

## Compilation of Changes to the CPC Scheme Between 2019.01 and 2019.02

### 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~~
- 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: RP0578 (A01G)

- M A01G** HORTICULTURE; CULTIVATION OF VEGETABLES, FLOWERS, RICE, FRUIT, VINES, HOPS OR SEAWEED; FORESTRY; WATERING (picking of fruits, vegetables, hops, or the like [A01D 46/00](#); ~~plant reproduction by tissue culture techniques A01H 4/00~~; ~~devices for topping or skinning onions or flower bulbs A23N 15/08~~; propagating unicellular algae [C12N 1/12](#); ~~plant cell culture C12N 5/00~~)
- WARNINGS
1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:  
[A01G 33/02](#) covered by [A01G 33/00](#)
  2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
- M A01G 3/00** Cutting implements specially adapted for horticultural purposes; Delimiting standing trees (~~felling trees A01G 23/08~~; ~~hand-held cutting tools suitable for other use B26B~~~~forestry delimiters A01G 23/095~~)
- M A01G 3/06** • Hand-held edge trimmers or shears for lawns ~~{(with a flexible rotating cutter A01D 34/416)}~~
- U A01G 5/00** Floral handling
- M A01G 5/06** • Devices for preserving flowers ~~(chemical substances A01N 3/02; flower vases A47G 7/06)~~
- M A01G 7/00** Botany in general ~~(soilless cultivation A01G 31/00)~~
- M A01G 7/02** • Treatment of plants with carbon dioxide ~~(greenhouses therefor A01G 9/18)~~
- M A01G 9/00** ~~Receptacles~~*Cultivation in receptacles*, forcing-frames or greenhouses for horticulture ~~(for of mushrooms A01G 18/60~~*A01G 18/00*; soilless cultivation [A01G 31/00](#)); Edging for beds, lawn or the like
- WARNING
- Group [A01G 9/00](#) is impacted by reclassification into groups [A01G 18/00](#), [A01G 18/60](#) and [A01G 9/28](#).
- Groups [A01G 9/00](#), [A01G 18/00](#), [A01G 18/60](#), and [A01G 9/28](#) should be considered in order to perform a complete search.
- M A01G 9/02** • Receptacles, e.g. flower-pots or boxes (*self-acting watering devices A01G 27/00*); hanging flower baskets, holders or containers for flower-pots [A47G 7/00](#)); Glasses for cultivating flowers

- M A01G 9/029
- ~~Pets~~ *Receptacles* for seedlings (*growth substrates in block form A01G 24/44*)
- WARNING  
Group [A01G 9/029](#) is impacted by reclassification into groups [A01G 24/44](#) and [A01G 24/60](#).  
Groups [A01G 9/029](#), [A01G 24/44](#), and [A01G 24/60](#) should be considered in order to perform a complete search.
- M A01G 11/00
- Sterilising soil by steam (~~soil-conditioning or soil-stabilising materials C09K 17/00~~)**
- 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](#)})**
- M A01G 13/06
- Devices for generating heat, smoke; or fog in gardens, orchards; or forests, e.g. to prevent damage by frost (~~{bee-smokers A01K 55/00; fumigators for destroying insects A01M 13/006; for destroying rats A01M 17/004}; chemical aspects of generating smoke or mist C06D 3/00; heating devices in general; see the appropriate classes, e.g. F24~~)
- M A01G 13/10
- Devices for affording protection against animals, birds; or other pests (~~{protective shelters for young plants A01G 13/0243; traps A01M 23/00 {; scaring or repelling devices A01M 29/00}; pesticides A01N {A01G 13/0243 takes precedence; scaring or repelling devices A01M 29/00}~~)
- M A01G 15/00
- Devices or methods for influencing weather conditions (~~dispersing fog in general E01H 13/00~~)**
- M A01G 18/00
- Cultivation of mushrooms**
- WARNING  
Group [A01G 18/00](#) is impacted by reclassification into groups [A01G 18/10](#), [A01G 18/20](#), [A01G 18/22](#), [A01G 18/30](#), [A01G 18/40](#), [A01G 18/50](#), [A01G 18/55](#), [A01G 18/60](#), [A01G 18/61](#), [A01G 18/62](#), [A01G 18/64](#), [A01G 18/65](#), [A01G 18/66](#), [A01G 18/68](#), [A01G 18/69](#), [A01G 18/70](#), and [A01G 18/80](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- Group [A01G 18/00](#) is incomplete pending reclassification of documents from group [A01G 9/00](#).*  
*Group [A01G 18/00](#) is also impacted by reclassification into groups [A01G 9/00](#), [A01G 18/10](#), [A01G 18/20](#), [A01G 18/22](#), [A01G 18/30](#), [A01G 18/40](#), [A01G 18/50](#), [A01G 18/55](#), [A01G 18/60](#), [A01G 18/61](#), [A01G 18/62](#), [A01G 18/64](#), [A01G 18/65](#), [A01G 18/66](#), [A01G 18/68](#), [A01G 18/69](#), [A01G 18/70](#), and [A01G 18/80](#).*  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- U A01G 23/00
- Forestry**
- M A01G 23/02
- Transplanting, uprooting, felling or delimiting trees (delimiting standing trees [A01G 3/00](#))
- NOTE  
Tree feeding devices are covered by group [B27B 25/00](#)
- M A01G 23/08
- Felling trees (~~axes B26B 23/00; saws, sawing machines B27B~~)
- M A01G 23/095
- Delimiters ([A01G 23/083](#) takes precedence; ~~manufacture of wood shavings, chips, powder, or the like, per se B27L 11/00~~)

- M A01G 25/00 Watering gardens, fields, sports grounds; or the like (special apparatus or adaptations for fertilising-liquids [A01C 23/00](#); nozzles or outlets, spraying apparatus [B05B](#); ~~gravity flow; open channel irrigation ditch systems E02B 13/00~~)
- M A01G 25/02 · Watering arrangements located above the soil which make use of perforated pipe-lines or pipe-lines with dispensing fittings, e.g. for drip irrigation (~~perforated pipes per se B05B 1/20~~)
- M A01G 25/06 · Watering arrangements making use of perforated pipe-lines located in the soil (~~perforated pipes per se B05B 1/20; similar arrangements for drainage E02B 11/00~~)
- M A01G 25/16 · Control of watering (~~controlling of spraying devices B05B~~)
- U A01G 31/00 Soilless cultivation, e.g. hydroponics (growth substrates therefor [A01G 24/00](#); cultivation of seaweed [A01G 33/00](#))
- M A01G 31/02 · Special apparatus therefor (~~apparatus for cultivation in receptacles or greenhouses in general A01G 9/00~~; self-acting watering devices [A01G 27/00](#))

## Project: N/A (A01L)

- A01L 13/00 Pens for animals while being shod {(~~devices for fettering animals for operative purposes A01D 3/00~~; ~~devices for fettering animals for operative purposes A61D 3/00~~; devices for immobilisation or restraint of animals [A01K 1/0613](#); devices for taming or training animals which impede movement or passage through fences [A01K 15/04](#))}

## Project: RP0569 (A23L)

- A23L 2/00 Non-alcoholic beverages; Dry compositions or concentrates therefor; Their preparation (soup concentrates [A23L 23/10](#); ~~preparation of non-alcoholic beverages by removal of alcohol {C12G 3/08}~~; ~~preparation of non-alcoholic beverages by removal of alcohol {C12H 3/00}~~)

## Project: RP0566 (A41D)

- M A41D OUTERWEAR; PROTECTIVE GARMENTS; ACCESSORIES (~~eye or ear protectors A61F 9/00, A61F 11/00; sweating suits A61H 36/00~~)
- NOTE  
In this subclass, the following term is used with the meaning indicated:
- "outerwear" covers dressing-gowns, bathing costumes and pyjamas
- WARNING  
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.
- M A41D 7/00 Bathing gowns; Swim-suits, drawers, or trunks; Beach suits (~~bathing caps A42B 1/12~~)
- M A41D 13/00 Professional, industrial; or sporting protective garments, e.g. ~~surgeons' gowns or garments affording protection protecting~~ against blows or punches, ~~surgeon's gowns~~ (helmets [A42B 3/00](#); clothing affording protection against ~~heat or harmful~~ chemical agents or for use at high altitudes [A62B 17/00](#); life-saving garments for use at sea, diving-bell suits [B63C](#); bulletproof or armoured clothing [F41H](#); clothing affording protection against radiation [G21F 3/02](#); ~~electric heating elements H05B~~)

- C A41D 13/0015
- {Sports garments other than provided for in groups [A41D 13/0007](#) - [A41D 13/088](#) ~~{sports overalls A41D 13/02}~~}
- WARNING**  
Group [A41D 13/0015](#) is impacted by reclassification into groups [A41D 31/18](#) and [A41D 31/185](#).  
Groups [A41D 13/0015](#), [A41D 31/18](#), and [A41D 31/185](#) should be considered in order to perform a complete search.
- C A41D 13/0017
- {specially adapted for women}
- WARNING**  
Group [A41D 13/0017](#) is impacted by reclassification into groups [A41D 31/18](#) and [A41D 31/185](#).  
Groups [A41D 13/0017](#), [A41D 31/18](#), and [A41D 31/185](#) should be considered in order to perform a complete search.
- M A41D 13/02
- Overalls ~~{(patients' suits A41D 13/1263, babies' overalls A41B 13/005 sweating suits A61H 36/00)}~~
- M A41D 13/05
- protecting only a particular body part (~~sports brassières A41C 3/00 {-; crotch reinforcement for sports trousers A41D 1/088}~~ ear protectors [A61F 11/06](#))
- M A41D 20/00**      **Wristbands or headbands, e.g. for absorbing sweat (~~hat fittings A42C 5/02~~)**
- U A41D 23/00**      **Scarves; Head-scarves; Neckerchiefs**
- D A41D 2023/006
- {Protectors therefor}  
<administratively transferred to [A41D 23/00](#)>
- D A41D 2023/008
- {~~using a slide fastener to adjust the neck loop~~}  
<administratively transferred to [A41D 23/00](#)>
- M A41D 27/00**      **Details of garments or of their making (~~haberdashery A44 buttons, pins, buckles, slide fasteners or the like A44B~~)**
- M A41D 27/08
- Trimmings; Ornaments ~~(trimmings in general D04D)~~
- M A41D 31/00**      **Selection of special materials ~~Materials specially adapted~~ for outerwear**
- M A41D 31/0005
- {made from a plurality of interconnected elements (~~A41D 31/0011~~ [A41D 31/04](#) takes precedence)}
- D A41D 31/0011
- {Selection of special materials for protective garments (composition of materials for clothing affording protection against harmful chemical agents ~~A62D 5/00~~)}  
<administratively transferred to [A41D 31/04](#)>
- D A41D 31/0016
- {~~of layered products (A41D 31/0022 - A41D 31/0077 take precedence)}~~  
<administratively transferred to [A41D 31/02](#)>
- D A41D 31/0022
- {~~against fire and heat~~}  
<administratively transferred to [A41D 31/08](#)>
- D A41D 31/0027
- • {~~using layered materials~~}  
<administratively transferred to [A41D 31/085](#)>
- D A41D 31/0033
- {~~with thermal protective materials (heat and fire resistant materials A41D 31/0022)}~~  
<administratively transferred to [A41D 31/06](#)>
- D A41D 31/0038
- • {~~using layered materials~~}  
<administratively transferred to [A41D 31/065](#)>
- D A41D 31/0044
- {~~with shock absorbing materials~~}  
<administratively transferred to [A41D 31/28](#)>
- D A41D 31/005
- • {~~using layered materials~~}  
<administratively transferred to [A41D 31/285](#)>

- D A41D 31/0055
- • {resistant to mechanical aggressions, e.g. pierceproof materials (aprons resistant to mechanical aggressions A41D 13/043)}
  - <administratively transferred to [A41D 31/24](#)>
- D A41D 31/0061
- • • {using layered materials}
  - <administratively transferred to [A41D 31/245](#)>
- D A41D 31/0066
- • {against electric shocks or static electricity}
  - <administratively transferred to [A41D 31/26](#)>
- D A41D 31/0072
- • • {using layered materials}
  - <administratively transferred to [A41D 31/265](#)>
- D A41D 31/0077
- • {with antibacterial or antimicrobial materials}
  - <administratively transferred to [A41D 31/30](#)>
- D A41D 31/0083
- • • {using layered materials}
  - <administratively transferred to [A41D 31/305](#)>
- D A41D 31/0088
- • {with retroreflective materials}
  - <administratively transferred to [A41D 31/32](#)>
- D A41D 31/0094
- • • {using layered materials}
  - <administratively transferred to [A41D 31/325](#)>
- C A41D 31/02
- of ~~layered~~ Layered materials *{(A41D 31/0011 takes precedence characterised by special function or use [A41D 31/04](#))}*
- WARNING**
- Group [A41D 31/02](#) is impacted by reclassification into groups [A41D 31/04](#), [A41D 31/102](#), [A41D 31/125](#), [A41D 31/145](#), and [A41D 31/185](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- Q A41D 31/04
- characterised by special function or use *{(protective clothing affording protection against heat or harmful chemical agents [A62B 17/00](#); composition of materials for clothing affording protection against harmful chemical agents [A62D 5/00](#))}*
- WARNING**
- Group [A41D 31/04](#) is incomplete pending reclassification of documents from group [A41D 31/02](#). Group [A41D 31/04](#) is also impacted by reclassification into groups [A41D 31/10](#), [A41D 31/102](#), [A41D 31/12](#), [A41D 31/14](#), [A41D 31/18](#), [A62B 17/00](#), [A62B 17/001](#), [A62B 17/003](#), [A62B 17/005](#), [A62B 17/006](#), [A62B 17/008](#), [A62B 17/04](#), and [A62B 17/08](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- N A41D 31/06
- • Thermally protective, e.g. insulating
- N A41D 31/065
- • • {using layered materials}
- N A41D 31/08
- • Heat resistant; Fire retardant
- N A41D 31/085
- • • {using layered materials}
- N A41D 31/10
- • Impermeable to liquids, e.g. waterproof; Liquid repellent
- WARNING**
- Group [A41D 31/10](#) is incomplete pending reclassification of documents from group [A41D 31/04](#). Groups [A41D 31/04](#) and [A41D 31/10](#) should be considered in order to perform a complete search.*

- N A41D 31/102
- • • Waterproof and breathable
- WARNING  
Group [A41D 31/102](#) is incomplete pending reclassification of documents from groups [A41D 31/02](#), [A41D 31/04](#), and [A41D 31/14](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A41D 31/12
- • Hygroscopic; Water retaining
- WARNING  
Group [A41D 31/12](#) is incomplete pending reclassification of documents from group [A41D 31/04](#).  
Groups [A41D 31/04](#) and [A41D 31/12](#) should be considered in order to perform a complete search.
- N A41D 31/125
- • • {Moisture handling or wicking function through layered materials}
- WARNING  
Group [A41D 31/125](#) is incomplete pending reclassification of documents from group [A41D 31/02](#).  
Groups [A41D 31/02](#) and [A41D 31/125](#) should be considered in order to perform a complete search.
- Q A41D 31/14
- • Air permeable, i.e. capable of being penetrated by gases (waterproof and breathable [A41D 31/102](#))
- WARNING  
Group [A41D 31/14](#) is incomplete pending reclassification of documents from group [A41D 31/04](#).  
Group [A41D 31/14](#) is also impacted by reclassification into groups [A41D 31/145](#) and [A41D 31/102](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A41D 31/145
- • • {using layered materials}
- WARNING  
Group [A41D 31/145](#) is incomplete pending reclassification of documents from groups [A41D 31/02](#) and [A41D 31/14](#).  
Groups [A41D 31/02](#), [A41D 31/14](#), and [A41D 31/145](#) should be considered in order to perform a complete search.
- N A41D 31/18
- • Elastic
- WARNING  
Group [A41D 31/18](#) is incomplete pending reclassification of documents from groups [A41D 13/0015](#), [A41D 13/0017](#), and [A41D 31/04](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A41D 31/185
- • • {using layered materials}
- WARNING  
Group [A41D 31/185](#) is incomplete pending reclassification of documents from groups [A41D 13/0015](#), [A41D 13/0017](#), and [A41D 31/02](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N A41D 31/24
- • Resistant to mechanical stress, e.g. pierce-proof {(aprons resistant to mechanical aggressions [A41D 13/043](#))}
- N A41D 31/245
- • • {using layered materials}

- N A41D 31/26 · · Electrically protective, e.g. preventing static electricity or electric shock
- N A41D 31/265 · · · {using layered materials}
- N A41D 31/28 · · Shock absorbing
- N A41D 31/285 · · · {using layered materials}
- Q A41D 31/30 · · Antimicrobial, e.g. antibacterial
- WARNING  
Group [A41D 31/30](#) is impacted by reclassification into group [A41D 31/305](#). Groups [A41D 31/30](#) and [A41D 31/305](#) should be considered in order to perform a complete search.
- N A41D 31/305 · · · {using layered materials}
- WARNING  
Group [A41D 31/305](#) is incomplete pending reclassification of documents from group [A41D 31/30](#). Groups [A41D 31/30](#) and [A41D 31/305](#) should be considered in order to perform a complete search.
- N A41D 31/32 · · Retroreflective
- N A41D 31/325 · · · {using layered materials}
- U A41D 2400/00 Functions or special features of garments**
- D A41D 2400/20 · Air permeability; Ventilation  
<administratively transferred to [A41D 31/14](#) INV>
- D A41D 2400/22 · Breathability, i.e. being vapour permeable and waterproof  
<administratively transferred to [A41D 31/102](#) INV>
- D A41D 2400/34 · Antimicrobial or antibacterial  
<administratively transferred to [A41D 31/30](#) ADD>
- D A41D 2400/60 · Moisture handling or wicking function  
<administratively transferred to [A41D 31/12](#) INV>
- D A41D 2400/62 · · through several layers  
<administratively transferred to [A41D 31/125](#) INV>

**Project: RP0566 (A42B)**

- M A42B 3/00 Helmets; Helmet covers {; {Other protective head coverings}{(protective garments [A41D 13/00](#); {hoods for welders [A61F 9/06](#)}; hoods as protection against chemical agents or for use at high altitudes [A62B 17/00](#));} hoods as protection against chemical agents or for use at high altitudes [A62B 17/00](#); gas helmets [A62B 18/04](#); swimming helmets [A63B 33/00](#); {head guards for sporting purposes [A63B 71/10](#)}; defence protection helmets [F41H 1/04](#)}**

**Project: MP0314 (A61B)**

- U A61B 5/00 Detecting, measuring or recording for diagnostic purposes (radiation diagnosis [A61B 6/00](#); diagnosis by ultrasonic, sonic or infrasonic waves [A61B 8/00](#)); Identification of persons**
- M A61B 5/0033 · {Features or image-related aspects of imaging apparatus classified in [A61B 5/00](#), e.g. for MRI, optical tomography or impedance tomography apparatus; arrangements of imaging apparatus in a room (image data processing or generation [G06T](#))}

**WARNINGS**

~~1. Group [A61B 5/0033](#) and subgroups are not complete pending a reorganisation.~~

~~2. Group [A61B 5/0033](#) is impacted by reclassification into group [A61B 5/0036](#).~~

~~Groups A61B 5/0033 and A61B 5/0036 should be considered in order to perform a complete search.~~

- U A61B 5/08
  - Detecting, measuring or recording devices for evaluating the respiratory organs ([A61B 5/0205](#) takes precedence)
- M A61B 5/082
  - {Evaluation by breath analysis, e.g. determination of the chemical composition of exhaled breath ([A61B 5/083](#), [A61B 5/091](#) take precedence)}

**WARNING**

~~Group A61B 5/082 is not complete pending a reorganisation, see also group A61B 5/083~~

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

**A61G**

**TRANSPORT, PERSONAL CONVEYANCES, OR ACCOMODATION ACCOMMODATION SPECIALLY ADAPTED FOR PATIENTS OR DISABLED PERSONS (appliances for aiding patients or disabled persons to walk [A61H 3/00](#)); OPERATING TABLES OR CHAIRS; CHAIRS FOR DENTISTRY; FUNERAL DEVICES (embalming corpses [A01N 1/00](#); ~~chairs or beds in general [A47C](#); walking aids [A61H 3/00](#))~~**

**WARNINGS**

1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

<a href="#">A61G 3/04</a>	covered by	<a href="#">A61G 3/02</a>
<a href="#">A61G 7/043</a>	covered by	<a href="#">A61G 7/05</a>
<a href="#">A61G 7/12</a>	covered by	<a href="#">A61G 7/10</a>
<a href="#">A61G 7/14</a>	covered by	<a href="#">A61G 7/10</a>
<a href="#">A61G 15/04</a>	covered by	<a href="#">A61G 15/02</a>
<a href="#">A61G 15/06</a>	covered by	<a href="#">A61G 15/02</a>
<a href="#">A61G 17/013</a>	covered by	<a href="#">A61G 17/00</a>

2. In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

**A61G 5/00**

**Chairs or personal conveyances specially adapted for patients or disabled persons, e.g. wheelchairs ({chairs with toilet conveniences [A47K 11/04](#);} devices enabling patients or disabled persons to operate an apparatus or device not forming part of the body [A61F 4/00](#); {running gear or propulsion features [B60K](#);} bicycles specially adapted for disabled riders [B62K 3/16](#) {; Invalid chairs having removable seats specially adapted to be transferred with the invalid to a vehicle and support the invalid during use of the vehicle [A61G 3/02](#)})**

**NOTE**

~~Invalid chairs having removable seats specially adapted to be transferred with the invalid to a vehicle and support the invalid during use of the vehicle are classified in group A61G 3/00~~

- U **A61G 7/00**

**Beds specially adapted for nursing; Devices for lifting patients or disabled persons (stretchers with facilities for picking up patients or disabled persons [A61G 1/003](#))**
- 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 7/0503
  - {Holders, support devices for receptacles, e.g. for drainage or urine bags (hanging-up devices for infusion ~~A61M 5/1418~~[A61M 5/1414](#) )}

- U A61G 12/00** Accommodation for nursing, e.g. in hospitals, not covered by groups [A61G 1/00](#) - [A61G 11/00](#), e.g. trolleys for transport of medicaments or food ~~{(service or tea-tables, trolleys or wagons [A47B 31/00](#))}~~; Prescription lists
- A61G 12/001 · {Trolleys for transport of medicaments, food, linen, nursing supplies (carts specially adapted for surgery or diagnosis ~~[A61B 50/10](#)~~[A61B 50/13](#); hand carts [B62B 3/00](#))}

**Project: RP0566 (A62B)**

- M A62B 17/00** Protective clothing affording protection against heat or harmful chemical agents or for use at high altitudes (protective clothing for work or sport [A41D 13/00](#), {e.g. overalls [A41D 13/02](#), surgical gowns [A41D 13/12](#); materials for protecting clothing ~~[A41D 31/0011](#)~~[A41D 31/04](#) }; protecting eyes or ears [A61F 9/00](#); composition of materials for protective clothing [A62D 5/00](#); life-saving garments for use at sea [B63C](#); diving suits [B63C 11/02](#); flying suits, {anti-g suits} [B64D 10/00](#); space suits [B64G 6/00](#); bullet-proof clothing [F41H 1/02](#))

**WARNING**

*Groups [A62B 17/00](#) - [A62B 17/08](#) are incomplete pending reclassification of documents from group [A41D 31/04](#).*

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

**Project: RP0543 (A63B)**

- U A63B 67/00** Sporting games or accessories therefor, not provided for in groups [A63B 1/00](#) - [A63B 65/00](#)
- C A63B 67/08** · Juggling or spinning ball games played as games of skill ~~{([A63B 67/16](#) takes precedence); Juggling games (games using tethered bodies, e.g. balls [A63B 67/10](#), [A63B 67/20](#))}~~

**WARNING**

*Group [A63B 67/08](#) is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#).*

*Groups [A63B 67/08](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

- C A63B 67/083** · {Juggling games with integral catching or bouncing arrangements}

**WARNING**

*Group [A63B 67/083](#) is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#).*

*Groups [A63B 67/083](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

- C A63B 67/086** · {Juggling games using sticks or discs}

**WARNING**

*Group [A63B 67/086](#) is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#).*

*Groups [A63B 67/086](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

- C A63B 67/16** · ~~Tethered aerial top~~ *Diabolos* or *spinner games* ~~{, i.e. diablo games}~~ *similar thrown and caught spinning tops; Throwing and catching devices therefor*

**WARNING**

*Group [A63B 67/16](#) is incomplete pending reclassification of documents from groups [A63B 67/08](#), [A63B 67/083](#), [A63B 67/086](#), [A63H 1/00](#), [A63H 1/02](#),*

*A63H 1/04, A63H 1/06, A63H 1/08, A63H 1/10, A63H 1/12, A63H 1/16, A63H 1/18, A63H 1/20, A63H 1/22, A63H 1/24, A63H 1/26, A63H 1/28, A63H 1/30, and A63H 1/32.*

*Group A63B 67/16 is also impacted by reclassification into group A63B 67/165. All groups listed in this Warning should be considered in order to perform a complete search.*

- D A63B 2067/163
- {Details (Not used)}  
<administratively transferred to [A63B 67/16](#)>
- N A63B 67/165
- {the diabolo being able to rotate freely in one direction only, e.g. fitted with an over-running clutch}
- WARNING**  
*Group [A63B 67/165](#) is incomplete pending reclassification of documents from groups [A63B 67/08](#), [A63B 67/083](#), [A63B 67/086](#), [A63B 67/16](#), [A63H 1/00](#), [A63H 1/02](#), [A63H 1/04](#), [A63H 1/06](#), [A63H 1/08](#), [A63H 1/10](#), [A63H 1/12](#), [A63H 1/16](#), [A63H 1/18](#), [A63H 1/20](#), [A63H 1/22](#), [A63H 1/24](#), [A63H 1/26](#), [A63H 1/28](#), [A63H 1/30](#), and [A63H 1/32](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- D A63B 2067/166
- • {the diabolo being able to rotate freely in one direction only, e.g. fitted with an over-running clutch}
- <administratively transferred to [A63B 67/165](#) INV>

