/00](#), [H05H 11/00](#), [H05H 13/00](#)**
- H05H 7/04 · Magnet systems {e.g. undulators, wigglers (free-electron laser [H01S 3/0903](#)); Energisation thereof

**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 1/03 · · Use of materials for the substrate {(substrates for semiconductor chips [H01L 23/00](#))}
- H05K 1/16 · incorporating printed electric components, e.g. printed resistor, capacitor, inductor {(thick-film or thin-film circuits [H01L 27/01](#) , [H01L 27/13](#))}
- 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 3/0085 · {Apparatus for treatments of printed circuits with liquids not provided for in groups [H05K 3/02](#) to [H05K 3/46](#) ; conveyers 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
- 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 3/08 · · the conductive material being removed by electric discharge, e.g. by spark erosion {(working of metal by electro-erosion per se [B23H](#))}
- U H05K 3/10 · in which conductive material is applied to the insulating support in such a manner as to form the desired conductive pattern
- H05K 3/14 · · using spraying techniques to apply the conductive material {including vapour evaporation; (covering metals by metal spraying [C23C 4/00](#) ; coating by vacuum evaporation [C23C 14/00](#))}
- H05K 3/16 · · · by cathodic sputtering {(covering materials by cathodic sputtering [C23C 14/34](#) ; discharge devices therefor [H01J 37/34](#))}
- H05K 3/18 · · using precipitation techniques to apply the conductive material {(chemical coating of a substrate by decomposition [C23C 18/00](#))}

- H05K 3/20
- by affixing prefabricated conductor pattern {(H05K 1/187 , H05K 3/046 , H05K 3/4658 , H05K 3/4682 takes precedence)}
- H05K 3/22
- Secondary treatment of printed circuits {(H05K 3/1283 takes precedence; embedding circuits in grooves by pressure H05K 3/107)}
- H05K 3/24
- Reinforcing the conductive pattern {(by solder coating H05K 3/3457)}
- H05K 3/28
- Applying non-metallic protective coatings {(H05K 3/0091 takes precedence; methods for intermediate insulating layers for build-up multilayer circuits H05K 3/4673)}
- U H05K 3/30
- Assembling printed circuits with electric components, e.g. with resistor
- U H05K 3/32
- electrically connecting electric components or wires to printed circuits
- H05K 3/34
- by soldering {(soldering or desoldering apparatus H05K 13/04 , B23K 1/00 , B23K 3/00)}
- H05K 3/46
- Manufacturing multilayer circuits {(incorporating non-printed electric components in internal layers H05K 1/185)}
- U H05K 5/00**
- Casings, cabinets or drawers for electric apparatus (in general A47B; radio receiver cabinets H04B 1/08 ; television receiver cabinets H04N 5/64 ; { constructional details or arrangements for computers G06F 1/16})**
- H05K 5/06
- Hermetically-sealed casings {(specially adapted for small components H05K 5/0095)}
- U H05K 7/00**
- Constructional details common to different types of electric apparatus (casings, cabinets, drawers H05K 5/00)**
- H05K 7/14
- Mounting supporting structure in casing or on frame or rack {(H05K 7/18 takes precedence; test adapters G01R 31/2808)}
- H05K 7/20
- Modifications to facilitate cooling, ventilating, or heating {(of printed circuits H05K 1/0201 ; of resistors H01C; of capacitors H01G; of individual semiconductor components H01L 23/34 , H01L 31/024 ; of LEDs H01L 33/64 ; of personal computers G06F 1/20)}
- U H05K 7/2039
- {characterised by the heat transfer by conduction from the heat generating element to a dissipating body (arrangements for increasing/decreasing heat-transfer, e.g. fins details, F28F 13/00)}
- H05K 7/205
- {Thermal paths through the printed circuit board [PCB] (details of PCBs related to heat transfer H05K 1/0201)}
- H05K 11/00**
- Combination of a radio or television receiver with apparatus having a different main function {(combined with clocks G04B 47/00 ; controlled by a clock G04C 21/28)}**