**Project: RP0543 (A63H)**

- C A63H 1/00
- Tops (*diabolos or similar thrown and caught spinning tops or throwing and catching devices therefor A63B 67/16; flying tops {A63H 27/12}*)**
- WARNING**  
*Group A63H 1/00 is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#). Groups [A63H 1/00](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*
- C A63H 1/02
- with detachable winding devices
- WARNING**  
*Group A63H 1/02 is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#). Groups [A63H 1/02](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*
- C A63H 1/04
- • with string or band winding devices
- WARNING**  
*Group A63H 1/04 is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#). Groups [A63H 1/04](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*
- C A63H 1/06
- with integral winding devices
- WARNING**  
*Group A63H 1/06 is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#). Groups [A63H 1/06](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

- C A63H 1/08
- with arrangements for winding-up by blowing
- WARNING  
*Group A63H 1/08 is impacted by reclassification into groups A63B 67/16 and A63B 67/165.  
 Groups A63H 1/08, A63B 67/16, and A63B 67/165 should be considered in order to perform a complete search.*
- C A63H 1/10
- able to be spun by whirling the axis with both hands
- WARNING  
*Group A63H 1/10 is impacted by reclassification into groups A63B 67/16 and A63B 67/165.  
 Groups A63H 1/10, A63B 67/16, and A63B 67/165 should be considered in order to perform a complete search.*
- C A63H 1/12
- Whip tops; Top whips
- WARNING  
*Group A63H 1/12 is impacted by reclassification into groups A63B 67/16 and A63B 67/165.  
 Groups A63H 1/12, A63B 67/16, and A63B 67/165 should be considered in order to perform a complete search.*
- C A63H 1/16
- Hopping, dancing, or curve-drawing tops
- WARNING  
*Group A63H 1/16 is impacted by reclassification into groups A63B 67/16 and A63B 67/165.  
 Groups A63H 1/16, A63B 67/16, and A63B 67/165 should be considered in order to perform a complete search.*
- C A63H 1/18
- Double tops; Multiple tops mounted in or on one another
- WARNING  
*Group A63H 1/18 is impacted by reclassification into group(s) A63B 67/16 and A63B 67/165.  
 Groups A63H 1/18, A63B 67/16, and A63B 67/165 should be considered in order to perform a complete search.*
- C A63H 1/20
- with figure-like features; with movable objects, especially figures
- WARNING  
*Group A63H 1/20 is impacted by reclassification into groups A63B 67/16 and A63B 67/165.  
 Groups A63H 1/20 and A63B 67/16 and A63B 67/165 should be considered in order to perform a complete search.*
- C A63H 1/22
- Colour tops
- WARNING  
*Group A63H 1/22 is impacted by reclassification into groups A63B 67/16 and A63B 67/165.  
 Groups A63H 1/22, A63B 67/16, and A63B 67/165 should be considered in order to perform a complete search.*
- C A63H 1/24
- with illuminating arrangements
- WARNING  
*Group A63H 1/24 is impacted by reclassification into groups A63B 67/16 and A63B 67/165.*

*Groups [A63H 1/24](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

- C A63H 1/26 • emitting blasts or explosions

**WARNING**

*Group [A63H 1/26](#) is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#).*

*Groups [A63H 1/26](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

- C A63H 1/28 • Musical tops

**WARNING**

*Group [A63H 1/28](#) is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#).*

*Groups [A63H 1/28](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

- C A63H 1/30 • Climbing tops, e.g. Yo-Yo

**WARNING**

*Group [A63H 1/30](#) is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#).*

*Groups [A63H 1/30](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

- C A63H 1/32 • Whirling or spinning discs driven by twisted cords

**WARNING**

*Group [A63H 1/32](#) is impacted by reclassification into groups [A63B 67/16](#) and [A63B 67/165](#).*

*Groups [A63H 1/32](#), [A63B 67/16](#), and [A63B 67/165](#) should be considered in order to perform a complete search.*

**Project: RP0569 (B01D)**

**B01D 3/00**

**Distillation or related exchange processes in which liquids are contacted with gaseous media, e.g. stripping ({{evaporation in general, e.g. of liquids for gas phase reactions [B01B 1/005](#)}; ~~gas chromatography [B01D 15/08](#);~~ [gas chromatography \[B01D 15/08\]\(#\)](#); destructive distillation [C10B](#); ~~preparation of alcoholic beverages by distillation [C12G 3/12](#); [preparation of alcoholic beverages by distillation \[C12H 6/02\]\(#\)](#))~~**

**Project: RP0568 (B01D)**

**M B01D 21/00**

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

**NOTE**

*{ Attention is made to the following places of filters:  
liquid-liquid separation, e.g. for filtering elements made hydrophilic or hydrophobic, [B01D 12/00](#), [B01D 17/00](#), [B01D 43/00](#); filtering material and its regeneration, as well as filtering aids, [B01D 39/00](#); gas or air filters in general [B01D 46/00](#);  
aquarium filters [A01K 63/04](#); filters for cigars and cigarettes [A24D 3/00](#); filters for coffee or tea-making machines [A47J 31/06](#); filters for frying fat [A47J 37/12](#);*

*filters for suction cleaners [A47L 9/10](#); blood or infusion liquid filters [A61M 5/165](#); filtration devices for laboratory use [B01L](#); "dewatering" ore or coal slurry [B03B 5/48](#); magnetic filters [B03C 1/00](#); screens or sieves per se [B07B 1/00](#); filters for lubricating and cooling systems in turning, boring or milling machines [B23Q 11/10](#); filters for cooling systems in grinding machines [B24B 55/00](#); extrusion filters [B29C 48/69](#); filter presses [B30B 9/02](#); purification of process water, drinking water and waste water [C02F](#); filters for alcoholic beverages [C12H 1/00](#); filtering spinning solution or melt [D01D 1/10](#); filters for washing machines [D06F 39/10](#); filters or strainers for papermaking [D21D](#); filters in water collecting systems [E03B 3/18](#), [E03B 7/07](#); subsoil filters for boreholes [E21B 43/02](#); air filters for internal-combustion engines [F02M 35/02](#); filters for pumps [F04B 39/16](#), [F04D 29/70](#); filters in pipe systems [F16L 55/24](#); filtration of lubricants [F16N 39/06](#); filters for volume measuring apparatus [G01F 15/12](#)}*

M B01D 23/00 -  
B01D 43/00

**Filtration; Filtering material, regeneration thereof** (~~{aquarium filters [A01K 63/04](#); filters for cigars and cigarettes [A24D 3/00](#); filters for coffee or tea-making machines [A47J 31/06](#); filters for frying fat [A47J 37/12](#); filters for suction cleaners [A47L 9/10](#)}; blood or infusion liquid filters [A61M 5/165](#); {liquid-liquid separation, e.g. for filtering elements made hydrophilic or hydrophobic, [B01D 12/00](#), [B01D 17/00](#), [B01D 43/00](#); filtering material and its regeneration, as well as filtering aids, [B01D 39/00](#); gas or air filters in general [B01D 46/00](#); filtration devices for laboratory use [B01L](#); "dewatering" ore or coal slurry [B03B 5/48](#); magnetic filters [B03C 1/00](#)}; screens or sieves per se [B07B 1/00](#); {filters for lubricating and cooling systems in turning, boring or milling machines [B23Q 11/10](#); filters for cooling systems in grinding machines [B24B 55/00](#)}; extrusion filters [B29C 47/68](#); {filter presses [B30B 9/02](#); purification of process water, drinking water and waste water [C02F](#); filters for alcoholic beverages [C12H 1/00](#)}; filtering spinning solution or melt [D01D 1/10](#); {filters for washing machines [D06F 39/10](#); filters or strainers for papermaking [D21D](#); filters in water collecting systems [E03B 3/18](#), [E03B 7/07](#); subsoil filters for boreholes [E21B 43/02](#); air filters for internal-combustion engines [F02M 35/02](#); filters for pumps [F04B 39/16](#), [F04D 29/70](#); filters in pipe systems [F16L 55/24](#)}; filtration of lubricants [F16N 39/06](#); {filters for volume measuring apparatus [G01F 15/12](#)}~~)

Project: RP0568 (B01F)

U B01F 7/00

Mixers with rotary stirring devices in fixed receptacles {, i.e. movement of the receptacle not being meant to effect the mixing ([B01F 13/08](#) takes precedence)}; Kneaders ([B01F 13/04](#) takes precedence {; devices especially adapted for mixing foundry sand [B22C 5/04](#))

U B01F 7/02

· with stirrers rotating about a horizontal or inclined axis

B01F 7/08

· · with helices {or sections of helices (with a housing closely surrounding the helices, i.e. extruders, ~~[B29C 47/38](#)~~ [B29C 48/395](#))}

**Project: RP0568 (B05)****B05**

**SPRAYING OR ATOMISING IN GENERAL; APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL** (domestic cleaning [A47L](#); cleaning in general by methods essentially involving the use or presence of liquid [B08B 3/00](#); sand-blasting [B24C](#); coating of articles during shaping of substances in a plastic state [B29C 39/10](#), [B29C 39/18](#), [B29C 41/20](#), [B29C 41/30](#), [B29C 43/18](#), [B29C 43/28](#), [B29C 45/14](#), [B29C 47/02](#), [B29C 48/15](#); for further classification of forming layered products, see [B32B](#); printing, copying [B41](#); conveying articles or workpieces through baths of liquid [B65G](#), e.g. [B65G 49/02](#); handling webs or filaments in general [B65H](#); surface treatment of glass by coating [C03C 17/00](#), [C03C 25/10](#); coating or impregnation of mortars, concrete, stone or ceramics [C04B 41/45](#); paints, varnishes, lacquers [C09D](#); enamelling of metals, applying a vitreous layer to metals, chemical cleaning or de-greasing of metallic objects [C23](#); electroplating [C25D](#); treating of textile materials by liquids, gases or vapours [D06B](#); laundering [D06F](#); treating roads [E01C](#); apparatus or processes for the preparation or treatment of photosensitive materials [G03](#); apparatus or processes, restricted to a purpose fully provided for in a single other class, see the relevant class covering the purpose)

NOTE

In this class, the following terms are used with the meanings indicated:

- "other fluent materials" includes semiliquids, pastes, melts, solutions, dispersions, suspensions, particulate materials, gases or vapours;
- "particulate materials" includes powders, granules, short fibres or chips;
- "coating" means the materials applied. The coating may be a liquid having become solid after drying, e.g. paint.

**Project: MP0314 (B05B)****U B05B 3/00**

**Spraying or sprinkling apparatus with moving outlet elements or moving deflecting elements ([B05B 5/00](#) takes precedence){; Spraying or sprinkling heads with rotating elements located upstream the outlet}**

M B05B 3/001

- {incorporating means for heating or cooling, e.g. the material to be sprayed}

WARNING

~~Not complete pending reclassification; see also [B05B 3/00](#) and subgroups~~

U B05B 3/02

- with rotating elements

U 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)}

M B05B 3/1092

- • • {Means for supplying shaping gas}

WARNING

~~not complete, see [B05B 3/10](#) and subgroups~~

**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**

M B05B 5/001

- {incorporating means for heating or cooling, e.g. the material to be sprayed}

WARNING

~~Not complete pending reclassification; see also [B05B 5/00](#) and subgroups~~

U B05B 5/025

- Discharge apparatus, e.g. electrostatic spray guns

- U B05B 5/04
  - • characterised by having rotary outlet or deflecting elements {, i.e. spraying being also effected by centrifugal forces}
- M B05B 5/0426
  - • • {Means for supplying shaping gas}

WARNING  
not complete, see B05B 5/04 and subgroups
- 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)**
- U B05B 7/02
  - Spray pistols; Apparatus for discharge (for spraying particulate material [B05B 7/14](#); with means for heating the material to be sprayed [B05B 7/16](#); with means for supplying fluent material to a discharge device [B05B 7/24](#))
- U B05B 7/12
  - • designed to control volume of flow, e.g. with adjustable passages
- U B05B 7/1254
  - • • {the controlling means being fluid actuated}
- M B05B 7/1263
  - • • • {pneumatically actuated}

WARNING  
Not complete, see B05B 7/1254
- M B05B 7/1272
  - • • • • {actuated by gas involved in spraying, i.e. exiting the nozzle, e.g. as a spraying or jet shaping gas}

WARNING  
Not complete, see B05B 7/1254
- M B05B 7/1281
  - • • • • • {Serial arrangement, i.e. a single gas stream acting on the controlling means first and flowing downstream thereof to the nozzle}

WARNING  
Not complete, see B05B 7/1254
- U B05B 7/14
  - designed for spraying particulate materials ([B05B 7/16](#) takes precedence)
- U B05B 7/1404
  - • {Arrangements for supplying particulate material}
- U B05B 7/1413
  - • • {Apparatus to be carried on or by a person, e.g. by hand; Apparatus comprising a container fixed to the discharge device}
- M B05B 7/1422
  - • • • {the means for supplying particulate material comprising moving mechanical means, e.g. to impart vibration}

WARNING  
Not complete, see B05B 7/1418
- U 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](#))}**
- M B05B 11/0002
  - {incorporating means for heating or cooling, e.g. the material to be sprayed}

WARNING  
Not complete pending reclassification; see also B05B 11/00 and subgroups
- U B05B 11/30
  - {the flow being effected by a pump}
- U B05B 11/3001
  - • {Piston pumps ([B05B 11/3087](#), [B05B 11/3088](#), [B05B 11/309](#) take precedence)}

- M B05B 11/3021 . . . {having an outlet valve which is a gate valve ([B05B 11/3023](#), [B05B 11/3038](#) take precedence)}
- WARNING**  
Not complete, see [B05B 11/3001](#) and sub-groups
- U B05B 11/3042 . . {Components or details}
- U B05B 11/3043 . . . {Sealing or attachment arrangements between pump and container (sealing arrangements around pump actuating stem [B05B 11/305](#))}
- U B05B 11/3046 . . . . {the pump chamber being arranged substantially coaxially to the neck of the container ([B05B 11/3049](#) takes precedence)}
- M B05B 11/3047 . . . . . {the pump being preassembled as an independent unit before being mounted on the container}
- WARNING**  
Not complete, see [B05B 11/3042](#), [B05B 11/3043](#) and subgroups
- U B05B 11/3052 . . . {Actuation means (locking means therefor [B05B 11/3059](#); [B05B 11/309](#) takes precedence)}
- M B05B 11/3056 . . . . {comprising rotatable or articulated levers (lever actuated piston pumps [B05B 11/3009](#), lever actuated pumps with deformable chamber [B05B 11/3029](#); [B05B 11/3053](#) take precedence)}
- WARNING**  
Not complete, see [B05B 11/3052](#)
- U B05B 11/3061 . . . {Pump priming means}
- M B05B 11/3063 . . . . {Air exhausted from the pump chamber being discharged into the container during priming}
- WARNING**  
Not complete, see [B05B 11/3061](#)
- U B05B 11/3066 . . . {Pump inlet valves ([B05B 11/3018](#), [B05B 11/3019](#), [B05B 11/3064](#) take precedence)}
- U B05B 11/3067 . . . . {actuated by pressure}
- M B05B 11/3069 . . . . . {the valve being made of a resiliently deformable material or being urged in a closed position by a spring}
- WARNING**  
Not complete, see [B05B 11/3067](#)
- U B05B 12/00 Arrangements for controlling delivery; Arrangements for controlling the spray area**
- WARNING**  
Group [B05B 12/00](#) is impacted by reclassification into groups [B05B 12/16](#), [B05B 12/18](#), [B05B 12/20](#), [B05B 12/22](#), [B05B 12/24](#), [B05B 12/26](#), [B05B 12/28](#), [B05B 12/30](#), [B05B 12/32](#), [B05B 12/34](#), [B05B 12/36](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- U B05B 12/004 . . {comprising sensors for monitoring the delivery, e.g. by displaying the sensed value or generating an alarm ([B05B 12/08](#) takes precedence; registering or indicating the condition or the working of machines or other apparatus in general [G07C 3/00](#))}

- M B05B 12/006
- {Pressure or flow rate sensors}
- WARNING  
not complete, see B05B 12/004
- M B05B 12/008
- • {integrated in or attached to a discharge apparatus, e.g. a spray gun}
- WARNING  
not complete, see B05B 12/004
- U B05B 12/08
- responsive to condition of liquid or other fluent material {to be} discharged, of ambient medium or of target {; responsive to condition of spray devices or of supply means, e.g. pipes, pumps or their drive means}
- M B05B 12/081
- • {responsive to the weight of a reservoir or container for liquid or other fluent material; responsive to level or volume of liquid or other fluent material in a reservoir or container}
- WARNING  
Not complete pending reclassification; see also B05B 12/08 and subgroups
- M B05B 12/082
- • {responsive to a condition of the discharged jet or spray, e.g. to jet shape, spray pattern or droplet size}
- WARNING  
not complete, see B05B 12/08, B05B 12/12
- M B05B 12/084
- • {responsive to condition of liquid or other fluent material already sprayed on the target, e.g. coating thickness, weight or pattern}
- WARNING  
not complete, see B05B 12/08, B05B 12/12
- U B05B 12/085
- • {responsive to flow or pressure of liquid or other fluent material to be discharged ([B05B 1/3006](#), [B05B 1/323](#), [B05B 7/1254](#) take precedence)}
- M B05B 12/087
- • • {Flow or pressure regulators, i.e. non-electric unitary devices comprising a sensing element, e.g. a piston or a membrane, and a controlling element, e.g. a valve}
- WARNING  
not complete, see also B05B 12/085
- U 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)}
- M B05B 12/124
- • • {responsive to distance between spray apparatus and target}
- WARNING  
not complete, see B05B 12/12
- M B05B 12/126
- • • {responsive to target velocity, e.g. to relative velocity between spray apparatus and target ([B05B 9/06](#) takes precedence)}
- WARNING  
not complete, see B05B 12/12
- U B05B 12/14
- for supplying a selected one of a plurality of liquids or other fluent materials {or several in selected proportions} to a {spray apparatus, e.g. to a} single spray outlet

- M B05B 12/1418
- {for supplying several liquids or other fluent materials in selected proportions to a single spray outlet (controlling ratio of two or more flows of fluid [G05D 11/02](#))}
- WARNING**  
not complete, see also B05B 12/14
- M B05B 12/1427
- • {a condition of a first liquid or other fluent material in a first supply line controlling a condition of a second one in a second supply line}
- WARNINGS**  
1. not complete, see also B05B 12/14  
2. not complete, see B05B 7/32, B05B 12/14
- M B05B 12/1436
- • • {the controlling condition of the first liquid or other fluent material in the first supply line being its flow rate or its pressure}
- WARNINGS**  
1. not complete, see also B05B 12/14  
2. WARNING not complete, see B05B 7/32, B05B 12/14
- M B05B 12/1445
- • {pumping means for the liquids or other fluent materials being mechanically linked, e.g. master and slave pumps}
- WARNING**  
not complete, see B05B 7/32, B05B 12/14
- M B05B 12/1454
- {separate units comprising both a material container and a spray device permanently connected thereto being removably attached to a part of the spray apparatus, e.g. to a robot arm}
- WARNING**  
not complete, see B05B 12/14
- U B05B 13/00**
- Machines or plants for applying liquids or other fluent materials to surfaces of objects or other work by spraying, not covered by groups [B05B 1/00](#) - [B05B 11/00](#) ([B05B 5/08](#) takes precedence) ; means for supplying or discharging liquid or other fluent material for this purpose, see the relevant preceding groups; processes for applying liquids or other fluent materials to surfaces in general [B05D](#))**
- U B05B 13/02
- Means for supporting work; Arrangement or mounting of spray heads; Adaptation or arrangement of means for feeding work ([B05B 13/06](#) takes precedence)
- U B05B 13/0221
- {characterised by the means for moving or conveying the objects or other work, e.g. conveyor belts ([B05B 13/0207](#) takes precedence; conveyors in general [B65G](#))}
- M B05B 13/0264
- • • {Overhead conveying means, i.e. the object or other work being suspended from the conveying means; Details thereof, e.g. hanging hooks}
- WARNING**  
not complete, see B05B 13/0221
- U B05B 13/04
- • the spray heads being moved during {spraying} operation
- U B05B 13/0405
- • • {with reciprocating or oscillating spray heads ([B05B 13/0436](#), [B05B 13/0442](#), [B05B 13/0447](#), [B05B 13/0468](#) take precedence)}
- U B05B 13/041
- • • • {with spray heads reciprocating along a straight line}

- M B05B 13/0415 . . . . {the angular position of the spray heads relative to the straight line being modified during the reciprocating movement}  
**WARNING**  
 Not complete, see [B05B 13/041](#)
- M B05B 13/0463 . . . {Installation or apparatus for applying liquid or other fluent material to moving work of indefinite length}  
**WARNING**  
 Not complete pending reclassification; see also groups [B05B 13/0421](#), [B05B 13/0426](#)
- U B05B 13/0468 . . . . {with reciprocating or oscillating spray heads}
- M B05B 13/0473 . . . . {with spray heads reciprocating along a straight line}  
**WARNING**  
 Not complete, see [B05B 13/0468](#)
- M B05B 13/0478 . . . . . {the angular position of the spray heads relative to the straight line being modified during the reciprocating movement}  
**WARNING**  
 Not complete, see [B05B 13/0473](#)
- M B05B 13/0484 . . . . {with spray heads having a circular motion, e.g. being attached to a rotating supporting element ([B05B 13/0468](#) takes precedence)}  
**WARNING**  
 Not complete, see [B05B 13/0421](#)
- M B05B 13/0494 . . . . {with spray heads being moved along a closed path ([B05B 13/0484](#) takes precedence)}  
**WARNING**  
 Not complete, see [B05B 13/0426](#)

**Project: RP0568 (B28B)**

- U B28B 3/00 Producing shaped articles from the material by using presses (shaping on moving conveyors [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](#)[B29C 48/00](#))}

**Project: RP0568 (B29B)**

- B29B 7/00 Mixing; Kneading ({for preparation of dough [A21C 1/00](#);} in general [B01F](#); combined with calendering [B29C 43/24](#), with injection [B29C 45/46](#), with extrusion [B29C 47/36](#)[B29C 48/36](#))

**Project: RP0568 (B29C)**

- U B29C 33/00 Moulds or cores; Details thereof or accessories therefor
- U B29C 33/70 . Maintenance
- B29C 33/72 . . Cleaning {(extruder parts [B29C 47/0877](#)[B29C 48/27](#); in general [B08B 7/00](#))}
- U B29C 35/00 Heating, cooling or curing, e.g. crosslinking or 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 plastics dental prostheses [A61C 13/14](#); before moulding [B29B 13/00](#))

- B29C 35/16
- Cooling {(cooling extruded material ~~B29C 47/8815~~[B29C 48/911](#); 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 44/00      **Shaping by internal pressure generated in the material, e.g. swelling or foaming {; Producing porous or cellular expanded plastics articles}**
- U B29C 44/34
- Auxiliary operations
- WARNING  
Group [B29C 44/34](#) is impacted by reclassification into groups [B29C 44/34](#) and [B29C 44/3402](#).  
Groups [B29C 44/34](#) and [B29C 44/3402](#) should be considered in order to perform a complete search.
- U B29C 44/36
- • Feeding the material to be shaped {([B29C 44/0492](#) takes precedence)}
- U 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)}
- U B29C 44/50
- • • • using pressure difference, e.g. by extrusion or by spraying {([B29C 44/468](#) takes precedence)}
- WARNING  
Group [B29C 44/50](#) is impacted by reclassification into groups [B29C 44/50](#), [B29C 44/505](#), and [B29C 44/507](#).  
Groups [B29C 44/50](#), [B29C 44/505](#), and [B29C 44/507](#) should be considered in order to perform a complete search.
- B29C 44/505
- • • • • {extruding the compound through a flat die (in general ~~B29C 47/0009~~[B29C 48/03](#))}
- WARNING  
Group [B29C 44/505](#) is incomplete pending reclassification of documents from group [B29C 44/50](#).  
Groups [B29C 44/505](#) and [B29C 44/50](#) should be considered in order to perform a complete search.
- B29C 44/507
- • • • • {extruding the compound through an annular die (in general ~~B29C 47/0009~~[B29C 48/03](#))}
- WARNING  
Group [B29C 44/507](#) is incomplete pending reclassification of documents from group [B29C 44/50](#).  
Groups [B29C 44/507](#) and [B29C 44/50](#) should be considered in order to perform a complete search.
- D 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)~~**  
**<administratively transferred to [B29C 48/00](#)>**
- D B29C 47/0002
- {Small extruders, e.g. handheld extruders or laboratory extruders}  
<administratively transferred to [B29C 48/02](#)>
- D B29C 47/0004
- {characterised by the choice of material}
- NOTE  
When classifying in this group, it is desirable to add the indexing codes of subclass B29K to identify the moulding materials and their properties. Documents concerning the choice of moulding materials having a particular influence on the moulding technique should be classified in this group if of interest
- <administratively transferred to [B29C 48/022](#)>

- D B29C 47/0007 . . {Extruding materials comprising incompatible ingredients}  
<administratively transferred to [B29C 48/023](#)>
- D B29C 47/0009 . {characterised by the shape of the articles}  
<administratively transferred to [B29C 48/03](#)>
- D B29C 47/0011 . . {Particle-shaped (making granules B29B 9/00)}  
<administratively transferred to [B29C 48/04](#)>
- D B29C 47/0014 . . {Filamentary-shaped articles, e.g. strands (making granules in the form of filamentary material B29B 9/06)}  
<administratively transferred to [B29C 48/05](#)>
- D B29C 47/0016 . . {Rod-shaped articles}  
<administratively transferred to [B29C 48/06](#)>
- D B29C 47/0019 . . {Flat rigid articles, e.g. panels, plates}  
<administratively transferred to [B29C 48/07](#)>
- D B29C 47/0021 . . {Flat flexible articles, e.g. sheets, foils or films}  
<administratively transferred to [B29C 48/08](#)>
- D B29C 47/0023 . . {Hollow rigid articles having only one tubular passage}  
<administratively transferred to [B29C 48/09](#)>
- D B29C 47/0026 . . {Hollow flexible articles, e.g. blown foils or films}  
<administratively transferred to [B29C 48/10](#)>
- D B29C 47/0028 . . {Multi-passage hollow articles, e.g. having at least two holes, e.g. honeycomb articles}  
<administratively transferred to [B29C 48/11](#)>
- D B29C 47/003 . . {Articles having cross-sectional irregularities, i.e. being non-flat or having cylindrical cross-sections perpendicular to the extrusion direction}  
<administratively transferred to [B29C 48/12](#)>
- D B29C 47/0033 . . {Articles having longitudinal irregularities, i.e. the cross-section being non-constant in the extrusion direction}  
<administratively transferred to [B29C 48/13](#)>
- D B29C 47/0035 . . {Curved articles}  
<administratively transferred to [B29C 48/131](#)>
- D B29C 47/0038 . {Combined shaping operations}  
<administratively transferred to [B29C 48/001](#)>
- D B29C 47/004 . . {Extrusion moulding combined with compression moulding (compression moulding in general B29C 43/00)}  
<administratively transferred to [B29C 48/0011](#)>
- D B29C 47/0042 . . {Extrusion moulding combined with shaping by internal pressure generated in the material, e.g. foaming (shaping by internal pressure generated in the material, e.g. foaming, in general B29C 44/00)}  
<administratively transferred to [B29C 48/0012](#)>
- D B29C 47/0045 . . {Extrusion moulding in several steps, i.e. components merging outside the die (B29C 47/02 takes precedence)}  
<administratively transferred to [B29C 48/0013](#)>
- D B29C 47/0047 . . . {producing flat articles having components brought in contact outside the extrusion die}  
<administratively transferred to [B29C 48/0014](#)>
- D B29C 47/005 . . . {producing hollow articles having components brought in contact outside the extrusion die}  
<administratively transferred to [B29C 48/0015](#)>
- D B29C 47/0052 . . . . {using a plurality of extrusion dies}  
<administratively transferred to [B29C 48/0016](#)>

- D B29C 47/0054
  - {Extrusion moulding combined with blow-moulding or thermoforming (blow-moulding in general B29C 49/00; thermoforming in general B29C 51/00)}
  - <administratively transferred to [B29C 48/0017](#)>
- D B29C 47/0057
  - {Extrusion moulding combined with shaping by orienting, stretching or shrinking, e.g. film blowing (B29C 47/0054 takes precedence; shaping by stretching in general B29C 55/00; shaping by liberation of internal stresses in general B29C 61/00)}
  - <administratively transferred to [B29C 48/0018](#)>
- D B29C 47/0059
  - {Extrusion moulding combined with shaping by flattening, folding or bending (bending, folding or flattening in general B29C 53/00)}
  - <administratively transferred to [B29C 48/0019](#)>
- D B29C 47/0061
  - {Extrusion moulding combined with surface shaping (surface shaping in general B29C 59/00)}
  - <administratively transferred to [B29C 48/002](#)>
- D B29C 47/0064
  - {Extrusion moulding combined with joining, lining or laminating (joining in general B29C 65/00; lining in general B29C 63/00; laminating in general B32B 37/00)}
  - <administratively transferred to [B29C 48/0021](#)>
- D B29C 47/0066
  - {Extrusion moulding combined with cutting}
  - <administratively transferred to [B29C 48/0022](#)>
- D B29C 47/0069
  - {Extrusion moulding combined with printing or marking}
  - <administratively transferred to [B29C 48/0023](#)>
- D B29C 47/0071
  - {extruding under particular conditions, e.g. in particular environments or using vacuum or vibrations}
  - <administratively transferred to [B29C 48/14](#)>
- D B29C 47/0073
  - {extruding in a clean room}
  - <administratively transferred to [B29C 48/141](#)>
- D B29C 47/0076
  - {using force fields, e.g. gravity or electrical fields (B29C 47/887 takes precedence)}
  - <administratively transferred to [B29C 48/142](#)>
- D B29C 47/0078
  - {at a location before or in the feed unit, e.g. influencing the material in the hopper}
  - <administratively transferred to [B29C 48/143](#)>
- D B29C 47/008
  - {at the plasticising zone}
  - <administratively transferred to [B29C 48/144](#)>
- D B29C 47/0083
  - {at a venting zone}
  - <administratively transferred to [B29C 48/145](#)>
- D B29C 47/0085
  - {in the die}
  - <administratively transferred to [B29C 48/146](#)>
- D B29C 47/0088
  - {after the die nozzle}
  - <administratively transferred to [B29C 48/147](#)>
- D B29C 47/009
  - • {at the die nozzle exit zone}
  - <administratively transferred to [B29C 48/1472](#)>
- D B29C 47/0092
  - • {at a calibration zone}
  - <administratively transferred to [B29C 48/1474](#)>
- D B29C 47/0095
  - • {at a conveyor}
  - <administratively transferred to [B29C 48/1476](#)>
- D B29C 47/0097
  - • {at a storing zone}
  - <administratively transferred to [B29C 48/1478](#)>
- D B29C 47/02
  - incorporating preformed parts or layers, e.g. extrusion moulding around inserts or for coating articles
  - <administratively transferred to [B29C 48/15](#)>

- D B29C 47/021
  - • {Coating hollow articles}
  - <administratively transferred to [B29C 48/151](#)>
- D B29C 47/022
  - • • {Coating the interior of hollow articles}
  - <administratively transferred to [B29C 48/152](#)>
- D B29C 47/023
  - • • {Coating the inner and outer surfaces of hollow reinforcement}
  - <administratively transferred to [B29C 48/153](#)>
- D B29C 47/025
  - • {Coating non-hollow articles}
  - <administratively transferred to [B29C 48/154](#)>
- D B29C 47/026
  - • • {partially}
  - <administratively transferred to [B29C 48/155](#)>
- D B29C 47/027
  - • {Simultaneous coating of more than one article}
  - <administratively transferred to [B29C 48/156](#)>
- D B29C 47/028
  - • {Coating discontinuous element or linked elements}
  - <administratively transferred to [B29C 48/157](#)>
- D B29C 47/04
  - of multilayered {or multi-component, e.g. co-extruded layers or components} or multicoloured articles {or coloured articles}{(adapter blocks B29C 47/56)}
  - <administratively transferred to [B29C 48/16](#)>
- D B29C 47/043
  - • {Coloured articles}
  - <administratively transferred to [B29C 48/17](#)>
- D B29C 47/046
  - • • {comprising a multi-coloured single component, e.g. striated, marbled or wood-like patterned}
  - <administratively transferred to [B29C 48/175](#)>
- D B29C 47/06
  - • Multilayered articles {or multi-component articles}
  - <administratively transferred to [B29C 48/18](#)>
- D B29C 47/061
  - • • {comprising six or more components, i.e. each component being counted once for each time it is present, e.g. in a layer}
  - <administratively transferred to [B29C 48/185](#)>
- D B29C 47/062
  - • • {with components adjacent to each other, i.e. components merging at their short sides}
  - <administratively transferred to [B29C 48/19](#)>
- D B29C 47/064
  - • • • {in the form of a thin strip, e.g. in the form of a helical pattern or mark lines}
  - <administratively transferred to [B29C 48/19](#) and [B29C 48/20](#)>
- D B29C 47/065
  - • • {with components in layered configuration, i.e. components merging at their long sides}
  - <administratively transferred to [B29C 48/21](#)>
- D B29C 47/067
  - • • {using means for adhering the layers or components, e.g. using tie layers, irregularities or undercuts}
  - <administratively transferred to [B29C 48/22](#)>
- D B29C 47/068
  - • • {using means for avoiding adhering the layers or components, e.g. articles comprising peelable layers}
  - <administratively transferred to [B29C 48/23](#)>
- D B29C 47/08
  - Component parts, details or accessories; Auxiliary operations
  - <administratively transferred to [B29C 48/25](#)>
- D B29C 47/0801
  - • {Drive or actuation means; Transmission means; Screw supporting means}
  - <administratively transferred to [B29C 48/252](#)>
- D B29C 47/0803
  - • • {Shaft or screw supports, e.g. bearings}
  - <administratively transferred to [B29C 48/2522](#)>
- D B29C 47/0805
  - • • {Direct drives or gear boxes}
  - <administratively transferred to [B29C 48/2526](#)>
- D B29C 47/0806
  - • • {Drive or actuation means for non-plasticising purposes, e.g. dosing unit}
  - <administratively transferred to [B29C 48/2528](#)>

- D B29C 47/0808 . . {Sealing means}  
<administratively transferred to [B29C 48/254](#)>
- D B29C 47/081 . . . {for filters}  
<administratively transferred to [B29C 48/2545](#)>
- D B29C 47/0811 . . {Flow control means, i.e. adjustable parts, e.g. valves (throttling of flow B29C 47/0871)}  
<administratively transferred to [B29C 48/255](#)>
- D B29C 47/0813 . . . {in the feeding, melting, plasticising or pumping zone, e.g. screw, barrel, gear-pump or ram}  
<administratively transferred to [B29C 48/2552](#)>
- D B29C 47/0815 . . . {provided in or in the proximity of filter devices}  
<administratively transferred to [B29C 48/2554](#)>
- D B29C 47/0816 . . . {provided in or in the proximity of dies (B29C 47/124, B29C 47/16, B29C 47/22 take precedence)}  
<administratively transferred to [B29C 48/2556](#)>
- D B29C 47/0818 . . {Exchangeable extruder parts (B29C 47/681 takes precedence)}  
<administratively transferred to [B29C 48/256](#)>
- D B29C 47/082 . . . {Mounting and handling of the screw}  
<administratively transferred to [B29C 48/2561](#)>
- D B29C 47/0822 . . . {Mounting and handling of the die}  
<administratively transferred to [B29C 48/2562](#)>
- D B29C 47/0823 . . . {Mounting and handling of the hopper or feeder}  
<administratively transferred to [B29C 48/2563](#)>
- D B29C 47/0825 . . . {Screw parts}  
<administratively transferred to [B29C 48/2564](#)>
- D B29C 47/0827 . . . {Barrel parts}  
<administratively transferred to [B29C 48/2565](#)>
- D B29C 47/0828 . . . {Die parts}  
<administratively transferred to [B29C 48/2566](#)>
- D B29C 47/083 . . . {Hopper or feeder parts}  
<administratively transferred to [B29C 48/2567](#)>
- D B29C 47/0832 . . . {Inserts}  
<administratively transferred to [B29C 48/2568](#)>
- D B29C 47/0833 . . . . {for screws}  
<administratively transferred to [B29C 48/25682](#)>
- D B29C 47/0835 . . . . {for barrels}  
<administratively transferred to [B29C 48/25684](#)>
- D B29C 47/0837 . . . . {for dies}  
<administratively transferred to [B29C 48/25686](#)>
- D B29C 47/0838 . . {General arrangement or layout of plants}  
<administratively transferred to [B29C 48/025](#)>
- D B29C 47/084 . . . {for extruding parallel streams of material, e.g. several separate parallel streams of extruded material forming separate articles (B29C 47/30; B29C 47/0045 take precedence)}  
<administratively transferred to [B29C 48/0255](#)>
- D B29C 47/0842 . . {Extruder machines or parts thereof characterised by the material or by their manufacturing process (B29C 47/0818 take precedence; making of dies B23P 15/24)}  
<administratively transferred to [B29C 48/503](#)>
- D B29C 47/0844 . . . {Screws}  
<administratively transferred to [B29C 48/507](#)>

- D B29C 47/0845 . . . {Material therefor, e.g. coating or lining}  
<administratively transferred to [B29C 48/509](#)>
- D B29C 47/0847 . . . {Barrels}  
<administratively transferred to [B29C 48/6801](#)>
- D B29C 47/0849 . . . {Material therefor, e.g. coating or lining}  
<administratively transferred to [B29C 48/6803](#)>
- D B29C 47/085 . . . {Dies}  
<administratively transferred to [B29C 48/3001](#) and [B29C 48/30](#)>
- D B29C 47/0852 . . . {Material therefor, e.g. coating or lining}  
<administratively transferred to [B29C 48/3003](#) and [B29C 48/30](#)>
- D B29C 47/0854 . . {Design of extruder parts, e.g. by modelling based on mathematical theories or experiments}  
<administratively transferred to [B29C 48/251](#)>
- D B29C 47/0855 . . . {by modelling material flow, e.g. melt interaction with screw and barrel}  
<administratively transferred to [B29C 48/2511](#)>
- D B29C 47/0857 . . . {in the plasticising zone}  
<administratively transferred to [B29C 48/2513](#)>
- D B29C 47/0859 . . . {in the die zone}  
<administratively transferred to [B29C 48/2515](#)>
- D B29C 47/0861 . . . {of intermeshing screws}  
<administratively transferred to [B29C 48/2517](#)>
- D B29C 47/0862 . . . {by modelling of mechanical strength}  
<administratively transferred to [B29C 48/2519](#)>
- D B29C 47/0864 . . {Machine bases, support structures or frames}  
<administratively transferred to [B29C 48/265](#)>
- D B29C 47/0866 . . {Means for allowing relative movements between the apparatus parts, e.g. for twisting the extruded article or for moving the die along a surface to be coated}  
<administratively transferred to [B29C 48/266](#)>
- D B29C 47/0867 . . . {allowing small relative movement, e.g. adjustments for aligning the apparatus parts or for compensating for thermal expansion}  
<administratively transferred to [B29C 48/2665](#)>
- D B29C 47/0869 . . {Intermediate treatments, e.g. relaxation, annealing or decompression step for the melt (B29C 47/76 takes precedence)}  
<administratively transferred to [B29C 48/267](#)>
- D B29C 47/0871 . . {Throttling of the flow, e.g. for cooperating with plasticising elements or for degassing (flow control means B29C 47/0811)}  
<administratively transferred to [B29C 48/268](#)>
- D B29C 47/0872 . . {Extrusion in non-steady condition, e.g. start-up or shut-down}  
<administratively transferred to [B29C 48/269](#)>
- D B29C 47/0874 . . . {Material change}  
<administratively transferred to [B29C 48/2692](#)>
- D B29C 47/0876 . . . {Intermittent extrusion}  
<administratively transferred to [B29C 48/2694](#)>
- D B29C 47/0877 . . {Cleaning, purging; Avoiding contamination for cleaning extruder parts}  
<administratively transferred to [B29C 48/27](#)>
- D B29C 47/0879 . . . {of feeding units}  
<administratively transferred to [B29C 48/271](#)>
- D B29C 47/0881 . . . {of plasticising units}  
<administratively transferred to [B29C 48/2715](#)>

- D B29C 47/0883 . . . {of dies}  
<administratively transferred to [B29C 48/272](#)>
- D B29C 47/0884 . . . {of filters}  
<administratively transferred to [B29C 48/2725](#)>
- D B29C 47/0886 . . . . {using back flow}  
<administratively transferred to [B29C 48/273](#)>
- D B29C 47/0888 . . . . {using scrapers}  
<administratively transferred to [B29C 48/2735](#)>
- D B29C 47/0889 . . . {of the extruded articles}  
<administratively transferred to [B29C 48/274](#)>
- D B29C 47/0891 . . {Recovering or reusing of energy, materials or the like}  
<administratively transferred to [B29C 48/275](#)>
- D B29C 47/0893 . . . {of energy}  
<administratively transferred to [B29C 48/276](#)>
- D B29C 47/0894 . . . {of materials}  
<administratively transferred to [B29C 48/277](#)>
- D B29C 47/0896 . . . . {of additives or processing aids}  
<administratively transferred to [B29C 48/278](#)>
- D B29C 47/0898 . . {Storing of the manufactured articles, e.g. winding up or stacking}  
<administratively transferred to [B29C 48/28](#)>
- D B29C 47/10 . . Feeding the material to the extruder  
<administratively transferred to [B29C 48/285](#)>
- D B29C 47/1009 . . . {Raw material dosing}  
<administratively transferred to [B29C 48/286](#)>
- D B29C 47/1018 . . . {Raw material pre-treatment while feeding (pre-treatment of the material to be shaped in general B29B 15/00; handling of the material to be shaped in general B29C 31/00; B29C 47/78 takes precedence)}  
<administratively transferred to [B29C 48/287](#)>
- D B29C 47/1027 . . . {in solid form, e.g. powder or granules}  
<administratively transferred to [B29C 48/288](#)>
- D B29C 47/1036 . . . . {of preformed parts, e.g. inserts that are fed and transported generally uninfluenced through the extruder or fed directly to the die}  
<administratively transferred to [B29C 48/2883](#)>
- D B29C 47/1045 . . . . {of fibrous, filamentary or filling materials, e.g. thin fibrous reinforcements or fillers}  
<administratively transferred to [B29C 48/2886](#)>
- D B29C 47/1054 . . . . {in band and/or in strip form, e.g. rubber strips}  
<administratively transferred to [B29C 48/2888](#)>
- D B29C 47/1063 . . . {in liquid form}  
<administratively transferred to [B29C 48/29](#)>
- D B29C 47/1072 . . . {in gaseous form}  
<administratively transferred to [B29C 48/295](#)>
- D B29C 47/1081 . . . {at several locations, e.g. using several hoppers or using a separate additive feeding}  
<administratively transferred to [B29C 48/297](#)>
- D B29C 47/109 . . . {in a location other than through a barrel, e.g. through a screw}  
<administratively transferred to [B29C 48/298](#)>
- D B29C 47/12 . . Extrusion nozzles or dies  
<administratively transferred to [B29C 48/30](#)>
- D B29C 47/122 . . . {having reciprocating, oscillating or rotating parts}  
<administratively transferred to [B29C 48/301](#) and [B29C 48/30](#)>

- D B29C 47/124 . . . {being adjustable, i.e. having adjustable exit sections}  
<administratively transferred to [B29C 48/302](#) and [B29C 48/30](#)>
- D B29C 47/126 . . . {using dies or die parts movable in a closed circuit, e.g. mounted on movable endless support (B29C 47/32 takes precedence)}  
<administratively transferred to [B29C 48/303](#) and [B29C 48/30](#)>
- D B29C 47/128 . . . {specially adapted for bringing together components, e.g. melts within the die}  
<administratively transferred to [B29C 48/304](#) and [B29C 48/30](#)>
- D B29C 47/14 . . . with broad opening, e.g. for sheets  
<administratively transferred to [B29C 48/305](#) and [B29C 48/30](#)>
- D B29C 47/145 . . . . {specially adapted for bringing together components, e.g. melts within the die}  
<administratively transferred to [B29C 48/307](#) and [B29C 48/30](#)>
- D B29C 47/16 . . . . {being} adjustable {, i.e. having adjustable exit sections}  
<administratively transferred to [B29C 48/31](#) and [B29C 48/30](#)>
- D B29C 47/165 . . . . . {by positioning the die lips}  
<administratively transferred to [B29C 48/313](#) and [B29C 48/30](#)>
- D B29C 47/18 . . . . with die parts oscillating relative to each other  
<administratively transferred to [B29C 48/315](#) and [B29C 48/30](#)>
- D B29C 47/20 . . . with annular opening, e.g. for tubular articles  
<administratively transferred to [B29C 48/32](#) and [B29C 48/30](#)>
- D B29C 47/22 . . . . {being} adjustable {, i.e. having adjustable exit sections}  
<administratively transferred to [B29C 48/325](#) and [B29C 48/30](#)>
- D B29C 47/225 . . . . . {with centering means}  
<administratively transferred to [B29C 48/327](#) and [B29C 48/30](#)>
- D B29C 47/24 . . . . with die parts rotatable relative to each other  
<administratively transferred to [B29C 48/33](#) and [B29C 48/30](#)>
- D B29C 47/26 . . . . Multiple annular extrusion nozzles {specially adapted for bringing together components, e.g. melts within the die}  
<administratively transferred to [B29C 48/335](#) and [B29C 48/30](#)>
- D B29C 47/261 . . . . . {the components merging one by one down streams in the die}  
<administratively transferred to [B29C 48/336](#) and [B29C 48/30](#)>
- D B29C 47/263 . . . . . . {using a layered die, e.g. stacked discs}  
<administratively transferred to [B29C 48/3363](#) and [B29C 48/30](#)>
- D B29C 47/265 . . . . . . {using a die with concentric parts, e.g. rings, cylinders}  
<administratively transferred to [B29C 48/3366](#) and [B29C 48/30](#)>
- D B29C 47/266 . . . . . {the components merging at a common location}  
<administratively transferred to [B29C 48/337](#) and [B29C 48/30](#)>
- D B29C 47/268 . . . . . . {using a die with concentric parts, e.g. rings, cylinders}  
<administratively transferred to [B29C 48/338](#) and [B29C 48/30](#)>
- D B29C 47/28 . . . . Cross-head annular extrusion nozzles  
<administratively transferred to [B29C 48/34](#) and [B29C 48/30](#)>
- D B29C 47/30 . . . Multi-port extrusion nozzles {(for making granules in the form of filamentary material B29B 9/06)}  
<administratively transferred to [B29C 48/345](#) and [B29C 48/30](#)>
- D B29C 47/32 . . . Roller-extrusion nozzles  
<administratively transferred to [B29C 48/35](#) and [B29C 48/30](#)>
- D B29C 47/34 . . . Conveyors for extruded material {(B29C 47/0898 takes precedence)}  
<administratively transferred to [B29C 48/355](#)>

- D B29C 47/36
  - • Means for plasticising or homogenising the moulding material or forcing it through the nozzle or die  
<administratively transferred to [B29C 48/36](#)>
- D B29C 47/361
  - • • {with the barrel or with a part thereof rotating}  
<administratively transferred to [B29C 48/361](#)>
- D B29C 47/362
  - • • {using static mixing devices}  
<administratively transferred to [B29C 48/362](#)>
- D B29C 47/363
  - • • {using non-actuated dynamic mixing devices}  
<administratively transferred to [B29C 48/363](#)>
- D B29C 47/364
  - • • {using gear pumps}  
<administratively transferred to [B29C 48/37](#)>
- D B29C 47/365
  - • • {Multi stage plasticisers, homogenisers or feeders (multi stage plasticisers using at least two screws in the same barrel B29C 47/50)}  
<administratively transferred to [B29C 48/375](#)>
- D B29C 47/366
  - • • • {using a first screw extruder and a second screw extruder}  
<administratively transferred to [B29C 48/385](#)>
- D B29C 47/367
  - • • • {using a screw extruder and a gear pump}  
<administratively transferred to [B29C 48/387](#)>
- D B29C 47/368
  - • • • {using a screw extruder and a ram or piston}  
<administratively transferred to [B29C 48/388](#)>
- D B29C 47/369
  - • • • {Partial multi-stage}  
<administratively transferred to [B29C 48/39](#)>
- D B29C 47/38
  - • • using screws {surrounded by a cooperating barrel}  
<administratively transferred to [B29C 48/395](#)>
- D B29C 47/385
  - • • • {using a single screw}  
<administratively transferred to [B29C 48/397](#)>
- D B29C 47/40
  - • • • using at least two {parallel} intermeshing screws {or at least two parallel non-intermeshing screws}  
<administratively transferred to [B29C 48/40](#)>
- D B29C 47/402
  - • • • • {the screws having intermeshing parts}  
<administratively transferred to [B29C 48/402](#)>
- D B29C 47/404
  - • • • • {the screws having non-intermeshing parts}  
<administratively transferred to [B29C 48/404](#)>
- D B29C 47/406
  - • • • • {using non-identical or non-mirrored screws}  
<administratively transferred to [B29C 48/42](#)>
- D B29C 47/408
  - • • • • {using more than two screws (B29C 47/42 takes precedence)}  
<administratively transferred to [B29C 48/425](#)>
- D B29C 47/42
  - • • • • using sub-screws, e.g. planetary screws  
<administratively transferred to [B29C 48/425](#) and [B29C 48/435](#)>
- D B29C 47/44
  - • • • using axially movable screws (in relation to the barrel)  
<administratively transferred to [B29C 48/45](#)>
- D B29C 47/46
  - • • • using screws extruding in opposite directions {, e.g. separate screws arranged after each other and feeding in opposite directions}  
<administratively transferred to [B29C 48/455](#)>
- D B29C 47/48
  - • • • using screws arranged coaxially, one within the other  
<administratively transferred to [B29C 48/445](#)>
- D B29C 47/50
  - • • • using at least two screws (in the same barrel), one after the other, e.g. multi stage plasticisers  
<administratively transferred to [B29C 48/38](#)>
- D B29C 47/52
  - • • using rollers or discs  
<administratively transferred to [B29C 48/46](#)>

- D B29C 47/522 . . . . {using rollers}  
<administratively transferred to [B29C 48/465](#)>
- D B29C 47/525 . . . . {using single rollers, e.g. provided with protrusions, closely surrounded by a housing with movement of the material in the axial direction}  
<administratively transferred to [B29C 48/467](#)>
- D B29C 47/527 . . . . . {Cavity transfer mixing devices, i.e. a roller and surrounding barrel both provided with cavities; Barrels and rollers therefor}  
<administratively transferred to [B29C 48/468](#)>
- D B29C 47/54 . . . using press rams or pistons {or accumulators}  
<administratively transferred to [B29C 48/475](#)>
- D B29C 47/56 . . . using more than one extruder to feed one die  
<administratively transferred to [B29C 48/49](#)>
- D B29C 47/58 . . . Details  
<administratively transferred to [B29C 48/50](#)>
- D B29C 47/585 . . . . {Extruder feed section}  
<administratively transferred to [B29C 48/501](#)>
- D B29C 47/60 . . . . Screws {(screws characterized by the material or by their manufacturing process B29C 47/0844)}  
<administratively transferred to [B29C 48/505](#)>
- D B29C 47/6006 . . . . . {Hollow screws, i.e. comprising flow passage inside the screws}  
<administratively transferred to [B29C 48/51](#)>
- D B29C 47/6012 . . . . . {having varying outer diameter, e.g. screws with a conical part}  
<administratively transferred to [B29C 48/52](#)>
- D B29C 47/6018 . . . . . {having varying channel depth}  
<administratively transferred to [B29C 48/53](#)>
- D B29C 47/6025 . . . . . {having variable channel pitch}  
<administratively transferred to [B29C 48/535](#)>
- D B29C 47/6031 . . . . . {having forward feeding elements}  
<administratively transferred to [B29C 48/54](#)>
- D B29C 47/6037 . . . . . {having reverse feeding elements}  
<administratively transferred to [B29C 48/55](#)>
- D B29C 47/6043 . . . . . {having grooves or cavities}  
<administratively transferred to [B29C 48/56](#)>
- D B29C 47/605 . . . . . {having projections with a short length in the screw direction, e.g. pins}  
<administratively transferred to [B29C 48/565](#)>
- D B29C 47/6056 . . . . . {having kneading disc like elements, e.g. staggered discontinuous elements with a generally oval cross section}  
<administratively transferred to [B29C 48/57](#)>
- D B29C 47/6062 . . . . . {having shear ring like elements, i.e. with a generally circular cross section}  
<administratively transferred to [B29C 48/575](#)>
- D B29C 47/6068 . . . . . {having gears, i.e. interacting with the flow}  
<administratively transferred to [B29C 48/585](#)>
- D B29C 47/6075 . . . . . {characterised by thread details, i.e. by the special shape of a single thread, e.g. by irregularities within one thread}  
<administratively transferred to [B29C 48/59](#)>
- D B29C 47/6081 . . . . . {characterised by valley details, i.e. by the special shape of a single valley, e.g. by irregularities within one valley}  
<administratively transferred to [B29C 48/62](#)>
- D B29C 47/6087 . . . . . {characterised by the length of the screw or of a section}  
<administratively transferred to [B29C 48/625](#)>

- D B29C 47/6093 . . . . {having parts without mixing elements, e.g. having cylinder-shaped sections}  
<administratively transferred to [B29C 48/63](#)>
- D B29C 47/62 . . . . having more than one screw thread (, i.e. the screw cross section showing at least two threads)  
<administratively transferred to [B29C 48/64](#)>
- D B29C 47/622 . . . . {the neighbouring threads and channels having identical configurations}  
<administratively transferred to [B29C 48/645](#)>
- D B29C 47/625 . . . . {the neighbouring threads or channels having different configurations, e.g. one flight having constantly a smaller diameter or height than the neighbouring flight}  
<administratively transferred to [B29C 48/65](#)>
- D B29C 47/627 . . . . {being multi-flight and having three or more flights}  
<administratively transferred to [B29C 48/655](#)>
- D B29C 47/64 . . . . having incorporated mixing devices ((B29C 47/6006 - B29C 47/627 take precedence))  
<administratively transferred to [B29C 48/67](#)>
- D B29C 47/66 . . . . Barrels or cylinders  
<administratively transferred to [B29C 48/68](#)>
- D B29C 47/661 . . . . {for single screws}  
<administratively transferred to [B29C 48/681](#)>
- D B29C 47/662 . . . . {for twin screws}  
<administratively transferred to [B29C 48/682](#)>
- D B29C 47/663 . . . . {for more than two screws}  
<administratively transferred to [B29C 48/683](#)>
- D B29C 47/664 . . . . {having adaptable feed or discharge locations, e.g. for varying the amount of kneading by changing hopper position or discharge exit}  
<administratively transferred to [B29C 48/684](#)>
- D B29C 47/665 . . . . {with irregular inner surfaces}  
<administratively transferred to [B29C 48/685](#)>
- D B29C 47/666 . . . . {having grooves or cavities}  
<administratively transferred to [B29C 48/686](#)>
- D B29C 47/667 . . . . {having projections with a short length in the barrel direction, e.g. pins}  
<administratively transferred to [B29C 48/687](#)>
- D B29C 47/668 . . . . {having threads}  
<administratively transferred to [B29C 48/688](#)>
- D B29C 47/68 . . . . Filters (, Screens)  
<administratively transferred to [B29C 48/69](#)>
- D B29C 47/681 . . . . {Filtering devices with at least two parallel filters to be used alternately; Movable filters and changing mechanisms therefor}  
<administratively transferred to [B29C 48/691](#)>
- D B29C 47/682 . . . . {the filters being fitted on a single rectilinearly reciprocating slide (B29C 47/685 takes precedence)}  
<administratively transferred to [B29C 48/6912](#)>
- D B29C 47/683 . . . . {the filters being fitted on a rotatable or pivotable disc or on the circumference of a rotatable or pivotable cylinder}  
<administratively transferred to [B29C 48/6914](#)>
- D B29C 47/684 . . . . {Continuously rotating cylindrical filters}  
<administratively transferred to [B29C 48/6916](#)>

- D B29C 47/685 . . . . . {the filters being in the form of a continuous web displaceable to utilise adjacent areas consecutively}  
<administratively transferred to [B29C 48/692](#)>
- D B29C 47/686 . . . . . {Substantially flat filters mounted at the end of an extruder screw and perpendicular to its axis (B29C 47/681 takes precedence)}  
<administratively transferred to [B29C 48/693](#)>
- D B29C 47/687 . . . . . {Cylindrical or conical filters (B29C 47/681 takes precedence)}  
<administratively transferred to [B29C 48/694](#)>
- D B29C 47/688 . . . . . {surrounding a rotating screw}  
<administratively transferred to [B29C 48/6945](#)>
- D B29C 47/70 . . . . . Flow dividers  
<administratively transferred to [B29C 48/695](#)>
- D B29C 47/702 . . . . . {comprising means for dividing, distributing and recombining melt flows}  
<administratively transferred to [B29C 48/70](#)>
- D B29C 47/705 . . . . . {in the die zone, e.g. to create flow homogeneity}  
<administratively transferred to [B29C 48/705](#)>
- D B29C 47/707 . . . . . {component or layer multiplying}  
<administratively transferred to [B29C 48/255](#) and [B29C 48/71](#)>
- D B29C 47/72 . . . . . Feedback means  
<administratively transferred to [B29C 48/72](#)>
- D B29C 47/725 . . . . . {for plasticising or homogenising devices}  
<administratively transferred to [B29C 48/725](#)>
- D B29C 47/74 . . . . . By-pass means  
<administratively transferred to [B29C 48/74](#)>
- D B29C 47/745 . . . . . {for plasticising or homogenising devices}  
<administratively transferred to [B29C 48/745](#)>
- D B29C 47/76 . . . . . Venting, {drying} or degassing means  
<administratively transferred to [B29C 48/76](#)>
- D B29C 47/761 . . . . . {the vented material being in liquid form}  
<administratively transferred to [B29C 48/761](#)>
- D B29C 47/762 . . . . . {Vapour stripping}  
<administratively transferred to [B29C 48/762](#)>
- D B29C 47/763 . . . . . {Vent constructions, e.g. venting means avoiding melt escape}  
<administratively transferred to [B29C 48/763](#)>
- D B29C 47/765 . . . . . {in the extruder apparatus}  
<administratively transferred to [B29C 48/765](#)>
- D B29C 47/766 . . . . . {in screw extruders}  
<administratively transferred to [B29C 48/766](#)>
- D B29C 47/767 . . . . . {through a degassing opening of a barrel}  
<administratively transferred to [B29C 48/767](#)>
- D B29C 47/768 . . . . . {outside the apparatus, e.g. after the die}  
<administratively transferred to [B29C 48/768](#)>
- D B29C 47/78 . . . . . Heating or cooling the material to be extruded or the stream of extruded material {or of a preformed part}  
<administratively transferred to [B29C 48/78](#)>
- D B29C 47/782 . . . . . {of a preformed part, e.g. a core before entering a die or before entering a barrel}  
<administratively transferred to [B29C 48/79](#)>
- D B29C 47/784 . . . . . {at a location before the plasticising zone, e.g. of the material in the hopper}  
<administratively transferred to [B29C 48/793](#)>

- D B29C 47/786 . . . . {heating}  
<administratively transferred to [B29C 48/793](#)>
- D B29C 47/788 . . . . {cooling}  
<administratively transferred to [B29C 48/797](#)>
- D B29C 47/80 . . . at plasticising zone {, e.g. from the feed section until the die entrance}  
<administratively transferred to [B29C 48/80](#)>
- D B29C 47/802 . . . . {heating}  
<administratively transferred to [B29C 48/802](#)>
- D B29C 47/805 . . . . {cooling}  
<administratively transferred to [B29C 48/82](#)>
- D B29C 47/807 . . . . {characterised by differential heating or cooling}  
<administratively transferred to [B29C 48/875](#)>
- D B29C 47/82 . . . . Heating {or cooling} the cylinders  
<administratively transferred to [B29C 48/83](#)>
- D B29C 47/822 . . . . . {heating}  
<administratively transferred to [B29C 48/832](#)>
- D B29C 47/825 . . . . . {cooling}  
<administratively transferred to [B29C 48/834](#)>
- D B29C 47/827 . . . . . {characterised by differential heating or cooling}  
<administratively transferred to [B29C 48/875](#)>
- D B29C 47/84 . . . . Heating {or cooling} the screws  
<administratively transferred to [B29C 48/84](#) and [B29C 48/82](#)>
- D B29C 47/842 . . . . . {heating}  
<administratively transferred to [B29C 48/845](#) and [B29C 48/82](#)>
- D B29C 47/845 . . . . . {cooling}  
<administratively transferred to [B29C 48/85](#) and [B29C 48/82](#)>
- D B29C 47/847 . . . . . {characterised by differential heating or cooling}  
<administratively transferred to [B29C 48/875](#)>
- D B29C 47/86 . . . at nozzle zone  
<administratively transferred to [B29C 48/86](#)>
- D B29C 47/862 . . . . {heating}  
<administratively transferred to [B29C 48/865](#)>
- D B29C 47/864 . . . . {cooling}  
<administratively transferred to [B29C 48/87](#)>
- D B29C 47/866 . . . . {characterised by differential heating or cooling}  
<administratively transferred to [B29C 48/872](#)>
- D B29C 47/868 . . . . . {in the direction of the stream of the material}  
<administratively transferred to [B29C 48/873](#)>
- D B29C 47/88 . . . Heating or cooling the stream of extruded material  
NOTE  
{Attention is drawn to Note (3) following the subclass title}  
<administratively transferred to [B29C 48/88](#)>
- D B29C 47/8805 . . . . {Heating}  
<administratively transferred to [B29C 48/91](#)>
- D B29C 47/881 . . . . . {of hollow articles}  
<administratively transferred to [B29C 48/9105](#)>
- D B29C 47/8815 . . . . {cooling}  
<administratively transferred to [B29C 48/911](#)>
- D B29C 47/882 . . . . . {of hollow articles}  
<administratively transferred to [B29C 48/9115](#)>

- D B29C 47/8825 . . . . . {of tubular films}  
<administratively transferred to [B29C 48/912](#)>
- D B29C 47/883 . . . . . {internally}  
<administratively transferred to [B29C 48/9125](#)>
- D B29C 47/8835 . . . . . {externally}  
<administratively transferred to [B29C 48/913](#)>
- D B29C 47/884 . . . . . {of flat articles, e.g. using specially adapted supporting means}  
<administratively transferred to [B29C 48/9135](#)>
- D B29C 47/8845 . . . . . {cooling drums}  
<administratively transferred to [B29C 48/914](#)>
- D B29C 47/885 . . . . . {Endless cooling belts}  
<administratively transferred to [B29C 48/9145](#)>
- D B29C 47/8855 . . . . . {with means for improving the adhesion to the supporting means}  
<administratively transferred to [B29C 48/915](#)>
- D B29C 47/886 . . . . . {Pressure rollers}  
<administratively transferred to [B29C 48/9155](#)>
- D B29C 47/8865 . . . . . {using vacuum}  
<administratively transferred to [B29C 48/916](#)>
- D B29C 47/887 . . . . . {Electrostatic pinning}  
<administratively transferred to [B29C 48/9165](#)>
- D B29C 47/8875 . . . . . {by applying pressurised gas to the surface of the flat article}  
<administratively transferred to [B29C 48/917](#)>
- D B29C 47/888 . . . . . {by interposing a fluid layer between the supporting means and the flat article}  
<administratively transferred to [B29C 48/9175](#)>
- D B29C 47/8885 . . . . . {characterized by differential heating or cooling}  
<administratively transferred to [B29C 48/918](#)>
- D B29C 47/889 . . . . . {in the direction of the stream of the material}  
<administratively transferred to [B29C 48/9185](#)>
- D B29C 47/8895 . . . . . {using a bath, e.g. extruding into an open bath to coagulate or cool the material}  
<administratively transferred to [B29C 48/919](#)>
- D B29C 47/90 . . . . . with calibration or sizing  
<administratively transferred to [B29C 48/90](#)>
- D B29C 47/901 . . . . . {of hollow bodies}  
<administratively transferred to [B29C 48/901](#)>
- D B29C 47/902 . . . . . {internally}  
<administratively transferred to [B29C 48/902](#)>
- D B29C 47/903 . . . . . {externally}  
<administratively transferred to [B29C 48/903](#)>
- D B29C 47/904 . . . . . {using dry calibration, i.e. no quenching tank, e.g. with water spray for cooling or lubrication}  
<administratively transferred to [B29C 48/904](#)>
- D B29C 47/905 . . . . . {using wet calibration, i.e. in a quenching tank}  
<administratively transferred to [B29C 48/905](#)>
- D B29C 47/906 . . . . . {using roller calibration}  
<administratively transferred to [B29C 48/906](#)>
- D B29C 47/907 . . . . . {using adjustable calibrators, e.g. the dimensions of the calibrator being changeable}  
<administratively transferred to [B29C 48/907](#)>

- D B29C 47/908 . . . . {characterised by calibrator surface, e.g. structure or holes for lubrication, cooling or venting}  
<administratively transferred to [B29C 48/908](#)>
- D B29C 47/92 . . Measuring, controlling or regulating  
NOTE  
  
When classifying in group B29C 47/92 it is desirable to add the indexing codes of B29C 2947/00 relating to measuring, controlling or regulating in extrusion moulding  
<administratively transferred to [B29C 48/92](#)>
- D B29C 47/94 . . Lubricating {, e.g. adding lubrication to the melt}  
<administratively transferred to [B29C 48/94](#)>
- D B29C 47/96 . . Safety devices  
<administratively transferred to [B29C 48/96](#)>
- D B29C 47/965 . . . {Personnel safety, e.g. safety for the operator}  
<administratively transferred to [B29C 48/965](#)>
- N B29C 48/00** **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](#))**
- N B29C 48/001 . {Combinations of extrusion moulding with other shaping operations}
- N B29C 48/0011 . . {combined with compression moulding}
- N B29C 48/0012 . . {combined with shaping by internal pressure generated in the material, e.g. foaming}
- N B29C 48/0013 . . {Extrusion moulding in several steps, i.e. components merging outside the die ([B29C 48/15](#) takes precedence)}
- N B29C 48/0014 . . . {producing flat articles having components brought in contact outside the extrusion die}
- N B29C 48/0015 . . . {producing hollow articles having components brought in contact outside the extrusion die}
- N B29C 48/0016 . . . . {using a plurality of extrusion dies}
- N B29C 48/0017 . . {combined with blow-moulding or thermoforming}
- N B29C 48/0018 . . {combined with shaping by orienting, stretching or shrinking, e.g. film blowing ([B29C 48/0017](#) takes precedence)}
- N B29C 48/0019 . . {combined with shaping by flattening, folding or bending}
- N B29C 48/002 . . {combined with surface shaping}
- N B29C 48/0021 . . {combined with joining, lining or laminating}
- N B29C 48/0022 . . {combined with cutting}
- N B29C 48/0023 . . {combined with printing or marking}
- N B29C 48/02 . Small extruding apparatus, e.g. handheld, toy or laboratory extruders
- N B29C 48/022 . {characterised by the choice of material}  
NOTE  
When classifying in this group, it is desirable to add the indexing codes of subclass [B29K](#) to identify the moulding materials and their properties. Documents concerning the choice of moulding materials having a particular influence on the moulding technique should be classified in this group if of interest.
- N B29C 48/023 . . {Extruding materials comprising incompatible ingredients}
- N B29C 48/025 . General arrangement or layout of plant

- N B29C 48/0255
- {for extruding parallel streams of material, e.g. several separate parallel streams of extruded material forming separate articles ([B29C 48/0013](#), [B29C 48/345](#) takes precedence)}
- N B29C 48/03
- characterised by the shape of the extruded material at extrusion
- WARNING  
Group [B29C 48/03](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/03](#) should be considered in order to perform a complete search.
- N B29C 48/04
- Particle-shaped (making granules [B29B 9/00](#))
- WARNING  
Group [B29C 48/04](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/04](#) should be considered in order to perform a complete search.
- N B29C 48/05
- Filamentary, e.g. strands
- WARNING  
Group [B29C 48/05](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/05](#) should be considered in order to perform a complete search.
- N B29C 48/06
- Rod-shaped
- WARNING  
Group [B29C 48/06](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/06](#) should be considered in order to perform a complete search.
- N B29C 48/07
- Flat, e.g. panels
- WARNING  
Group [B29C 48/07](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/07](#) should be considered in order to perform a complete search.
- N B29C 48/08
- flexible, e.g. films
- WARNING  
Group [B29C 48/08](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/08](#) should be considered in order to perform a complete search.
- N B29C 48/09
- Articles with cross-sections having partially or fully enclosed cavities, e.g. pipes or channels
- WARNING  
Group [B29C 48/09](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/09](#) should be considered in order to perform a complete search.

- N B29C 48/10
- • • flexible, e.g. blown foils
- WARNING  
Group [B29C 48/10](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/10](#) should be considered in order to perform a complete search.
- N B29C 48/11
- • • comprising two or more partially or fully enclosed cavities, e.g. honeycomb-shaped
- WARNING  
Group [B29C 48/11](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/11](#) should be considered in order to perform a complete search.
- N B29C 48/12
- • Articles with an irregular circumference when viewed in cross-section, e.g. window profiles
- WARNING  
Group [B29C 48/12](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/12](#) should be considered in order to perform a complete search.
- N B29C 48/13
- • Articles with a cross-section varying in the longitudinal direction, e.g. corrugated pipes
- WARNING  
Group [B29C 48/13](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/13](#) should be considered in order to perform a complete search.
- N B29C 48/131
- • {Curved articles}
- WARNING  
Group [B29C 48/131](#) is incomplete pending reclassification of documents from group [B29C 48/30](#).  
Groups [B29C 48/30](#) and [B29C 48/131](#) should be considered in order to perform a complete search.
- N B29C 48/14
- characterised by the particular extruding conditions, e.g. in a modified atmosphere or by using vibration
- N B29C 48/141
- • {extruding in a clean room}
- N B29C 48/142
- • {using force fields, e.g. gravity or electrical fields ([B29C 48/9165](#) takes precedence)}
- N B29C 48/143
- • {at a location before or in the feed unit, e.g. influencing the material in the hopper}
- N B29C 48/144
- • {at the plasticising zone}
- N B29C 48/145
- • {at a venting zone}
- N B29C 48/146
- • {in the die}
- N B29C 48/147
- • {after the die nozzle}
- N B29C 48/1472
- • • {at the die nozzle exit zone}
- N B29C 48/1474
- • • {at a calibration zone}
- N B29C 48/1476
- • • {at a conveyor}
- N B29C 48/1478
- • • {at a storing zone}

- N B29C 48/15      • incorporating preformed parts or layers, e.g. extrusion moulding around inserts
- N B29C 48/151   • • Coating hollow articles
- N B29C 48/152   • • • the inner surfaces thereof
- N B29C 48/153   • • • • Coating both inner and outer surfaces
- N B29C 48/154   • • Coating solid articles, i.e. non-hollow articles
- N B29C 48/155   • • • Partial coating thereof
- N B29C 48/156   • • Coating two or more articles simultaneously
- N B29C 48/157   • • Coating linked inserts, e.g. chains
- N B29C 48/16     • Articles comprising two or more components, e.g. co-extruded layers

WARNING

Group [B29C 48/16](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).

Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/16](#) should be considered in order to perform a complete search.

- N B29C 48/17     • • the components having different colours

WARNING

Group [B29C 48/17](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).

Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/17](#) should be considered in order to perform a complete search.

- N B29C 48/175   • • • {comprising a multi-coloured single component, e.g. striated, marbled or wood-like patterned}

WARNING

Group [B29C 48/175](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).

Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/175](#) should be considered in order to perform a complete search.

- N B29C 48/18     • • the components being layers

WARNING

Group [B29C 48/18](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).

Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/18](#) should be considered in order to perform a complete search.

- N B29C 48/185   • • • {comprising six or more components, i.e. each component being counted once for each time it is present, e.g. in a layer}

WARNING

Group [B29C 48/185](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).

Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/185](#) should be considered in order to perform a complete search.

- N B29C 48/19     • • • the layers being joined at their edges

WARNING

Group [B29C 48/19](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).

Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/19](#) should be considered in order to perform a complete search.

- N B29C 48/20
- • • one of the layers being a strip, e.g. a partially embedded strip
- WARNING  
Group [B29C 48/20](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).  
Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/20](#) should be considered in order to perform a complete search.
- N B29C 48/21
- • • the layers being joined at their surfaces
- WARNING  
Group [B29C 48/21](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).  
Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/21](#) should be considered in order to perform a complete search.
- N B29C 48/22
- • • with means connecting the layers, e.g. tie layers or undercuts
- WARNING  
Group [B29C 48/22](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).  
Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/22](#) should be considered in order to perform a complete search.
- N B29C 48/23
- • • with means for avoiding adhesion of the layers, e.g. for forming peelable layers
- WARNING  
Group [B29C 48/23](#) is incomplete pending reclassification of documents from groups [B29C 48/255](#) and [B29C 48/49](#).  
Groups [B29C 48/255](#), [B29C 48/49](#) and [B29C 48/23](#) should be considered in order to perform a complete search.
- N B29C 48/25
- Component parts, details or accessories; Auxiliary operations
- N B29C 48/251
- • {Design of extruder parts, e.g. by modelling based on mathematical theories or experiments}
- N B29C 48/2511
- • • {by modelling material flow, e.g. melt interaction with screw and barrel}
- N B29C 48/2513
- • • • {in the plasticising zone}
- N B29C 48/2515
- • • • {in the die zone}
- N B29C 48/2517
- • • {of intermeshing screws}
- N B29C 48/2519
- • • {by modelling of mechanical strength}
- N B29C 48/252
- • {Drive or actuation means; Transmission means; Screw supporting means}
- N B29C 48/2522
- • • {Shaft or screw supports, e.g. bearings}
- N B29C 48/2526
- • • {Direct drives or gear boxes}
- N B29C 48/2528
- • • {Drive or actuation means for non-plasticising purposes, e.g. dosing unit}
- N B29C 48/254
- • {Sealing means}
- N B29C 48/2545
- • • {for filters}
- Q B29C 48/255
- • Flow control means, e.g. valves (flow dividers [B29C 48/695](#))
- WARNING  
Group [B29C 48/255](#) is impacted by reclassification into groups [B29C 48/695](#), [B29C 48/70](#), [B29C 48/705](#), [B29C 48/71](#), [B29C 48/16](#), [B29C 48/17](#), [B29C 48/175](#), [B29C 48/18](#), [B29C 48/185](#), [B29C 48/19](#), [B29C 48/20](#), [B29C 48/21](#), [B29C 48/22](#), and [B29C 48/23](#).  
All groups listed in this Warning should be considered in order to perform a complete search.

- N B29C 48/2552 . . . {provided in the feeding, melting, plasticising or pumping zone, e.g. screw, barrel, gear-pump or ram}
- N B29C 48/2554 . . . {provided in or in the proximity of filter devices}
- N B29C 48/2556 . . . {provided in or in the proximity of dies ([B29C 48/302](#), [B29C 48/31](#), [B29C 48/325](#) take precedence)}
- N B29C 48/256 . . . {Exchangeable extruder parts ([B29C 48/691](#) takes precedence)}
- N B29C 48/2561 . . . {Mounting or handling of the screw}
- N B29C 48/2562 . . . {Mounting or handling of the die}
- N B29C 48/2563 . . . {Mounting or handling of the hopper or feeder}
- N B29C 48/2564 . . . {Screw parts}
- N B29C 48/2565 . . . {Barrel parts}
- N B29C 48/2566 . . . {Die parts}
- N B29C 48/2567 . . . {Hopper or feeder parts}
- N B29C 48/2568 . . . {Inserts}
- N B29C 48/25682 . . . . {for screws}
- N B29C 48/25684 . . . . {for barrels}
- N B29C 48/25686 . . . . {for dies}
- N B29C 48/265 . . . Support structures or bases for apparatus, e.g. frames
- N B29C 48/266 . . . {Means for allowing relative movements between the apparatus parts, e.g. for twisting the extruded article or for moving the die along a surface to be coated}
- N B29C 48/2665 . . . {allowing small relative movement, e.g. adjustments for aligning the apparatus parts or for compensating for thermal expansion}
- N B29C 48/267 . . . {Intermediate treatments, e.g. relaxation, annealing or decompression step for the melt ([B29C 48/76](#) takes precedence)}
- N B29C 48/268 . . . {Throttling of the flow, e.g. for cooperating with plasticising elements or for degassing (flow control means [B29C 48/255](#))}
- N B29C 48/269 . . . {Extrusion in non-steady condition, e.g. start-up or shut-down}
- N B29C 48/2692 . . . {Material change}
- N B29C 48/2694 . . . {Intermittent extrusion}
- N B29C 48/27 . . . Cleaning; Purging; Avoiding contamination
- N B29C 48/271 . . . {of feeding units}
- N B29C 48/2715 . . . {of plasticising units}
- N B29C 48/272 . . . {of dies}
- N B29C 48/2725 . . . {of filters}
- N B29C 48/273 . . . . {using back flow}
- N B29C 48/2735 . . . . {using scrapers}
- N B29C 48/274 . . . {of the extruded articles}
- N B29C 48/275 . . . Recovery or reuse of energy or materials
- N B29C 48/276 . . . {of energy}
- N B29C 48/277 . . . {of materials}
- N B29C 48/278 . . . . {of additives or processing aids}
- Q B29C 48/28 . . . Storing of extruded material, e.g. by winding up or stacking

WARNING

Group [B29C 48/28](#) is impacted by reclassification into group [B29C 48/355](#).

Groups [B29C 48/28](#) and [B29C 48/355](#) should be considered in order to perform a complete search.

- N [B29C 48/285](#) . . . Feeding the extrusion material to the extruder
- N [B29C 48/286](#) . . . {Raw material dosing}
- N [B29C 48/287](#) . . . {Raw material pre-treatment while feeding ([B29C 48/78](#) takes precedence)}
- N [B29C 48/288](#) . . . {in solid form, e.g. powder or granules}
- N [B29C 48/2883](#) . . . . {of preformed parts, e.g. inserts fed and transported generally uninfluenced through the extruder or inserts fed directly to the die}
- N [B29C 48/2886](#) . . . . {of fibrous, filamentary or filling materials, e.g. thin fibrous reinforcements or fillers}
- N [B29C 48/2888](#) . . . . {in band or in strip form, e.g. rubber strips}
- N [B29C 48/29](#) . . . in liquid form
- N [B29C 48/295](#) . . . in gaseous form
- N [B29C 48/297](#) . . . {at several locations, e.g. using several hoppers or using a separate additive feeding}
- N [B29C 48/298](#) . . . {in a location other than through a barrel, e.g. through a screw}
- Q [B29C 48/30](#) . . Extrusion nozzles or dies (extrusion characterised by the shape or cross-section of the extruded article [B29C 48/03](#))

**WARNING**

Group [B29C 48/30](#) is impacted by reclassification into groups [B29C 48/03](#), [B29C 48/04](#), [B29C 48/05](#), [B29C 48/06](#), [B29C 48/07](#), [B29C 48/08](#), [B29C 48/09](#), [B29C 48/10](#), [B29C 48/11](#), [B29C 48/12](#), [B29C 48/13](#), and [B29C 48/131](#).

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

- N [B29C 48/3001](#) . . . {characterised by the material or their manufacturing process}
- N [B29C 48/3003](#) . . . . {Materials, coating or lining therefor}
- N [B29C 48/301](#) . . . {having reciprocating, oscillating or rotating parts}
- N [B29C 48/302](#) . . . {being adjustable, i.e. having adjustable exit sections}
- N [B29C 48/303](#) . . . {using dies or die parts movable in a closed circuit, e.g. mounted on movable endless support ([B29C 48/35](#) takes precedence)}
- N [B29C 48/304](#) . . . {specially adapted for bringing together components, e.g. melts within the die}
- N [B29C 48/305](#) . . . having a wide opening, e.g. for forming sheets
- N [B29C 48/307](#) . . . . {specially adapted for bringing together components, e.g. melts within the die}
- N [B29C 48/31](#) . . . . {being} adjustable {, i.e. having adjustable exit sections}
- N [B29C 48/313](#) . . . . . {by positioning the die lips}
- N [B29C 48/315](#) . . . . with parts oscillating relative to each other
- N [B29C 48/32](#) . . . with annular openings, e.g. for forming tubular articles
- N [B29C 48/325](#) . . . . {being} adjustable {, i.e. having adjustable exit sections}
- N [B29C 48/327](#) . . . . . {with centering means}
- N [B29C 48/33](#) . . . . with parts rotatable relative to each other
- N [B29C 48/335](#) . . . . Multiple annular extrusion nozzles in coaxial arrangement, e.g. for making multi-layered tubular articles
- N [B29C 48/336](#) . . . . . {the components merging one by one down streams in the die}
- N [B29C 48/3363](#) . . . . . . {using a layered die, e.g. stacked discs}

- N B29C 48/3366 . . . . . {using a die with concentric parts, e.g. rings, cylinders}
- N B29C 48/337 . . . . . {the components merging at a common location}
- N B29C 48/338 . . . . . {using a die with concentric parts, e.g. rings, cylinders}
- N B29C 48/34 . . . . . Cross-head annular extrusion nozzles, i.e. for simultaneously receiving moulding material and the preform to be coated
- N B29C 48/345 . . . . . Extrusion nozzles comprising two or more adjacently arranged ports, for simultaneously extruding multiple strands, e.g. for pelletising
- N B29C 48/35 . . . . . with rollers
- N B29C 48/355 . . . . . Conveyors for extruded articles

WARNING

Group [B29C 48/355](#) is incomplete pending reclassification of documents from group [B29C 48/28](#).

Groups [B29C 48/28](#) and [B29C 48/355](#) should be considered in order to perform a complete search.

- Q B29C 48/36 . . . . . Means for plasticising or homogenising the moulding material or forcing it through the nozzle or die

WARNING

Group [B29C 48/36](#) is impacted by reclassification into group [B29C 48/365](#).

Groups [B29C 48/36](#) and [B29C 48/365](#) should be considered in order to perform a complete search.

- N B29C 48/361 . . . . . {with the barrel or with a part thereof rotating}
- N B29C 48/362 . . . . . {using static mixing devices}
- N B29C 48/363 . . . . . {using non-actuated dynamic mixing devices}
- N B29C 48/365 . . . . . using pumps, e.g. piston pumps

WARNING

Group [B29C 48/365](#) is incomplete pending reclassification of documents from group [B29C 48/36](#).

Groups [B29C 48/36](#) and [B29C 48/365](#) should be considered in order to perform a complete search.

- N B29C 48/37 . . . . . Gear pumps
- N B29C 48/375 . . . . . Plasticisers, homogenisers or feeders comprising two or more stages
- N B29C 48/38 . . . . . using two or more serially arranged screws in the same barrel

WARNING

Group [B29C 48/38](#) is incomplete pending reclassification of documents from group [B29C 48/425](#).

Groups [B29C 48/425](#) and [B29C 48/38](#) should be considered in order to perform a complete search.

- N B29C 48/385 . . . . . using two or more serially arranged screws in separate barrels

WARNING

Group [B29C 48/385](#) is incomplete pending reclassification of documents from group [B29C 48/425](#).

Groups [B29C 48/425](#) and [B29C 48/385](#) should be considered in order to perform a complete search.

- N B29C 48/387 . . . . . {using a screw extruder and a gear pump}
- N B29C 48/388 . . . . . {using a screw extruder and a ram or piston}
- N B29C 48/39 . . . . . a first extruder feeding the melt into an intermediate location of a second extruder

N B29C 48/395 . . . . using screws surrounded by a cooperating barrel, e.g. single screw extruders

N B29C 48/397 . . . . {using a single screw}

Q B29C 48/40 . . . . using two or more parallel screws {or at least two parallel non-intermeshing screws}, e.g. twin screw extruders

WARNING

Group [B29C 48/40](#) is impacted by reclassification into groups [B29C 48/405](#), [B29C 48/41](#) and [B29C 48/415](#).

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

N B29C 48/402 . . . . . {the screws having intermeshing parts}

N B29C 48/404 . . . . . {the screws having non-intermeshing parts}

N B29C 48/405 . . . . . Intermeshing co-rotating screws

WARNING

Group [B29C 48/405](#) is incomplete pending reclassification of documents from group [B29C 48/40](#).

Groups [B29C 48/40](#) and [B29C 48/405](#) should be considered in order to perform a complete search.

N B29C 48/41 . . . . . Intermeshing counter-rotating screws

WARNING

Group [B29C 48/41](#) is incomplete pending reclassification of documents from group [B29C 48/40](#).

Groups [B29C 48/40](#) and [B29C 48/41](#) should be considered in order to perform a complete search.

N B29C 48/415 . . . . . and having partially non-intermeshing screws

WARNING

Group [B29C 48/415](#) is incomplete pending reclassification of documents from group [B29C 48/40](#).

Groups [B29C 48/40](#) and [B29C 48/415](#) should be considered in order to perform a complete search.

N B29C 48/42 . . . . . Non-identical or non-mirrored screws

Q B29C 48/425 . . . . . using three or more screws (serially arranged screws [B29C 48/38](#), [B29C 48/385](#))

WARNING

Group [B29C 48/425](#) is impacted by reclassification into groups [B29C 48/38](#), [B29C 48/385](#), [B29C 48/43](#), [B29C 48/435](#) and [B29C 48/44](#).

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

N B29C 48/43 . . . . . Ring extruders

WARNING

Group [B29C 48/43](#) is incomplete pending reclassification of documents from group [B29C 48/425](#).

Groups [B29C 48/425](#) and [B29C 48/43](#) should be considered in order to perform a complete search.

- N B29C 48/435 . . . . . Sub-screws  
WARNING  
 Group [B29C 48/435](#) is incomplete pending reclassification of documents from group [B29C 48/425](#).  
 Groups [B29C 48/425](#) and [B29C 48/435](#) should be considered in order to perform a complete search.
- N B29C 48/44 . . . . . Planetary screws  
WARNING  
 Group [B29C 48/44](#) is incomplete pending reclassification of documents from group [B29C 48/425](#).  
 Groups [B29C 48/425](#) and [B29C 48/44](#) should be considered in order to perform a complete search.
- N B29C 48/445 . . . . . Coaxially arranged screws, i.e. one within the other
- N B29C 48/45 . . . . . Axially movable screws
- N B29C 48/455 . . . . . Screws arranged to convey material towards each other, e.g. separate screws arranged after each other and feeding in opposite directions
- Q B29C 48/46 . . . using vanes  
WARNING  
 Group [B29C 48/46](#) is impacted by reclassification into group [B29C 48/47](#).  
 Groups [B29C 48/46](#) and [B29C 48/47](#) should be considered in order to perform a complete search.
- N B29C 48/465 . . . using rollers
- N B29C 48/467 . . . . {using single rollers, e.g. provided with protrusions, closely surrounded by a housing with movement of the material in the axial direction}
- N B29C 48/468 . . . . . {Cavity transfer mixing devices, i.e. a roller and surrounding barrel both provided with cavities; Barrels and rollers therefor}
- N B29C 48/47 . . . using discs, e.g. plasticising the moulding material by passing it between a fixed and a rotating disc that are coaxially arranged  
WARNING  
 Group [B29C 48/47](#) is incomplete pending reclassification of documents from group [B29C 48/46](#).  
 Groups [B29C 48/46](#) and [B29C 48/47](#) should be considered in order to perform a complete search.
- Q B29C 48/475 . . . using pistons, accumulators or press rams  
WARNING  
 Group [B29C 48/475](#) is impacted by reclassification into groups [B29C 48/48](#) and [B29C 48/485](#).  
 Groups [B29C 48/475](#), [B29C 48/48](#), and [B29C 48/485](#) should be considered in order to perform a complete search.
- N B29C 48/48 . . . . . Two or more rams or pistons  
WARNING  
 Group [B29C 48/48](#) is incomplete pending reclassification of documents from group [B29C 48/475](#).  
 Groups [B29C 48/475](#) and [B29C 48/48](#) should be considered in order to perform a complete search.

- N B29C 48/485 . . . . Hydrostatic extrusion  
WARNING  
 Group [B29C 48/485](#) is incomplete pending reclassification of documents from group [B29C 48/475](#).  
 Groups [B29C 48/475](#) and [B29C 48/485](#) should be considered in order to perform a complete search.
- Q B29C 48/49 . . . . using two or more extruders to feed one die or nozzle  
WARNING  
 Group [B29C 48/49](#) is impacted by reclassification into groups [B29C 48/495](#), [B29C 48/16](#), [B29C 48/17](#), [B29C 48/175](#), [B29C 48/18](#), [B29C 48/185](#), [B29C 48/19](#), [B29C 48/20](#), [B29C 48/21](#), [B29C 48/22](#), and [B29C 48/23](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N B29C 48/495 . . . . Feed-blocks (extrusion moulding of multi-component articles [B29C 48/16](#))  
WARNING  
 Group [B29C 48/495](#) is incomplete pending reclassification of documents from group [B29C 48/49](#).  
 Groups [B29C 48/49](#) and [B29C 48/495](#) should be considered in order to perform a complete search.
- N B29C 48/50 . . . . Details of extruders
- N B29C 48/501 . . . . {Extruder feed section}
- N B29C 48/503 . . . . {Extruder machines or parts thereof characterised by the material or by their manufacturing process ([B29C 48/256](#) takes precedence)}
- Q B29C 48/505 . . . . Screws  
WARNING  
 Group [B29C 48/505](#) is impacted by reclassification into groups [B29C 48/58](#) and [B29C 48/635](#).  
 Groups [B29C 48/505](#), [B29C 48/58](#), and [B29C 48/635](#) should be considered in order to perform a complete search.
- N B29C 48/507 . . . . . {characterised by the material or their manufacturing process}
- N B29C 48/509 . . . . . {Materials, coating or lining therefor}
- Q B29C 48/51 . . . . . with internal flow passages, e.g. for molten material  
WARNING  
 Group [B29C 48/51](#) is impacted by reclassification into group [B29C 48/515](#).  
 Groups [B29C 48/51](#) and [B29C 48/515](#) should be considered in order to perform a complete search.
- N B29C 48/515 . . . . . for auxiliary fluids, e.g. foaming agents  
WARNING  
 Group [B29C 48/515](#) is incomplete pending reclassification of documents from groups [B29C 48/51](#) and [B29C 48/82](#).  
 Groups [B29C 48/51](#), [B29C 48/82](#), and [B29C 48/515](#) should be considered in order to perform a complete search.
- Q B29C 48/52 . . . . . with an outer diameter varying along the longitudinal axis, e.g. for obtaining different thread clearance  
WARNING  
 Group [B29C 48/52](#) is impacted by reclassification into group [B29C 48/525](#).

Groups [B29C 48/52](#) and [B29C 48/525](#) should be considered in order to perform a complete search.

- N [B29C 48/525](#) . . . . . Conical screws  
WARNING  
Group [B29C 48/525](#) is incomplete pending reclassification of documents from group [B29C 48/52](#).  
Groups [B29C 48/52](#) and [B29C 48/525](#) should be considered in order to perform a complete search.
  
- N [B29C 48/53](#) . . . . . having a varying channel depth, e.g. varying the diameter of the longitudinal screw trunk
- N [B29C 48/535](#) . . . . . with thread pitch varying along the longitudinal axis
- N [B29C 48/54](#) . . . . . with additional forward-feeding elements
- N [B29C 48/55](#) . . . . . having reverse-feeding elements
- N [B29C 48/56](#) . . . . . having grooves or cavities other than the thread or the channel
- N [B29C 48/565](#) . . . . . having projections other than the thread, e.g. pins
- N [B29C 48/57](#) . . . . . provided with kneading disc-like elements, e.g. with oval-shaped elements
  
- N [B29C 48/575](#) . . . . . provided with elements of a generally circular cross-section for shearing the melt, i.e. shear-ring elements
  
- N [B29C 48/58](#) . . . . . provided with seal ring elements, i.e. elements of generally circular and tapered shape for preventing the back flow of the melt  
WARNING  
Group [B29C 48/58](#) is incomplete pending reclassification of documents from group [B29C 48/505](#).  
Groups [B29C 48/505](#) and [B29C 48/58](#) should be considered in order to perform a complete search.
  
- N [B29C 48/585](#) . . . . . provided with gears interacting with the flow
- Q [B29C 48/59](#) . . . . . characterised by details of the thread, i.e. the shape of a single thread of the material-feeding screw  
WARNING  
Group [B29C 48/59](#) is impacted by reclassification into groups [B29C 48/595](#), [B29C 48/60](#), [B29C 48/605](#), [B29C 48/61](#), and [B29C 48/615](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
  
- N [B29C 48/595](#) . . . . . the thread having non-uniform width  
WARNING  
Group [B29C 48/595](#) is incomplete pending reclassification of documents from group [B29C 48/59](#).  
Groups [B29C 48/59](#) and [B29C 48/595](#) should be considered in order to perform a complete search.
  
- N [B29C 48/60](#) . . . . . Thread tops  
WARNING  
Group [B29C 48/60](#) is incomplete pending reclassification of documents from group [B29C 48/59](#).  
Groups [B29C 48/59](#) and [B29C 48/60](#) should be considered in order to perform a complete search.

- N B29C 48/605 . . . . . *the thread being discontinuous*  
WARNING  
 Group [B29C 48/605](#) is incomplete pending reclassification of documents from group [B29C 48/59](#). Groups [B29C 48/59](#) and [B29C 48/605](#) should be considered in order to perform a complete search.
- N B29C 48/61 . . . . . *Threads having wavy profiles*  
WARNING  
 Group [B29C 48/61](#) is incomplete pending reclassification of documents from group [B29C 48/59](#). Groups [B29C 48/59](#) and [B29C 48/61](#) should be considered in order to perform a complete search.
- N B29C 48/615 . . . . . *Threads having varying helix angles*  
WARNING  
 Group [B29C 48/615](#) is incomplete pending reclassification of documents from group [B29C 48/59](#). Groups [B29C 48/59](#) and [B29C 48/615](#) should be considered in order to perform a complete search.
- N B29C 48/62 . . . . . *characterised by the shape of the thread channel, e.g. U-shaped*
- N B29C 48/625 . . . . . *characterised by the ratio of the threaded length of the screw to its outside diameter [L/D ratio]*
- N B29C 48/63 . . . . . *having sections without mixing elements or threads, i.e. having cylinder shaped sections*
- N B29C 48/635 . . . . . *Eccentrically rotating screws; Screws revolving around an axis other than their central axis*  
WARNING  
 Group [B29C 48/635](#) is incomplete pending reclassification of documents from group [B29C 48/505](#). Groups [B29C 48/505](#) and [B29C 48/635](#) should be considered in order to perform a complete search.
- Q B29C 48/64 . . . . . *Screws with two or more threads*  
WARNING  
 Group [B29C 48/64](#) is impacted by reclassification into group [B29C 48/66](#). Groups [B29C 48/64](#) and [B29C 48/66](#) should be considered in order to perform a complete search.
- N B29C 48/645 . . . . . *neighbouring threads and channels having identical configurations*
- N B29C 48/65 . . . . . *neighbouring threads or channels having different configurations, e.g. one thread being lower than its neighbouring thread*
- N B29C 48/655 . . . . . *having three or more threads*
- N B29C 48/66 . . . . . *Barrier threads, i.e. comprising primary and secondary threads whereby the secondary thread provides clearance to the barrel for material movement*  
WARNING  
 Group [B29C 48/66](#) is incomplete pending reclassification of documents from group [B29C 48/64](#). Groups [B29C 48/64](#) and [B29C 48/66](#) should be considered in order to perform a complete search.

- N B29C 48/67 . . . . . having incorporated mixing devices not provided for in groups [B29C 48/52](#) - [B29C 48/66](#)
- N B29C 48/68 . . . . . Barrels or cylinders
- N B29C 48/6801 . . . . . {characterised by the material or their manufacturing process}
- N B29C 48/6803 . . . . . {Materials, coating or lining therefor}
- N B29C 48/681 . . . . . {for single screws}
- N B29C 48/682 . . . . . {for twin screws}
- N B29C 48/683 . . . . . {for more than two screws}
- N B29C 48/684 . . . . . {having adaptable feed or discharge locations, e.g. for varying the amount of kneading by changing hopper position or discharge exit}
- N B29C 48/685 . . . . . characterised by their inner surfaces, e.g. having grooves, projections or threads
- N B29C 48/686 . . . . . {having grooves or cavities}
- N B29C 48/687 . . . . . {having projections with a short length in the barrel direction, e.g. pins}
- N B29C 48/688 . . . . . {having threads}
- N B29C 48/69 . . . . . Filters or screens for the moulding material
- Q B29C 48/691 . . . . . Arrangements for replacing filters, e.g. with two parallel filters for alternate use
- WARNING  
Group [B29C 48/691](#) is impacted by reclassification into groups [B29C 48/693](#) and [B29C 48/694](#).  
Groups [B29C 48/691](#), [B29C 48/693](#), and [B29C 48/694](#) should be considered in order to perform a complete search.
- N B29C 48/6912 . . . . . {the filters being fitted on a single rectilinearly reciprocating slide ([B29C 48/692](#) takes precedence)}
- N B29C 48/6914 . . . . . {the filters being fitted on a rotatable or pivotable disc or on the circumference of a rotatable or pivotable cylinder}
- N B29C 48/6916 . . . . . {Continuously rotating cylindrical filters}
- N B29C 48/692 . . . . . in the form of webs displaceable for using adjacent areas consecutively
- N B29C 48/693 . . . . . Substantially flat filters mounted at the end of an extruder screw perpendicular to the feed axis
- WARNING  
Group [B29C 48/693](#) is incomplete pending reclassification of documents from group [B29C 48/691](#).  
Groups [B29C 48/691](#) and [B29C 48/693](#) should be considered in order to perform a complete search.
- N B29C 48/694 . . . . . Cylindrical or conical filters
- WARNING  
Group [B29C 48/694](#) is incomplete pending reclassification of documents from group [B29C 48/691](#).  
Groups [B29C 48/691](#) and [B29C 48/694](#) should be considered in order to perform a complete search.
- N B29C 48/6945 . . . . . {surrounding a rotating screw}
- N B29C 48/695 . . . . . Flow dividers, e.g. breaker plates
- WARNING  
Group [B29C 48/695](#) is incomplete pending reclassification of documents from group [B29C 48/255](#).

Groups [B29C 48/255](#) and [B29C 48/695](#) should be considered in order to perform a complete search.

- N B29C 48/70 . . . . comprising means for dividing, distributing and recombining melt flows  
WARNING  
Group [B29C 48/70](#) is incomplete pending reclassification of documents from group [B29C 48/255](#).  
Groups [B29C 48/255](#) and [B29C 48/70](#) should be considered in order to perform a complete search.
- N B29C 48/705 . . . . . {in the die zone, e.g. to create flow homogeneity}  
WARNING  
Group [B29C 48/705](#) is incomplete pending reclassification of documents from group [B29C 48/255](#).  
Groups [B29C 48/255](#) and [B29C 48/705](#) should be considered in order to perform a complete search.
- N B29C 48/71 . . . . . for layer multiplication (extrusion of multi-component articles [B29C 48/16](#))  
WARNING  
Group [B29C 48/71](#) is incomplete pending reclassification of documents from group [B29C 48/255](#).  
Groups [B29C 48/255](#) and [B29C 48/71](#) should be considered in order to perform a complete search.
- N B29C 48/72 . . . . Feedback means, i.e. part of the molten material being fed back into upstream stages of the extruder
- N B29C 48/725 . . . . {for plasticising or homogenising devices}
- N B29C 48/74 . . . . Bypassing means, i.e. part of the molten material being diverted into downstream stages of the extruder
- N B29C 48/745 . . . . . {for plasticising or homogenising devices}
- N B29C 48/76 . . . . Venting {, drying} means; Degassing means
- N B29C 48/761 . . . . . {the vented material being in liquid form}
- N B29C 48/762 . . . . . {Vapour stripping}
- N B29C 48/763 . . . . . {Vent constructions, e.g. venting means avoiding melt escape}
- N B29C 48/765 . . . . . {in the extruder apparatus}
- N B29C 48/766 . . . . . . {in screw extruders}
- N B29C 48/767 . . . . . . . {through a degassing opening of a barrel}
- N B29C 48/768 . . . . . {outside the apparatus, e.g. after the die}
- N B29C 48/78 . . Thermal treatment of the extrusion moulding material or of preformed parts or layers, e.g. by heating or cooling
- N B29C 48/79 . . . . of preformed parts or layers
- N B29C 48/793 . . . . upstream of the plasticising zone, e.g. heating in the hopper
- N B29C 48/797 . . . . Cooling
- N B29C 48/80 . . . . at the plasticising zone, e.g. by heating cylinders
- N B29C 48/802 . . . . {Heating}
- Q B29C 48/82 . . . . Cooling ([B29C 48/84](#) takes precedence)  
WARNING  
Group [B29C 48/82](#) is impacted by reclassification into groups [B29C 48/515](#), [B29C 48/84](#), [B29C 48/845](#) and [B29C 48/85](#).

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

- N B29C 48/83 . . . . {Heating or cooling the cylinders}
- N B29C 48/832 . . . . . {Heating}
- N B29C 48/834 . . . . . {Cooling}
- N B29C 48/84 . . . . by heating or cooling the feeding screws (for hollow screws [B29C 48/515](#))

WARNING

Groups [B29C 48/84](#), [B29C 48/845](#) and [B29C 48/85](#) are incomplete pending reclassification of documents from group [B29C 48/82](#).

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

- N B29C 48/845 . . . . . {Heating}
- N B29C 48/85 . . . . . Cooling
- N B29C 48/86 . . . at the nozzle zone
- N B29C 48/865 . . . . {Heating}
- N B29C 48/87 . . . . Cooling
- N B29C 48/872 . . . . {characterised by differential heating or cooling}
- N B29C 48/873 . . . . . {in the direction of the stream of the material}
- N B29C 48/875 . . . for achieving a non-uniform temperature distribution, e.g. using barrels having both cooling and heating zones
- Q B29C 48/88 . . Thermal treatment of the stream of extruded material, e.g. cooling

NOTE

*When classifying in this group, forms or shapes of products are further classified in groups [B29C 48/03](#) - [B29C 48/13](#)*

WARNING

Group [B29C 48/88](#) is impacted by reclassification into groups [B29C 48/885](#) and [B29C 48/89](#).

Groups [B29C 48/88](#), [B29C 48/885](#), and [B29C 48/89](#) should be considered in order to perform a complete search.

- N B29C 48/885 . . . External treatment, e.g. by using air rings for cooling tubular films

WARNING

Group [B29C 48/885](#) is incomplete pending reclassification of documents from group [B29C 48/88](#).

Groups [B29C 48/88](#) and [B29C 48/885](#) should be considered in order to perform a complete search.

- N B29C 48/89 . . . Internal treatment, e.g. by applying an internal cooling fluid stream

WARNING

Group [B29C 48/89](#) is incomplete pending reclassification of documents from group [B29C 48/88](#).

Groups [B29C 48/88](#) and [B29C 48/89](#) should be considered in order to perform a complete search.

- N B29C 48/90 . . . with calibration or sizing, i.e. combined with fixing or setting of the final dimensions of the extruded article
- N B29C 48/901 . . . . . {of hollow bodies}
- N B29C 48/902 . . . . . {internally}
- N B29C 48/903 . . . . . {externally}

- N B29C 48/904 . . . . {using dry calibration, i.e. no quenching tank, e.g. with water spray for cooling or lubrication}
- N B29C 48/905 . . . . {using wet calibration, i.e. in a quenching tank}
- N B29C 48/906 . . . . {using roller calibration}
- N B29C 48/907 . . . . {using adjustable calibrators, e.g. the dimensions of the calibrator being changeable}
- N B29C 48/908 . . . . {characterised by calibrator surface, e.g. structure or holes for lubrication, cooling or venting}
- N B29C 48/91 . . . Heating, e.g. for cross linking
- N B29C 48/9105 . . . . {of hollow articles}
- N B29C 48/911 . . . {Cooling}
- N B29C 48/9115 . . . . {of hollow articles}
- N B29C 48/912 . . . . . {of tubular films}
- N B29C 48/9125 . . . . . {internally}
- N B29C 48/913 . . . . . {externally}
- N B29C 48/9135 . . . . {of flat articles, e.g. using specially adapted supporting means}
- N B29C 48/914 . . . . . {cooling drums}
- N B29C 48/9145 . . . . . {Endless cooling belts}
- N B29C 48/915 . . . . . {with means for improving the adhesion to the supporting means}
- N B29C 48/9155 . . . . . {Pressure rollers}
- N B29C 48/916 . . . . . {using vacuum}
- N B29C 48/9165 . . . . . {Electrostatic pinning}
- N B29C 48/917 . . . . . {by applying pressurised gas to the surface of the flat article}
- N B29C 48/9175 . . . . . {by interposing a fluid layer between the supporting means and the flat article}
- N B29C 48/918 . . . {characterized by differential heating or cooling}
- N B29C 48/9185 . . . . {in the direction of the stream of the material}
- N B29C 48/919 . . . {using a bath, e.g. extruding into an open bath to coagulate or cool the material}
- N B29C 48/92 . . . Measuring, controlling or regulating

NOTE

When classifying in group [B29C 48/92](#) it is desirable to add the indexing codes of [B29C 2948/00](#) relating to measuring, controlling or regulating in extrusion moulding

- Q B29C 48/94 . . . Lubricating

WARNING

Group [B29C 48/94](#) is impacted by reclassification into group [B29C 48/95](#). Groups [B29C 48/94](#) and [B29C 48/95](#) should be considered in order to perform a complete search.

- N B29C 48/95 . . . by adding lubricant to the moulding material

WARNING

Group [B29C 48/95](#) is incomplete pending reclassification of documents from group [B29C 48/94](#).

Groups [B29C 48/94](#) and [B29C 48/95](#) should be considered in order to perform a complete search.

- N B29C 48/96 . . . Safety devices

- N B29C 48/965 . . . {Personnel safety, e.g. safety for the operator}
- 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**[B29C 48/10](#); enlarging tube ends using pressure difference [B29C 57/08](#))}
- 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 53/10 . . of blown tubular films, e.g. gusseting {(flattening blown films during extrusion moulding **B29C 47/0009**[B29C 48/03](#))}
- U **B29C 55/00** **Shaping by stretching, e.g. drawing through a die; Apparatus therefor** ([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 48/03](#))}

**Project: MP0314 (B29C)**

- M **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](#))}

**WARNING**

Groups [B29C 65/00](#) - [B29C 65/70](#) are not complete, mainly for documents published before the year 1995, pending reclassification; see also [B29C 65/74](#) and its subgroups

- M B29C 65/02 . by heating, with or without pressure
- WARNING**  
Group [B29C 65/02](#) and subgroups are not complete, pending a reorganisation; see also [B29C 65/48](#) and its subgroups
- U B29C 65/78 . Means for handling the parts to be joined, e.g. for making containers or hollow articles {, e.g. means for handling sheets, plates, web-like materials, tubular articles, hollow articles or elements to be joined therewith; Means for discharging the joined articles from the joining apparatus}
- WARNING**  
Subgroups of [B29C 65/78](#) are not complete, pending a reorganisation; see also this group and its subgroups and [B29C 65/20](#) and its subgroups
- U B29C 65/7858 . . {characterised by the feeding movement of the parts to be joined}
- U B29C 65/7879 . . . {said parts to be joined moving in a closed path, e.g. a rectangular path ([B29C 65/7888](#) takes precedence)}
- U B29C 65/7882 . . . . {said parts to be joined moving in a circular path}
- M B29C 65/7885 . . . . . {Rotary turret joining machines, i.e. having several joining tools moving around an axis}

**WARNING**

**B29C 65/0672**

Group [B29C 65/7885](#) is incomplete pending reclassification of documents from [B29C 65/0672](#).

*Groups B29C 65/0672 and B29C 65/7885 should be considered in order to perform a complete search.*

**Project: RP0568 (B29C)**

- B29C 69/00** Combinations of shaping techniques not provided for in a single one of main groups [B29C 39/00](#) - [B29C 67/00](#), e.g. associations of moulding and joining techniques; Apparatus therefore {(~~B29C 47/0038~~ [B29C 48/001](#) takes precedence)}
- U B29C 71/00** After-treatment of articles without altering their shape; Apparatus therefor ([B29C 44/56](#), [B29C 73/00](#) take precedence; surface shaping [B29C 59/00](#) {; for joined or sealed parts [B29C 66/03](#); after-treatment specially adapted for vulcanising tyres [B29D 30/0633](#)})
- B29C 71/0081 · {using an electric field, e.g. for electrostatic charging (electrostatic pinning of extruded material ~~B29C 47/887~~ [B29C 48/9165](#); fixing linings by electrostatic charges [B29C 63/0043](#))}
- D B29C 2947/00** **Indexing scheme relating to extrusion moulding**  
<administratively transferred to [B29C 2948/00](#) ADD>
- D B29C 2947/92 · Measuring, controlling or regulating  
<administratively transferred to [B29C 2948/92](#) ADD>
- D B29C 2947/92009 · · Measured parameter  
<administratively transferred to [B29C 2948/92009](#) ADD>
- D B29C 2947/92019 · · · Pressure  
<administratively transferred to [B29C 2948/92019](#) ADD>
- D B29C 2947/92028 · · · Force; Tension  
<administratively transferred to [B29C 2948/92028](#) ADD>
- D B29C 2947/92038 · · · Torque  
<administratively transferred to [B29C 2948/92038](#) ADD>
- D B29C 2947/92047 · · · Energy, power, electric current or voltage  
<administratively transferred to [B29C 2948/92047](#) ADD>
- D B29C 2947/92057 · · · Frequency  
<administratively transferred to [B29C 2948/92057](#) ADD>
- D B29C 2947/92066 · · · Time, e.g. start, termination, duration or interruption  
<administratively transferred to [B29C 2948/92066](#) ADD>
- D B29C 2947/92076 · · · Position, e.g. linear or angular  
<administratively transferred to [B29C 2948/92076](#) ADD>
- D B29C 2947/92085 · · · Velocity  
<administratively transferred to [B29C 2948/92085](#) ADD>
- D B29C 2947/92095 · · · · Angular velocity  
<administratively transferred to [B29C 2948/92095](#) ADD>
- D B29C 2947/92104 · · · · Flow or feed rate  
<administratively transferred to [B29C 2948/92104](#) ADD>
- D B29C 2947/92114 · · · Dimensions  
<administratively transferred to [B29C 2948/92114](#) ADD>
- D B29C 2947/92123 · · · · Diameter or circumference  
<administratively transferred to [B29C 2948/92123](#) ADD>
- D B29C 2947/92133 · · · · Width or height  
<administratively transferred to [B29C 2948/92133](#) ADD>
- D B29C 2947/92142 · · · · Length  
<administratively transferred to [B29C 2948/92142](#) ADD>

- D B29C 2947/92152 . . . . Thickness  
<administratively transferred to [B29C 2948/92152](#) ADD>
- D B29C 2947/92161 . . . . Volume or quantity  
<administratively transferred to [B29C 2948/92161](#) ADD>
- D B29C 2947/92171 . . . . Distortion, shrinkage, dilatation, swell or warpage  
<administratively transferred to [B29C 2948/92171](#) ADD>
- D B29C 2947/9218 . . . . Weight  
<administratively transferred to [B29C 2948/9218](#) ADD>
- D B29C 2947/9219 . . . . Density, e.g. per unit length or area  
<administratively transferred to [B29C 2948/9219](#) ADD>
- D B29C 2947/922 . . . . Viscosity; Melt flow index [MFI]; Molecular weight  
<administratively transferred to [B29C 2948/922](#) ADD>
- D B29C 2947/92209 . . . . Temperature  
<administratively transferred to [B29C 2948/92209](#) ADD>
- D B29C 2947/92219 . . . . Degree of crosslinking, solidification, crystallinity or homogeneity  
<administratively transferred to [B29C 2948/92219](#) ADD>
- D B29C 2947/92228 . . . . Content, e.g. percentage of humidity, volatiles, contaminants or degassing  
<administratively transferred to [B29C 2948/92228](#) ADD>
- D B29C 2947/92238 . . . . Electrical properties  
<administratively transferred to [B29C 2948/92238](#) ADD>
- D B29C 2947/92247 . . . . Optical properties  
<administratively transferred to [B29C 2948/92247](#) ADD>
- D B29C 2947/92257 . . . . Colour  
<administratively transferred to [B29C 2948/92257](#) ADD>
- D B29C 2947/92266 . . . . Mechanical properties  
<administratively transferred to [B29C 2948/92266](#) ADD>
- D B29C 2947/92276 . . . . Magnetic properties  
<administratively transferred to [B29C 2948/92276](#) ADD>
- D B29C 2947/92285 . . . . Surface properties  
<administratively transferred to [B29C 2948/92285](#) ADD>
- D B29C 2947/92295 . . . . Errors or malfunctioning, e.g. for quality control  
<administratively transferred to [B29C 2948/92295](#) ADD>
- D B29C 2947/92304 . . . . Presence or absence; Sequence; Counting  
<administratively transferred to [B29C 2948/92304](#) ADD>
- D B29C 2947/92314 . . . . Particular value claimed  
<administratively transferred to [B29C 2948/92314](#) ADD>
- D B29C 2947/92323 . . . . Location or phase of measurement  
<administratively transferred to [B29C 2948/92323](#) ADD>
- D B29C 2947/92333 . . . . Raw material handling or dosing, e.g. active hopper or feeding device  
<administratively transferred to [B29C 2948/92333](#) ADD>
- D B29C 2947/92342 . . . . Raw material pre-treatment, e.g. drying or cleaning  
<administratively transferred to [B29C 2948/92342](#) ADD>
- D B29C 2947/92352 . . . . Inserts  
<administratively transferred to [B29C 2948/92352](#) ADD>
- D B29C 2947/92361 . . . . Extrusion unit  
<administratively transferred to [B29C 2948/92361](#) ADD>
- D B29C 2947/92371 . . . . Inlet shaft or slot, e.g. passive hopper; Injector, e.g. injector nozzle on barrel  
<administratively transferred to [B29C 2948/92371](#) ADD>
- D B29C 2947/9238 . . . . Feeding, melting, plasticising or pumping zones, e.g. the melt itself  
<administratively transferred to [B29C 2948/9238](#) ADD>

- D B29C 2947/9239 . . . . Screw or gear  
<administratively transferred to [B29C 2948/9239](#) ADD>
- D B29C 2947/924 . . . . Barrel or housing  
<administratively transferred to [B29C 2948/924](#) ADD>
- D B29C 2947/92409 . . . . Die; Nozzle zone  
<administratively transferred to [B29C 2948/92409](#) ADD>
- D B29C 2947/92419 . . . . Degassing unit  
<administratively transferred to [B29C 2948/92419](#) ADD>
- D B29C 2947/92428 . . . Calibration, after-treatment, or cooling zone  
<administratively transferred to [B29C 2948/92428](#) ADD>
- D B29C 2947/92438 . . . Conveying, transporting or storage of articles  
<administratively transferred to [B29C 2948/92438](#) ADD>
- D B29C 2947/92447 . . . Moulded article  
<administratively transferred to [B29C 2948/92447](#) ADD>
- D B29C 2947/92457 . . . Drive section, e.g. gearbox, motor or drive fluids  
<administratively transferred to [B29C 2948/92457](#) ADD>
- D B29C 2947/92466 . . . Auxiliary unit, e.g. for external melt filtering, re-combining or transfer  
between units  
<administratively transferred to [B29C 2948/92466](#) ADD>
- D B29C 2947/92476 . . . Fluids, e.g. for temperature control or of environment  
<administratively transferred to [B29C 2948/92476](#) ADD>
- D B29C 2947/92485 . . . Start-up, shut-down or parameter setting phase; Emergency shut-down;  
Material change; Test or laboratory equipment or studies  
<administratively transferred to [B29C 2948/92485](#) ADD>
- D B29C 2947/92495 . . . Treatment of equipment, e.g. purging, cleaning, lubricating or filter  
exchange  
<administratively transferred to [B29C 2948/92495](#) ADD>
- D B29C 2947/92504 . . Controlled parameter  
<administratively transferred to [B29C 2948/92504](#) ADD>
- D B29C 2947/92514 . . . Pressure  
<administratively transferred to [B29C 2948/92514](#) ADD>
- D B29C 2947/92523 . . . Force; Tension  
<administratively transferred to [B29C 2948/92523](#) ADD>
- D B29C 2947/92533 . . . Torque  
<administratively transferred to [B29C 2948/92533](#) ADD>
- D B29C 2947/92542 . . . Energy, power, electric current or voltage  
<administratively transferred to [B29C 2948/92542](#) ADD>
- D B29C 2947/92552 . . . Frequency  
<administratively transferred to [B29C 2948/92552](#) ADD>
- D B29C 2947/92561 . . . Time, e.g. start, termination, duration or interruption  
<administratively transferred to [B29C 2948/92561](#) ADD>
- D B29C 2947/92571 . . . Position, e.g. linear or angular  
<administratively transferred to [B29C 2948/92571](#) ADD>
- D B29C 2947/9258 . . . Velocity  
<administratively transferred to [B29C 2948/9258](#) ADD>
- D B29C 2947/9259 . . . . Angular velocity  
<administratively transferred to [B29C 2948/9259](#) ADD>
- D B29C 2947/926 . . . . Flow or feed rate  
<administratively transferred to [B29C 2948/926](#) ADD>
- D B29C 2947/92609 . . . Dimensions  
<administratively transferred to [B29C 2948/92609](#) ADD>

- D B29C 2947/92619 . . . . Diameter or circumference  
<administratively transferred to [B29C 2948/92619](#) ADD>
- D B29C 2947/92628 . . . . Width or height  
<administratively transferred to [B29C 2948/92628](#) ADD>
- D B29C 2947/92638 . . . . Length  
<administratively transferred to [B29C 2948/92638](#) ADD>
- D B29C 2947/92647 . . . . Thickness  
<administratively transferred to [B29C 2948/92647](#) ADD>
- D B29C 2947/92657 . . . . Volume or quantity  
<administratively transferred to [B29C 2948/92657](#) ADD>
- D B29C 2947/92666 . . . . Distortion, shrinkage, dilatation, swell or warpage  
<administratively transferred to [B29C 2948/92666](#) ADD>
- D B29C 2947/92676 . . . . Weight  
<administratively transferred to [B29C 2948/92676](#) ADD>
- D B29C 2947/92685 . . . . Density, e.g. per unit length or area  
<administratively transferred to [B29C 2948/92685](#) ADD>
- D B29C 2947/92695 . . . . Viscosity; Melt flow index [MFI]; Molecular weight  
<administratively transferred to [B29C 2948/92695](#) ADD>
- D B29C 2947/92704 . . . . Temperature  
<administratively transferred to [B29C 2948/92704](#) ADD>
- D B29C 2947/92714 . . . . Degree of crosslinking, solidification, crystallinity or homogeneity  
<administratively transferred to [B29C 2948/92714](#) ADD>
- D B29C 2947/92723 . . . . Content, e.g. percentage of humidity, volatiles, contaminants or degassing  
<administratively transferred to [B29C 2948/92723](#) ADD>
- D B29C 2947/92733 . . . . Electrical properties  
<administratively transferred to [B29C 2948/92733](#) ADD>
- D B29C 2947/92742 . . . . Optical properties  
<administratively transferred to [B29C 2948/92742](#) ADD>
- D B29C 2947/92752 . . . . Colour  
<administratively transferred to [B29C 2948/92752](#) ADD>
- D B29C 2947/92761 . . . . Mechanical properties  
<administratively transferred to [B29C 2948/92761](#) ADD>
- D B29C 2947/92771 . . . . Magnetic properties  
<administratively transferred to [B29C 2948/92771](#) ADD>
- D B29C 2947/9278 . . . . Surface properties  
<administratively transferred to [B29C 2948/9278](#) ADD>
- D B29C 2947/9279 . . . . Errors or malfunctioning, e.g. for quality control  
<administratively transferred to [B29C 2948/9279](#) ADD>
- D B29C 2947/928 . . . . Presence or absence; Sequence; Counting  
<administratively transferred to [B29C 2948/928](#) ADD>
- D B29C 2947/92809 . . . . Particular value claimed  
<administratively transferred to [B29C 2948/92809](#) ADD>
- D B29C 2947/92819 . . . . Location or phase of control  
<administratively transferred to [B29C 2948/92819](#) ADD>
- D B29C 2947/92828 . . . . Raw material handling or dosing, e.g. active hopper or feeding device  
<administratively transferred to [B29C 2948/92828](#) ADD>
- D B29C 2947/92838 . . . . Raw material pre-treatment, e.g. drying or cleaning  
<administratively transferred to [B29C 2948/92838](#) ADD>
- D B29C 2947/92847 . . . . Inserts  
<administratively transferred to [B29C 2948/92847](#) ADD>

- D B29C 2947/92857 . . . Extrusion unit  
<administratively transferred to [B29C 2948/92857](#) ADD>
- D B29C 2947/92866 . . . . Inlet shaft or slot, e.g. passive hopper; Injector, e.g. injector nozzle on barrel  
<administratively transferred to [B29C 2948/92866](#) ADD>
- D B29C 2947/92876 . . . . Feeding, melting, plasticising or pumping zones, e.g. the melt itself  
<administratively transferred to [B29C 2948/92876](#) ADD>
- D B29C 2947/92885 . . . . . Screw or gear  
<administratively transferred to [B29C 2948/92885](#) ADD>
- D B29C 2947/92895 . . . . . Barrel or housing  
<administratively transferred to [B29C 2948/92895](#) ADD>
- D B29C 2947/92904 . . . . Die; Nozzle zone  
<administratively transferred to [B29C 2948/92904](#) ADD>
- D B29C 2947/92914 . . . . Degassing unit  
<administratively transferred to [B29C 2948/92914](#) ADD>
- D B29C 2947/92923 . . . Calibration, after-treatment or cooling zone  
<administratively transferred to [B29C 2948/92923](#) ADD>
- D B29C 2947/92933 . . . Conveying, transporting or storage of articles  
<administratively transferred to [B29C 2948/92933](#) ADD>
- D B29C 2947/92942 . . . Moulded article  
<administratively transferred to [B29C 2948/92942](#) ADD>
- D B29C 2947/92952 . . . Drive section, e.g. gearbox, motor or drive fluids  
<administratively transferred to [B29C 2948/92952](#) ADD>
- D B29C 2947/92961 . . . Auxiliary unit, e.g. for external melt filtering, re-combining or transfer between units  
<administratively transferred to [B29C 2948/92961](#) ADD>
- D B29C 2947/92971 . . . Fluids, e.g. for temperature control or of environment  
<administratively transferred to [B29C 2948/92971](#) ADD>
- D B29C 2947/9298 . . . Start-up, shut-down or parameter setting phase; Emergency shut-down; Material change; Test or laboratory equipment or studies  
<administratively transferred to [B29C 2948/9298](#) ADD>
- D B29C 2947/9299 . . . Treatment of equipment, e.g. purging, cleaning, lubricating or filter exchange  
<administratively transferred to [B29C 2948/9299](#) ADD>

**N B29C 2948/00 Indexing scheme relating to extrusion moulding**

- N B29C 2948/92 . Measuring, controlling or regulating
- N B29C 2948/92009 . . Measured parameter
- N B29C 2948/92019 . . . Pressure
- N B29C 2948/92028 . . . Force; Tension
- N B29C 2948/92038 . . . Torque
- N B29C 2948/92047 . . . Energy, power, electric current or voltage
- N B29C 2948/92057 . . . Frequency
- N B29C 2948/92066 . . . Time, e.g. start, termination, duration or interruption
- N B29C 2948/92076 . . . Position, e.g. linear or angular
- N B29C 2948/92085 . . . Velocity
- N B29C 2948/92095 . . . . Angular velocity
- N B29C 2948/92104 . . . . Flow or feed rate
- N B29C 2948/92114 . . . Dimensions
- N B29C 2948/92123 . . . . Diameter or circumference

- N B29C 2948/92133 . . . . Width or height
- N B29C 2948/92142 . . . . Length
- N B29C 2948/92152 . . . . Thickness
- N B29C 2948/92161 . . . . Volume or quantity
- N B29C 2948/92171 . . . . Distortion, shrinkage, dilatation, swell or warpage
- N B29C 2948/9218 . . . . Weight
- N B29C 2948/9219 . . . . Density, e.g. per unit length or area
- N B29C 2948/922 . . . . Viscosity; Melt flow index [MFI]; Molecular weight
- N B29C 2948/92209 . . . . Temperature
- N B29C 2948/92219 . . . . Degree of crosslinking, solidification, crystallinity or homogeneity
- N B29C 2948/92228 . . . . Content, e.g. percentage of humidity, volatiles, contaminants or degassing
- N B29C 2948/92238 . . . . Electrical properties
- N B29C 2948/92247 . . . . Optical properties
- N B29C 2948/92257 . . . . Colour
- N B29C 2948/92266 . . . . Mechanical properties
- N B29C 2948/92276 . . . . Magnetic properties
- N B29C 2948/92285 . . . . Surface properties
- N B29C 2948/92295 . . . . Errors or malfunctioning, e.g. for quality control
- N B29C 2948/92304 . . . . Presence or absence; Sequence; Counting
- N B29C 2948/92314 . . . . Particular value claimed
- N B29C 2948/92323 . . . . Location or phase of measurement
- N B29C 2948/92333 . . . . Raw material handling or dosing, e.g. active hopper or feeding device
- N B29C 2948/92342 . . . . Raw material pre-treatment, e.g. drying or cleaning
- N B29C 2948/92352 . . . . Inserts
- N B29C 2948/92361 . . . . Extrusion unit
- N B29C 2948/92371 . . . . Inlet shaft or slot, e.g. passive hopper; Injector, e.g. injector nozzle on barrel
- N B29C 2948/9238 . . . . Feeding, melting, plasticising or pumping zones, e.g. the melt itself
- N B29C 2948/9239 . . . . . Screw or gear
- N B29C 2948/924 . . . . . Barrel or housing
- N B29C 2948/92409 . . . . . Die; Nozzle zone
- N B29C 2948/92419 . . . . . Degassing unit
- N B29C 2948/92428 . . . . . Calibration, after-treatment, or cooling zone
- N B29C 2948/92438 . . . . . Conveying, transporting or storage of articles
- N B29C 2948/92447 . . . . . Moulded article
- N B29C 2948/92457 . . . . . Drive section, e.g. gearbox, motor or drive fluids
- N B29C 2948/92466 . . . . . Auxiliary unit, e.g. for external melt filtering, re-combining or transfer between units
- N B29C 2948/92476 . . . . . Fluids, e.g. for temperature control or of environment
- N B29C 2948/92485 . . . . . Start-up, shut-down or parameter setting phase; Emergency shut-down; Material change; Test or laboratory equipment or studies
- N B29C 2948/92495 . . . . . Treatment of equipment, e.g. purging, cleaning, lubricating or filter exchange
- N B29C 2948/92504 . . . . . Controlled parameter
- N B29C 2948/92514 . . . . . Pressure

- N B29C 2948/92523 . . . Force; Tension
- N B29C 2948/92533 . . . Torque
- N B29C 2948/92542 . . . Energy, power, electric current or voltage
- N B29C 2948/92552 . . . Frequency
- N B29C 2948/92561 . . . Time, e.g. start, termination, duration or interruption
- N B29C 2948/92571 . . . Position, e.g. linear or angular
- N B29C 2948/9258 . . . Velocity
- N B29C 2948/9259 . . . . Angular velocity
- N B29C 2948/926 . . . . Flow or feed rate
- N B29C 2948/92609 . . . Dimensions
- N B29C 2948/92619 . . . . Diameter or circumference
- N B29C 2948/92628 . . . . Width or height
- N B29C 2948/92638 . . . . Length
- N B29C 2948/92647 . . . . Thickness
- N B29C 2948/92657 . . . . Volume or quantity
- N B29C 2948/92666 . . . . Distortion, shrinkage, dilatation, swell or warpage
- N B29C 2948/92676 . . . Weight
- N B29C 2948/92685 . . . Density, e.g. per unit length or area
- N B29C 2948/92695 . . . Viscosity; Melt flow index [MFI]; Molecular weight
- N B29C 2948/92704 . . . Temperature
- N B29C 2948/92714 . . . Degree of crosslinking, solidification, crystallinity or homogeneity
- N B29C 2948/92723 . . . Content, e.g. percentage of humidity, volatiles, contaminants or degassing
- N B29C 2948/92733 . . . Electrical properties
- N B29C 2948/92742 . . . Optical properties
- N B29C 2948/92752 . . . . Colour
- N B29C 2948/92761 . . . Mechanical properties
- N B29C 2948/92771 . . . Magnetic properties
- N B29C 2948/9278 . . . Surface properties
- N B29C 2948/9279 . . . Errors or malfunctioning, e.g. for quality control
- N B29C 2948/928 . . . Presence or absence; Sequence; Counting
- N B29C 2948/92809 . . . Particular value claimed
- N B29C 2948/92819 . . Location or phase of control
- N B29C 2948/92828 . . . Raw material handling or dosing, e.g. active hopper or feeding device
- N B29C 2948/92838 . . . Raw material pre-treatment, e.g. drying or cleaning
- N B29C 2948/92847 . . . Inserts
- N B29C 2948/92857 . . . Extrusion unit
- N B29C 2948/92866 . . . . Inlet shaft or slot, e.g. passive hopper; Injector, e.g. injector nozzle on barrel
- N B29C 2948/92876 . . . . Feeding, melting, plasticising or pumping zones, e.g. the melt itself
- N B29C 2948/92885 . . . . . Screw or gear
- N B29C 2948/92895 . . . . . Barrel or housing
- N B29C 2948/92904 . . . . Die; Nozzle zone
- N B29C 2948/92914 . . . . Degassing unit
- N B29C 2948/92923 . . . Calibration, after-treatment or cooling zone

- N B29C 2948/92933 . . . Conveying, transporting or storage of articles
- N B29C 2948/92942 . . . Moulded article
- N B29C 2948/92952 . . . Drive section, e.g. gearbox, motor or drive fluids
- N B29C 2948/92961 . . . Auxiliary unit, e.g. for external melt filtering, re-combining or transfer between units
- N B29C 2948/92971 . . . Fluids, e.g. for temperature control or of environment
- N B29C 2948/9298 . . . Start-up, shut-down or parameter setting phase; Emergency shut-down; Material change; Test or laboratory equipment or studies
- N B29C 2948/9299 . . . Treatment of equipment, e.g. purging, cleaning, lubricating or filter exchange

**Project: RP0568 (B29D)**

- U B29D 30/00 **Producing pneumatic or solid tyres or parts thereof (producing inner tubes [B29D 23/24](#); constructional form of tyres or parts thereof [B60C](#); connection of valves to inflatable elastic bodies [B60C 29/00](#); testing of tyres [G01M 17/02](#))**
- U B29D 30/06 . Pneumatic tyres or parts thereof {(e.g. produced by casting, moulding, compression moulding, injection moulding, centrifugal casting)}
- B29D 30/52 . . Unvulcanised treads, e.g. on used tyres; Retreading (apparatus for forming {treads by extrusion [B29C 47/00](#)[B29C 48/00](#); apparatus for} vulcanising treads [B29C 35/02](#); apparatus characterised by the means for holding wheels or parts thereof [B60B 30/00](#))

**Project: RP0568 (B29K)**

B29K

**INDEXING SCHEME ASSOCIATED WITH SUBCLASSES [B29B](#), [B29C](#) OR [B29D](#), RELATING TO MOULDING MATERIALS OR TO MATERIALS FOR {MOULDS, } REINFORCEMENTS, FILLERS OR PREFORMED PARTS, e.g. INSERTS**

NOTES

1. This subclass constitutes an indexing scheme associated with subclasses [B29B](#), [B29C](#) or [B29D](#).
2. In this subclass, the following term is used with the meaning indicated: "rubber" covers: natural or conjugated diene rubbers; rubber in general (for a specific rubber, other than a natural rubber or a conjugated diene rubber, see the group provided for such macromolecular compounds)
3. Documents relating to compositions or properties of the materials to be shaped, said compositions having a particular influence on the shaping technique, should be classified in the shaping technique, e.g. [B29C 39/003](#), [B29C 41/003](#), [B29C 43/003](#), [B29C 45/0001](#), [B29C 47/0004](#), [B29C 49/0005](#), [B29C 51/002](#), [B29C 53/005](#), [B29C 55/005](#), [B29C 61/003](#), [B29C 63/0017](#) and [B29C 66/70](#).
4. 3. - Documents relating to compositions or properties of the materials to be shaped, said compositions having a particular influence on the shaping technique, should be classified in the shaping technique, e.g. [B29C 39/003](#), [B29C 41/003](#), [B29C 43/003](#), [B29C 45/0001](#), [B29C 48/022](#), [B29C 49/0005](#),

*[B29C 51/002](#), [B29C 53/005](#), [B29C 55/005](#), [B29C 61/003](#) and [B29C 63/0017](#).*

Copolymers are indexed with the same indexing code as the majority polymers

*4. Copolymers are indexed with the same indexing code as the majority polymers*

5. Compositions for moulding materials, condition, form or state of moulded material: [B29K 2001/00](#) - [B29K 2105/00](#)
6. Compositions for reinforcements: [B29K 2201/00](#) - [B29K 2313/00](#)
7. Compositions for fillers: [B29K 2401/00](#) - [B29K 2511/00](#)
8. Compositions for preformed parts: [B29K 2601/00](#) - [B29K 2713/00](#)
9. Compositions for moulds: [B29K 2801/00](#) - [B29K 2913/00](#)
10. Properties of moulding materials, reinforcements, fillers, preformed parts or moulds: [B29K 2995/00](#)

**WARNING**

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

<a href="#">B29K 105/22</a>	covered by	<a href="#">B29K 2705/00</a>
<a href="#">B29K 105/28</a>	covered by	<a href="#">B29K 2995/0025</a>
<a href="#">B29K 105/30</a>	covered by	<a href="#">B29K 2995/003</a>
<a href="#">B29K 105/32</a>	covered by	<a href="#">B29K 2995/0026</a>
<a href="#">B29K 105/34</a>	covered by	<a href="#">B29K 2995/002</a> , <a href="#">B29K 2995/0007</a> , and <a href="#">B29K 2995/0015</a>

**Project: RP0565 (B60K)**

- U B60K 1/00** Arrangement or mounting of electrical propulsion units ([B60K 7/00](#) takes precedence; arrangement or mounting of plural diverse prime-movers for mutual or common propulsion [B60K 6/00](#); electric transmission arrangements [B60K 17/12](#); electric equipment or propulsion of electrically-propelled vehicles *per se* [B60L](#); current-collectors for power supply lines of electrically-propelled vehicles [B60L 5/00](#))
- C B60K 1/04** · of the electric storage means for propulsion (*exchanging batteries for electric propulsion of vehicles* [B60L 53/80](#); for auxiliary purposes only [B60R 16/04](#); supplying batteries to, or removing batteries from, vehicles [B60S 5/06](#))

**WARNING**

*Group [B60K 1/04](#) is impacted by reclassification into group [B60L 53/80](#). Groups [B60K 1/04](#) and [B60L 53/80](#) should be considered in order to perform a complete search.*

Project: RP0565 (B60L)

M B60L

**ELECTRIC EQUIPMENT OR PROPULSION OF ELECTRICALLY-PROPELLED VEHICLES** (*arrangements or mounting of electrical propulsion units or of plural diverse prime-movers for mutual or common propulsion in vehicles B60K 1/00, B60K 6/20; arrangements or mounting of electrical gearing in vehicles B60K 17/12, B60K 17/14; preventing wheel slip by reducing power in rail vehicles B61C 15/08; dynamo-electric machines H02K; control or regulation of electric motors H02P*); **MAGNETIC SUSPENSION OR LEVITATION FOR VEHICLES; ELECTRODYNAMIC BRAKE SYSTEMS SUPPLYING ELECTRIC POWER FOR VEHICLES, IN GENERAL AUXILIARY EQUIPMENT OF ELECTRICALLY-PROPELLED VEHICLES** (electric coupling devices combined with mechanical couplings of vehicles B60D 1/62 B60D 1/64; electric heating for vehicles B60H B60H 1/00; transmitting drive from electric motors to ultimate propulsive elements in vehicles B60K; disposition of electric propulsion equipment, other than current collectors, in vehicles B60K; auxiliary generator drives on vehicles B60K; lighting for vehicles B60Q; vehicle brake control systems in general B60T; preventing wheel slip by reducing power in rail vehicles B61C; railway track circuits in general B61L; lighting in general F21; H05B; switches in general H01H; coupling devices for electric connections in general H01R; dynamo-electric machines H02K; electric converters H02M; starting, controlling, braking of electric machines or converters in general H02P; electric heating in general H05B); **ELECTRODYNAMIC BRAKE SYSTEMS FOR VEHICLES IN GENERAL** (control or regulation of electric motors H02P); **MAGNETIC SUSPENSION OR LEVITATION FOR VEHICLES; MONITORING OPERATING VARIABLES OF ELECTRICALLY-PROPELLED VEHICLES; ELECTRIC SAFETY DEVICES FOR ELECTRICALLY-PROPELLED VEHICLES**

#### NOTES

1. This subclass, subject to the above references, covers:
  - feeding of power to auxiliary circuits;
  - current collectors; arrangements thereof on rail or road vehicles or on vehicles in general
  - electrodynamic brake systems;
  - electric propulsion of vehicles; control and regulation therefor
2. In this subclass it is desirable to classify any "additional information" which is of interest for search.

#### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

C B60L 3/00

**Electric devices on electrically-propelled vehicles for safety purposes; Monitoring operating variables, e.g. speed, deceleration, power or energy consumption (measuring in general G01 methods or circuit arrangements for monitoring or controlling batteries or fuel cells B60L 58/00)**

#### WARNING

Group B60L 3/00 is impacted by reclassification into groups B60L 58/00, B60L 58/10, B60L 58/12, B60L 58/13, B60L 58/14, B60L 58/15, B60L 58/16, B60L 58/18, B60L 58/19, B60L 58/20, B60L 58/21, B60L 58/22, B60L 58/24, B60L 58/25, B60L 58/26, B60L 58/27, B60L 58/30, B60L 58/31, B60L 58/32, B60L 58/33, B60L 58/34, and B60L 58/40.

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

- U B60L 3/0023 · {Detecting, eliminating, remedying or compensating for drive train abnormalities, e.g. failures within the drive train}
- C B60L 3/0046 · {relating to electric energy storage systems, e.g. batteries or capacitors}
- WARNING**  
*Group B60L 3/0046 is impacted by reclassification into groups B60L 58/00, B60L 58/10, B60L 58/12, B60L 58/13, B60L 58/14, B60L 58/15, B60L 58/16, B60L 58/18, B60L 58/19, B60L 58/20, B60L 58/21, B60L 58/22, B60L 58/24, B60L 58/25, B60L 58/26, B60L 58/27, and B60L 58/40. All groups listed in this Warning should be considered in order to perform a complete search.*
- C B60L 3/0053 · {relating to fuel cells}
- WARNING**  
*Group B60L 3/0053 is impacted by reclassification into groups B60L 58/00, B60L 58/30, B60L 58/31, B60L 58/32, B60L 58/33, B60L 58/34, and B60L 58/40. All groups listed in this Warning should be considered in order to perform a complete search.*
- M B60L 8/00 **Electric propulsion with power supply from ~~force~~forces of nature, e.g. sun, or wind**
- C B60L 9/00 **Electric propulsion with power supply external to ~~the~~ vehicle (B60L 8/00, B60L 13/00 take precedence electric propulsion for monorail vehicles, suspension vehicles or rack railways B60L 13/00; in combination with batteries or fuel cells within the vehicle B60L 50/53)**
- WARNING**  
*Group B60L 9/00 is impacted by reclassification into group B60L 50/53. Groups B60L 9/00 and B60L 50/53 should be considered in order to perform a complete search.*
- D B60L 11/00 **Electric propulsion with power supplied within the vehicle (B60L 8/00, B60L 13/00 take precedence; arrangements or mounting of plural diverse prime-movers for mutual or common propulsion B60K 6/20; control systems specially adapted for hybrid vehicles B60W 20/00) <administratively transferred to B60L 50/00>**
- D B60L 11/002 · {using electric power supply other than engine driven generators, electrical or fuel cells}  
 <administratively transferred to [B60L 50/90](#)>
- D B60L 11/005 · {using capacitors}  
 <administratively transferred to [B60L 50/40](#)>
- D B60L 11/007 · {using auxiliary power supplied by humans}  
 <administratively transferred to [B60L 50/20](#)>
- D B60L 11/02 · using engine-driven generators  
 <administratively transferred to [B60L 50/10](#)>
- D B60L 11/04 · using dc generators and motors  
 <administratively transferred to [B60L 50/11](#)>
- D B60L 11/06 · using ac generators and dc motors  
 <administratively transferred to [B60L 50/12](#)>
- D B60L 11/08 · using ac generators and motors  
 <administratively transferred to [B60L 50/13](#)>
- D B60L 11/10 · using dc generators and ac motors  
 <administratively transferred to [B60L 50/14](#)>



- D B60L 11/1833 . . . . {the vehicle being positioned}  
<administratively transferred to [B60L 53/36](#)>
- D B60L 11/1835 . . . . {with optical position determination, e.g. by a camera}  
<administratively transferred to [B60L 53/37](#)>
- D B60L 11/1837 . . . . {by charging in short intervals along the itinerary, e.g. during short stops}  
<administratively transferred to [B60L 53/32](#)>
- D B60L 11/1838 . . . . {Methods for the transfer of electrical energy or data between charging station and vehicle}  
<administratively transferred to [B60L 53/60](#)>
- D B60L 11/184 . . . . {Optimising energy costs, e.g. by charging depending on electricity rates}  
<administratively transferred to [B60L 53/64](#)>
- D B60L 11/1842 . . . . {Energy stored in the vehicle is provided to the network, i.e. vehicle to grid (V2G) arrangements}  
<administratively transferred to [B60L 55/00](#)>
- D B60L 11/1844 . . . . {the charging being dependent on network capabilities}  
<administratively transferred to [B60L 53/63](#)>
- D B60L 11/1846 . . . . {Identification of the vehicle}  
<administratively transferred to [B60L 53/65](#)>
- D B60L 11/1848 . . . . {Methods related to measuring, billing or payment}  
<administratively transferred to [B60L 53/665](#)>
- D B60L 11/185 . . . . {Fast charging}  
<administratively transferred to [B60L 53/11](#)>
- D B60L 11/1851 . . {Battery monitoring or controlling; Arrangements of batteries, structures or switching circuits therefore}  
<administratively transferred to [B60L 58/10](#)>
- D B60L 11/1853 . . . {by battery splitting}  
<administratively transferred to [B60L 58/18](#)>
- D B60L 11/1855 . . . {by series/parallel switching}  
<administratively transferred to [B60L 58/19](#)>
- D B60L 11/1857 . . . {Battery age determination}  
<administratively transferred to [B60L 58/16](#)>
- D B60L 11/1859 . . . {Preventing deep discharging}  
<administratively transferred to [B60L 58/14](#)>
- D B60L 11/1861 . . . {Monitoring or controlling state of charge [SOC]}  
<administratively transferred to [B60L 58/12](#)>
- D B60L 11/1862 . . . . {Target range for state of charge [SOC]}  
<administratively transferred to [B60L 58/13](#)>
- D B60L 11/1864 . . . {Control of a battery packs, i.e. of a set of batteries with the same voltage}  
<administratively transferred to [B60L 58/21](#)>
- D B60L 11/1866 . . . . {Balancing the charge of multiple batteries or cells}  
<administratively transferred to [B60L 58/22](#)>
- D B60L 11/1868 . . . {Controlling two or more batteries with different voltages}  
<administratively transferred to [B60L 58/20](#)>
- D B60L 11/187 . . . {Battery temperature regulation}  
<administratively transferred to [B60L 58/24](#)>
- D B60L 11/1872 . . . . {by control of electric loads}  
<administratively transferred to [B60L 58/25](#)>
- D B60L 11/1874 . . . . {by cooling}  
<administratively transferred to [B60L 58/26](#)>

- D B60L 11/1875 . . . . {by heating}  
<administratively transferred to [B60L 58/27](#)>
- D B60L 11/1877 . . . {Arrangements of batteries}  
<administratively transferred to [B60L 50/66](#)>
- D B60L 11/1879 . . . {Adaptation of battery structures for electric vehicles}  
<administratively transferred to [B60L 50/64](#)>
- D B60L 11/1881 . . {Fuel cells monitoring or controlling; Arrangements of fuel cells, structures or  
switching circuits therefore}  
<administratively transferred to [B60L 58/30](#)>
- D B60L 11/1883 . . . {Details of fuel cells}  
<administratively transferred to [B60L 50/72](#)>
- D B60L 11/1885 . . . {Starting of fuel cells}  
<administratively transferred to [B60L 58/31](#)>
- D B60L 11/1887 . . . {combined with battery control}  
<administratively transferred to [B60L 58/40](#)>
- D B60L 11/1888 . . . {Fuel cell temperature regulation}  
<administratively transferred to [B60L 58/32](#)>
- D B60L 11/189 . . . . {by control of electric loads}  
<administratively transferred to [B60L 58/32](#)>
- D B60L 11/1892 . . . . {by cooling}  
<administratively transferred to [B60L 58/33](#)>
- D B60L 11/1894 . . . . {by heating}  
<administratively transferred to [B60L 58/34](#)>
- D B60L 11/1896 . . . {Arrangements of the fuel cells}  
<administratively transferred to [B60L 50/71](#)>
- D B60L 11/1898 . . . {Adaptation of fuel cell structures for electric vehicles}  
<administratively transferred to [B60L 50/72](#)>

**N B60L 50/00**

***Electric propulsion with power supplied within the vehicle (with power supply from force of nature, e.g. sun or wind, [B60L 8/00](#); for monorail vehicles, suspension vehicles or rack railways [B60L 13/00](#))***

- N B60L 50/10 . . . using propulsion power supplied by engine-driven generators, e.g. generators driven by combustion engines
- N B60L 50/11 . . . using DC generators and DC motors
- N B60L 50/12 . . . using AC generators and DC motors
- N B60L 50/13 . . . using AC generators and AC motors
- N B60L 50/14 . . . using DC generators and AC motors
- N B60L 50/15 . . . with additional electric power supply (with capacitors charged by engine-driven generators [B60L 50/40](#); with batteries charged by engine-driven generators [B60L 50/61](#))
- N B60L 50/16 . . . with provision for separate direct mechanical propulsion
- N B60L 50/20 . . . using propulsion power generated by humans or animals
- N B60L 50/30 . . . using propulsion power stored mechanically, e.g. in fly-wheels
- N B60L 50/40 . . . using propulsion power supplied by capacitors
- Q B60L 50/50 . . . using propulsion power supplied by batteries or fuel cells

**WARNING**

Group [B60L 50/50](#) is impacted by reclassification into groups [B60L 50/60](#), [B60L 50/64](#), [B60L 50/70](#), and [B60L 50/75](#).

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

- N B60L 50/51      • • characterised by AC-motors
- N B60L 50/52      • • characterised by DC-motors
- N B60L 50/53      • • in combination with an external power supply, e.g. from overhead contact lines
- WARNING  
Group [B60L 50/53](#) is incomplete pending reclassification of documents from group [B60L 9/00](#).  
Groups [B60L 9/00](#) and [B60L 50/53](#) should be considered in order to perform a complete search.
- N B60L 50/60      • • using power supplied by batteries (in combination with fuel cells [B60L 50/75](#))
- WARNING  
Group [B60L 50/60](#) is incomplete pending reclassification from group [B60L 50/50](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B60L 50/61      • • • by batteries charged by engine-driven generators, e.g. series hybrid electric vehicles
- N B60L 50/62      • • • charged by low-power generators primarily intended to support the batteries, e.g. range extenders
- N B60L 50/64      • • • Constructional details of batteries specially adapted for electric vehicles
- NOTE  
This group covers adaptation of battery structures of electric vehicles, e.g. integration into control or safety systems, crash-resistant casings or vibration-damping means.
- WARNING  
Group [B60L 50/64](#) is incomplete pending reclassification of documents from group [B60L 50/50](#).  
Groups [B60L 50/50](#) and [B60L 50/64](#) should be considered in order to perform a complete search.
- N B60L 50/66      • • • {Arrangements of batteries}
- N B60L 50/70      • • using power supplied by fuel cells (in combination with batteries [B60L 50/75](#))
- WARNING  
Group [B60L 50/70](#) is incomplete pending reclassification from group [B60L 50/50](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B60L 50/71      • • • Arrangement of fuel cells within vehicles specially adapted for electric vehicles
- N B60L 50/72      • • • Constructional details of fuel cells specially adapted for electric vehicles
- NOTE  
This group covers adaptation of fuel cell structures of electric vehicles, e.g. integration into control or safety systems, crash-resistant casings or vibration-damping means.
- N B60L 50/75      • • using propulsion power supplied by both fuel cells and batteries
- WARNING  
Group [B60L 50/75](#) is incomplete pending reclassification from group [B60L 50/50](#).

Groups [B60L 50/50](#) and [B60L 50/75](#) should be considered in order to perform a complete search.

- N B60L 50/90
- using propulsion power supplied by specific means not covered by groups [B60L 50/10](#) - [B60L 50/50](#), e.g. by direct conversion of thermal nuclear energy into electricity

- Q B60L 53/00
- Methods of charging batteries, specially adapted for electric vehicles; Charging stations or on-board charging equipment therefor; Exchange of energy storage elements in electric vehicles**

WARNING

Group [B60L 53/00](#) is impacted by reclassification into groups [B60L 53/50](#), [B60L 53/51](#), [B60L 53/52](#), [B60L 53/53](#), [B60L 53/54](#), [B60L 53/55](#), [B60L 53/56](#), [B60L 53/57](#), [B60L 53/67](#), and [B60L 53/68](#).

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

- N B60L 53/10
- characterised by the energy transfer between the charging station and the vehicle

WARNING

Group [B60L 53/10](#) is incomplete pending reclassification of documents from group [B60L 53/60](#).

Groups [B60L 53/60](#) and [B60L 53/10](#) should be considered in order to perform a complete search.

- N B60L 53/11
- {DC charging controlled by the charging station, e.g. mode 4}

- Q B60L 53/12
- Inductive energy transfer

WARNING

Group [B60L 53/12](#) is impacted by reclassification into groups [B60L 53/122](#), [B60L 53/124](#), and [B60L 53/126](#).

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

- N B60L 53/122
- Circuits or methods for driving the primary coil, e.g. supplying electric power to the coil

WARNING

Group [B60L 53/122](#) is incomplete pending reclassification of documents from group [B60L 53/12](#).

Groups [B60L 53/12](#) and [B60L 53/122](#) should be considered in order to perform a complete search.

- N B60L 53/124
- Detection or removal of foreign bodies

WARNING

Group [B60L 53/124](#) is incomplete pending reclassification of documents from group [B60L 53/12](#).

Groups [B60L 53/12](#) and [B60L 53/124](#) should be considered in order to perform a complete search.

- N B60L 53/126
- Methods for pairing a vehicle and a charging station, e.g. establishing a one-to-one relation between a wireless power transmitter and a wireless power receiver

WARNING

Group [B60L 53/126](#) is incomplete pending reclassification of documents from group [B60L 53/12](#).

Groups [B60L 53/12](#) and [B60L 53/126](#) should be considered in order to perform a complete search.

- Q B60L 53/14
- • Conductive energy transfer
- WARNING  
Group [B60L 53/14](#) is impacted by reclassification into group [B60L 53/18](#). Groups [B60L 53/14](#) and [B60L 53/18](#) should be considered in order to perform a complete search.
- N B60L 53/16
- • Connectors, e.g. plugs or sockets, specially adapted for charging electric vehicles
- N B60L 53/18
- • Cables specially adapted for charging electric vehicles
- WARNING  
Group [B60L 53/18](#) is incomplete pending reclassification of documents from group [B60L 53/14](#). Groups [B60L 53/14](#) and [B60L 53/18](#) should be considered in order to perform a complete search.
- N B60L 53/20
- characterised by converters located in the vehicle
- N B60L 53/22
- • Constructional details or arrangements of charging converters specially adapted for charging electric vehicles
- N B60L 53/24
- • Using the vehicle's propulsion converter for charging
- Q B60L 53/30
- Constructional details of charging stations
- WARNING  
Group [B60L 53/30](#) is impacted by reclassification into groups [B60L 53/302](#), [B60L 53/305](#), [B60L 53/34](#), [B60L 53/67](#), and [B60L 53/68](#). Groups [B60L 53/30](#), [B60L 53/302](#), [B60L 53/305](#), [B60L 53/34](#), [B60L 53/67](#), and [B60L 53/68](#) should be considered in order to perform a complete search.
- N B60L 53/302
- • Cooling of charging equipment
- WARNING  
Group [B60L 53/302](#) is incomplete pending reclassification of documents from group [B60L 53/30](#). Groups [B60L 53/30](#) and [B60L 53/302](#) should be considered in order to perform a complete search.
- N B60L 53/305
- • {Communication interfaces}
- WARNING  
Group [B60L 53/305](#) is incomplete pending reclassification of documents from group [B60L 53/30](#). Groups [B60L 53/30](#) and [B60L 53/305](#) should be considered in order to perform a complete search.
- N B60L 53/31
- • Charging columns specially adapted for electric vehicles
- N B60L 53/32
- • {by charging in short intervals along the itinerary, e.g. during short stops}
- N B60L 53/34
- • Plug-like or socket-like devices specially adapted for contactless inductive charging of electric vehicles (positioning means for charging devices using inductive energy transfer [B60L 53/38](#))
- WARNING  
Group [B60L 53/34](#) is incomplete pending reclassification of documents from group [B60L 53/30](#). Groups [B60L 53/30](#) and [B60L 53/34](#) should be considered in order to perform a complete search.

- N B60L 53/35
  - • Means for automatically adjusting the relative position of charging devices and vehicles
- N B60L 53/36
  - • • by positioning the vehicle
- N B60L 53/37
  - • • using optical position determination, e.g. using cameras
- N B60L 53/38
  - • • specially adapted for charging by inductive energy transfer
- N B60L 53/39
  - • • • with position-responsive activation of primary coils
- N B60L 53/50
  - Charging stations characterised by energy-storage or power-generation means

WARNING

Groups [B60L 53/50](#) - [B60L 53/57](#) are incomplete pending reclassification of documents from group [B60L 53/00](#).

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

- N B60L 53/51
  - • Photovoltaic means
- N B60L 53/52
  - • Wind-driven generators
- N B60L 53/53
  - • Batteries
- N B60L 53/54
  - • Fuel cells
- N B60L 53/55
  - • Capacitors
- N B60L 53/56
  - • Mechanical storage means, e.g. fly wheels
- N B60L 53/57
  - • Charging stations without connection to power networks
- Q B60L 53/60
  - Monitoring or controlling charging stations

WARNING

Group [B60L 53/60](#) is impacted by reclassification into groups [B60L 53/10](#), [B60L 53/62](#), [B60L 53/66](#), [B60L 53/67](#), and [B60L 53/68](#).

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

- N B60L 53/62
  - • in response to charging parameters, e.g. current, voltage or electrical charge

WARNING

Group [B60L 53/62](#) is incomplete pending reclassification of documents from groups [B60L 53/60](#).

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

- N B60L 53/63
  - • in response to network capacity
- N B60L 53/64
  - • Optimising energy costs, e.g. responding to electricity rates
- N B60L 53/65
  - • involving identification of vehicles
- N B60L 53/66
  - • Data transfer between charging stations and vehicles

WARNING

Group [B60L 53/66](#) is incomplete pending reclassification of documents from group [B60L 53/60](#).

Groups [B60L 53/60](#) and [B60L 53/66](#) should be considered in order to perform a complete search.

- N B60L 53/665
  - • • {Methods related to measuring, billing or payment}
- N B60L 53/67
  - • Controlling two or more charging stations

WARNING

Group [B60L 53/67](#) is incomplete pending reclassification of documents from groups [B60L 53/00](#), [B60L 53/30](#), and [B60L 53/60](#).

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

N B60L 53/68

- Off-site monitoring or control, e.g. remote control

WARNING

Group [B60L 53/68](#) is incomplete pending reclassification of documents from groups [B60L 53/00](#), [B60L 53/30](#), and [B60L 53/60](#).

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

N B60L 53/80

- Exchanging energy storage elements, e.g. removable batteries

WARNING

Group [B60L 53/80](#) is incomplete pending reclassification of documents from groups [B60K 1/04](#) and [B60S 5/06](#).

Groups [B60K 1/04](#), [B60S 5/06](#), and [B60L 53/80](#) should be considered in order to perform a complete search.

N B60L 55/00

**Arrangements for supplying energy stored within a vehicle to a power network, i.e. vehicle-to-grid [V2G] arrangements**

N B60L 58/00

**Methods or circuit arrangements for monitoring or controlling batteries or fuel cells, specially adapted for electric vehicles**

NOTE

This group covers the monitoring of the operating state of batteries or fuel cells in combination with controlling the propulsion in response to the detected variables of the state.

WARNING

Group [B60L 58/00](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#), [B60L 3/0046](#), [B60L 3/0053](#), [B60L 50/60](#), and [B60L 50/70](#).

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

N B60L 58/10

- for monitoring or controlling batteries

WARNING

Group [B60L 58/10](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#), [B60L 3/0046](#), and [B60L 50/60](#).

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

Q B60L 58/12

- responding to state of charge [SoC]

WARNING

Group [B60L 58/12](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).

Group [B60L 58/12](#) is also impacted by reclassification into group [B60L 58/15](#).

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

Q B60L 58/13

- Maintaining the SoC within a determined range

WARNING

Group [B60L 58/13](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).

Group [B60L 58/13](#) is also impacted by reclassification into group [B60L 58/15](#).

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

- Q B60L 58/14
- • • Preventing excessive discharging
- WARNING  
Group [B60L 58/14](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).  
Group [B60L 58/14](#) is also impacted by reclassification into group [B60L 58/15](#).  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- N B60L 58/15
- • • Preventing overcharging
- WARNING  
Group [B60L 58/15](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#), [B60L 3/0046](#), [B60L 58/12](#), [B60L 58/13](#), and [B60L 58/14](#).  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- N B60L 58/16
- • • responding to battery ageing, e.g. to the number of charging cycles or the state of health [SoH]
- WARNING  
Group [B60L 58/16](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- N B60L 58/18
- • • of two or more battery modules
- WARNING  
Group [B60L 58/18](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- N B60L 58/19
- • • Switching between serial connection and parallel connection of battery modules
- WARNING  
Group [B60L 58/19](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- N B60L 58/20
- • • having different nominal voltages
- WARNING  
Group [B60L 58/20](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- N B60L 58/21
- • • having the same nominal voltage
- WARNING  
Group [B60L 58/21](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).

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

N B60L 58/22

- • • *Balancing the charge of battery modules*

WARNING

*Group [B60L 58/22](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).*

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

N B60L 58/24

- • • *for controlling the temperature of batteries*

WARNING

*Group [B60L 58/24](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).*

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

N B60L 58/25

- • • *by controlling the electric load*

WARNING

*Group [B60L 58/25](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).*

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

N B60L 58/26

- • • *by cooling*

WARNING

*Group [B60L 58/26](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).*

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

N B60L 58/27

- • • *by heating*

WARNING

*Group [B60L 58/27](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0046](#).*

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

N B60L 58/30

- • • *for monitoring or controlling fuel cells*

WARNING

*Group [B60L 58/30](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#), [B60L 3/0053](#), and [B60L 50/70](#).*

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

N B60L 58/31

- • • *for starting of fuel cells*

WARNING

*Group [B60L 58/31](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0053](#).*

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

- N B60L 58/32
- • for controlling the temperature of fuel cells, e.g. by controlling the electric load
- WARNING  
Group [B60L 58/32](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0053](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B60L 58/33
- • • by cooling
- WARNING  
Group [B60L 58/33](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0053](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B60L 58/34
- • • by heating
- WARNING  
Group [B60L 58/34](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#) and [B60L 3/0053](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N B60L 58/40
- for controlling a combination of batteries and fuel cells
- WARNING  
Group [B60L 58/40](#) is incomplete pending reclassification of documents from groups [B60L 3/00](#), [B60L 3/0046](#), [B60L 3/0053](#), and [B60L 50/75](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- D B60L 2230/00**      **Charging station details**  
**<administratively transferred to [B60L 53/30](#) INV>**
- D B60L 2230/10
- Parts thereof  
<administratively transferred to [B60L 53/30](#) INV>
- D B60L 2230/12
- • Connection cables  
<administratively transferred to [B60L 53/18](#) INV>
- D B60L 2230/14
- • Contact less plugs  
<administratively transferred to [B60L 53/34](#) INV>
- D B60L 2230/16
- • Communication interfaces  
<administratively transferred to [B60L 53/305](#) INV>
- D B60L 2230/20
- Power generation within charging stations  
<administratively transferred to [B60L 53/50](#) INV>
- D B60L 2230/22
- • by solar panels  
<administratively transferred to [B60L 53/51](#) INV>
- D B60L 2230/24
- • by wind generators  
<administratively transferred to [B60L 53/52](#) INV>
- D B60L 2230/26
- • by power stored mechanically, e.g. by fly wheel  
<administratively transferred to [B60L 53/56](#) INV>
- D B60L 2230/28
- • by fuel cells  
<administratively transferred to [B60L 53/54](#) INV>
- D B60L 2230/30
- • by batteries  
<administratively transferred to [B60L 53/53](#) INV>
- D B60L 2230/32
- • by capacitors  
<administratively transferred to [B60L 53/55](#) INV>

- D B60L 2230/34
  - • Charging station being an island  
<administratively transferred to [B60L 53/57](#) INV>
- D B60L 2230/40
  - Remote controls for charging stations  
<administratively transferred to [B60L 53/68](#) INV>

**Project: RP0565 (B60S)**

- U B60S 5/00
 

Servicing, maintaining, repairing or refitting of vehicles ({collecting or removing exhaust gases in workshops [B08B 15/002](#); straightening vehicle body parts [B21D 1/12](#), [B21D 1/14](#)}; vehicles adapted to carry a workshop for servicing or maintenance [B60P 3/14](#); servicing rail locomotives [B61K](#); {registering or indicating the working of vehicles [G07C 5/00](#): testing of vehicles [G01M 17/00](#); arrangements for electrical testing [G01R 31/00](#); devices for monitoring or checking brake systems [B60T 17/22](#); filling or draining lubricant [F01M 11/04](#); means for collecting, retaining, or draining-off lubricant [F16N 31/00](#); draining of lubricant from gearing [F16H 57/0406](#); assembly or repair of springs or dampers [F16F 9/3271](#); tool, instrument or work supports or storage means used in association with vehicles [B25H 5/00](#)})
- C B60S 5/06
  - Supplying batteries to, or removing batteries from, vehicles (~~circuit arrangements for charging batteries H02J 7/00~~*exchanging batteries for electric propulsion of vehicles [B60L 53/80](#)*)

**WARNING**

*Group [B60S 5/06](#) is impacted by reclassification into group [B60L 53/80](#). Groups [B60S 5/06](#) and [B60L 53/80](#) should be considered in order to perform a complete search.*

**Project: RP0565 (B60W)**

- B60W 10/00
 

Conjoint control of vehicle sub-units of different type or different function (for propulsion of purely electrically-propelled vehicles with power supplied within the vehicle ~~[B60L 11/00](#)~~[B60L 50/00](#))

**NOTE**

When classifying in this group, each controlled sub-unit must be separately identified by a classification in a relevant place in this group.

**Project: MP0314 (B60W)**

- U B60W 10/18
  - including control of braking systems
- U B60W 10/184
  - • with wheel brakes
- M B60W 10/188
  - • • hydraulic brakes

**WARNING**  
this group is not complete pending a reorganisation, see also [B60W 10/184](#)
- M B60W 10/192
  - • • electric brakes

**WARNING**  
this group is not complete pending a reorganisation, see also [B60W 10/184](#)
- U 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](#))}
- U B60W 30/02
  - Control of vehicle driving stability

- M B60W 30/045
- Improving turning performance

**WARNING**

~~This group is not complete pending a reorganisation, see also B60W 30/02~~

- M B60W 30/06
- Automatic manoeuvring for parking (controlling only the steering [B62D 15/0285](#))

**WARNING**

~~B60W 30/06 and subgroups are not complete pending a reorganisation; see provisionally also group B62D 15/0285~~

**Project: RP0542 (B61)**

M B61

**RAILWAYS****NOTE**

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

- "railway systems" covers:

- a. systems in which trains or individual passenger vehicles or load carriers run on or are guided by ground or elevated tracks defined by rails, ropes, cables, or other guiding elements for wheels, rollers, or sliding anti-friction devices (load carriers) permanently attached to a continuous traction element [B65G 17/00](#);
- b. systems in which carriers or impellers for persons or loads are attached to, e.g. suspended from, a guided traction rope or cable which determines their path of movement (chain conveyors, scraper conveyors [B65G 17/00](#), [B65G 19/00](#));
- c. power and free systems of either of the above types in which vehicles, load carriers or loads may be selectively coupled to, or uncoupled from, continuous traction members, e.g. cables, chains

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

- "railway systems" covers:

- a. systems in which trains or individual passenger vehicles or load carriers run on, or are guided by, ground or elevated tracks defined by rails, ropes, cables, or other guiding elements for wheels, rollers, or sliding anti-friction devices;
- b. systems in which carriers or impellers for persons or loads are attached to, e.g. suspended from, a guided traction rope or cable which determines their path of movement;
- c. power-and-free systems of either of the above types in which vehicles, load-carriers, or loads may be selectively coupled to, or uncoupled from, continuous traction members, e.g. cables, chains;

- "railway systems" does not cover:

- a. conveyors with load-carriers permanently attached to a continuous traction element, e.g. chain conveyors, which are covered by group [B65G 17/00](#);
- b. conveyors moving articles or materials over a supporting surface or underlying material, e.g. scraper conveyors, which are covered by group [B65G 19/00](#).

**Project: RP0126-F (B64C)**

U B64C 23/00

**Influencing air-flow over aircraft surfaces, not otherwise provided for**

U B64C 23/06

- by generating vortices

M B64C 23/065

- {at the wing tips}

**WARNING**

~~Group B64C 23/065 is impacted by reclassification into groups B64C 23/069, B64C 23/072, B64C 23/076.~~

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

- M B64C 23/069
- • • {using one or more wing tip airfoil devices, e.g. winglets, splines, wing tip fences or raked wingtips}

**WARNING**

Group B64C 23/069 is incomplete pending reclassification of documents from group B64C 23/065.

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

- M B64C 23/072
- • • {the wing tip airfoil devices being moveable in their entirety}

**WARNING**

Group B64C 23/072 is incomplete pending reclassification of documents from group B64C 23/065.

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

- M B64C 23/076
- • • {the wing tip airfoil devices comprising one or more separate moveable members thereon affecting the vortices, e.g. flaps}

**WARNING**

Group B64C 23/076 is incomplete pending reclassification of documents from group B64C 23/065.

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

**Project: RP0571 (B65D)**

- U B65D 90/00 **Component parts, details or accessories for large containers (B65D 88/34 - B65D 88/78 take precedence)**

- C B65D 90/02
- Wall construction (*arrangements of leakage-indicating devices comprising hollow spaces within walls B65D 90/501; arrangements of leakage-indicating devices comprising porous spaces or porous layers in walls B65D 90/505; arrangements of leakage-indicating devices comprising electrically conductive layers in walls B65D 90/513*)

**WARNING**

Group B65D 90/02 is impacted by reclassification into groups B65D 90/501, B65D 90/503, B65D 90/505, B65D 90/507, and B65D 90/513.

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

- M B65D 90/022
- • {Laminated structures (~~B65D 90/029~~, ~~B65D 90/505~~, ~~takes B65D 90/508 take precedence~~)}

- M B65D 90/028
- • {hollow-walled, e.g. double-walled with spacers (~~B65D 90/501 takes precedence~~; linings B65D 90/04)}

- U B65D 90/48
- Arrangements of indicating or measuring devices

- C B65D 90/50
- • of leakage-indicating devices (~~investigating fluid-tightness of structures G01M 3/00~~)

**WARNING**

Group B65D 90/50 is impacted by reclassification into groups B65D 90/51 and B65D 90/511.

Groups B65D 90/50, B65D 90/51, and B65D 90/511 should be considered in order to perform a complete search.

- C B65D 90/501 . . . {comprising hollow spaces within walls}
- WARNING  
 Group [B65D 90/501](#) is incomplete pending reclassification of documents from group [B65D 90/02](#).  
 Group [B65D 90/501](#) is also impacted by reclassification into groups [B65D 90/51](#) and [B65D 90/511](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- C B65D 90/503 . . . {under pressure or vacuum}
- WARNING  
 Group [B65D 90/503](#) is incomplete pending reclassification of documents from group [B65D 90/02](#).  
 Group [B65D 90/503](#) is also impacted by reclassification into groups [B65D 90/51](#) and [B65D 90/511](#).  
 All groups listed in this Warning should be considered in order to perform a complete search. should be considered in order to perform a complete search.
- C B65D 90/505 . . . {comprising porous spaces or *porous* layers in walls}
- WARNING  
 Group [B65D 90/505](#) is incomplete pending reclassification of documents from group [B65D 90/02](#).  
 Group [B65D 90/505](#) is also impacted by reclassification into groups [B65D 90/51](#) and [B65D 90/511](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- D B65D 90/506 . . . {under pressure or vacuum}  
 <administratively transferred to [B65D 90/507](#)>
- Q [B65D 90/507](#) . . . under pressure or vacuum
- WARNING  
 Group [B65D 90/507](#) is incomplete pending reclassification of documents from group [B65D 90/02](#).  
 Group [B65D 90/507](#) is also impacted by reclassification into groups [B65D 90/51](#) and [B65D 90/511](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- D B65D 90/508 . . . {comprising electrically conductive layers in walls}  
 <administratively transferred to [B65D 90/513](#)>
- N [B65D 90/51](#) . . . characterised by sensors
- WARNING  
 Group [B65D 90/51](#) is incomplete pending reclassification of documents from groups [B65D 90/50](#), [B65D 90/501](#), [B65D 90/503](#), [B65D 90/505](#), [B65D 90/507](#), and [B65D 90/513](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N [B65D 90/511](#) . . . Float-type indicators
- WARNING  
 Group [B65D 90/511](#) is incomplete pending reclassification of documents from groups [B65D 90/50](#), [B65D 90/501](#), [B65D 90/503](#), [B65D 90/505](#), [B65D 90/507](#), and [B65D 90/513](#).

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

Q B65D 90/513

- • • comprising electrically conductive layers in walls

**WARNING**

Group [B65D 90/513](#) is incomplete pending reclassification of documents from group [B65D 90/02](#).

Group [B65D 90/513](#) is also impacted by reclassification into groups [B65D 90/51](#) and [B65D 90/511](#).

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

**Project: RP0568 (B81C)**

U B81C 99/00

**Subject matter not provided for in other groups of this subclass**

U B81C 99/0005

- {Apparatus specially adapted for the manufacture or treatment of microstructural devices or systems, or methods for manufacturing the same}

B81C 99/0015

- • {for microextrusion (extrusion heads in general [B29C 47/12](#) [B29C 48/30](#))}

**Project: RP0568 (C03B)**

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

U C03B 37/0128

- • • {starting from pulverulent glass}

C03B 37/01288

- • • • {by extrusion, e.g. of glass powder and binder (moulding plastics around a core using a cross-head annular extrusion nozzle [B29C 47/28](#) [B29C 48/34](#); extrusion presses in general [B30B 11/22](#))}

**Project: RP0579 (C07D)**

U C07D 241/00

**Heterocyclic compounds containing 1,4-diazine or hydrogenated 1,4-diazine rings**

**NOTE**

Piperazines with only hydrogen atoms directly attached to ring carbon atoms are classified in group [C07D 295/00](#)

U C07D 241/02

- not condensed with other rings

U C07D 241/10

- • having three double bonds between ring members or between ring members and non-ring members

U C07D 241/14

- • • 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

U C07D 241/24

- • • • Carbon atoms having three bonds to hetero atoms with at the most one bond to halogen, e.g. ester or nitrile radicals

U C07D 241/26

- • • • • with nitrogen atoms directly attached to ring carbon atoms

C C07D 241/28

- • • • • in which said hetero-bound carbon atoms have double bonds to oxygen, sulfur or nitrogen atoms

**WARNING**

Group [C07D 241/28](#) is impacted by reclassification into group [C07D 241/34](#).

Groups C07D 241/28 and C07D 241/34 should be considered in order to perform a complete search.

E C07D 241/34 . . . . . (Amino-pyrazine carbonamido) guanidines ~~[2,5]~~

**WARNING**  
Group C07D 241/34 is incomplete pending reclassification of documents from group C07D 241/28.  
Groups C07D 241/28 and C07D 241/34 should be considered in order to perform a complete search.

**Project: RP0569 (C12C)**

U C12C 11/00 Fermentation processes for beer (preparation of wine C12G 1/00)

M C12C 11/11 . Post fermentation treatments, e.g. carbonation, or concentration (~~C12H takes precedence; containers with means specially adapted for effervescing potable liquids B65D 85/73~~ methods for reducing the alcohol content after fermentation C12H 3/00; methods for increasing the alcohol content after fermentation C12H 6/00)

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

C C12C 12/04 . Beer with low alcohol content {(removal of alcohol after fermentation ~~C12G 3/08~~ methods for reducing the alcohol content after fermentation C12H 3/00)}

**WARNING**  
Group C12C 12/04 is impacted by reclassification into groups C12H 3/00, C12H 3/02, and C12H 3/04.  
All groups listed in this Warning should be considered in order to perform a complete search.

**Project: RP0569 (C12G)**

M C12G WINE; OTHER ALCOHOLIC BEVERAGES; PREPARATION THEREOF (beer C12C)

**WARNING**

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

<del>C12G 1/022-C12G 1/036</del>	covered by	<u>C12G 1/0203</u>
<u>C12G 1/024</u>	covered by	<u>C12G 1/0209</u>
<u>C12G 1/026</u>	covered by	<u>C12G 1/02</u>
<u>C12G 1/028</u>	covered by	<u>C12G 1/0213</u>
<u>C12G 1/032</u>	covered by	<u>C12G 1/0216</u>
<u>C12G 1/036</u>	covered by	<u>C12G 1/0206</u>
<u>C12G 1/067</u>	covered by	<u>C12G 1/06</u>
<u>C12G 1/073</u>	covered by	<u>C12G 1/06</u> , <u>C12G 1/064</u>
<u>C12G 1/09</u>	covered by	<u>C12G 1/08</u>
<u>C12G 1/10</u>	covered by	<u>C12G 1/00</u> , <u>C12H 1/10</u> , <u>C12H 1/18</u>
<u>C12G 1/12</u>	covered by	<u>C12G 1/00</u>
<del>C12G 3/07</del>	covered by	
<del>C12G 3/14</del>	covered by	

**C C12G 1/00****Preparation of wine or sparkling wine****WARNING**

Group [C12G 1/00](#) is impacted by reclassification into groups [C12G 1/06](#) and [C12G 1/14](#).

Groups [C12G 1/00](#), [C12G 1/06](#), and [C12G 1/14](#) should be considered in order to perform a complete search.

**C C12G 1/06**

- Preparation of sparkling wine, e.g. champagne; ~~Impregnating~~ Impregnation of wine with carbon dioxide (methods for reducing the alcohol content after fermentation [C12H 3/00](#); methods for increasing the alcohol content after fermentation [C12H 6/00](#))

**WARNING**

Group [C12G 1/06](#) is incomplete pending reclassification of documents from group [C12G 1/00](#).

Group [C12G 1/06](#) is also impacted by reclassification into groups [C12H 3/00](#), [C12H 3/02](#), [C12H 3/04](#), [C12H 6/00](#), [C12H 6/02](#), and [C12H 6/04](#).

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

**U C12G 1/08**

- Removal of yeast ("degorgeage")

**N C12G 1/14**

- Preparation of wine or sparkling wine with low alcohol content (methods for reducing the alcohol content after fermentation [C12H 3/00](#))

**WARNING**

Group [C12G 1/14](#) is incomplete pending reclassification of documents from group [C12G 1/00](#).

Groups [C12G 1/00](#) and [C12G 1/14](#) should be considered in order to perform a complete search.

**U C12G 3/00****Preparation of other alcoholic beverages****M C12G 3/005**

- ~~solid~~ Solid or pasty alcoholic beverage-forming compositions}

**C C12G 3/02**

- by ~~straight~~ fermentation

**WARNING**

Group [C12G 3/02](#) is impacted by reclassification into groups [C12G 3/021](#), [C12G 3/022](#), [C12G 3/023](#), [C12G 3/024](#), [C12G 3/025](#), and [C12G 3/026](#).

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

**N C12G 3/021**

- • of botanical family Poaceae, e.g. wheat, millet, sorghum, barley, rye, or corn

**WARNING**

Group [C12G 3/021](#) is incomplete pending reclassification of documents from groups [C12G 3/02](#) and [C12G 3/025](#).

Groups [C12G 3/02](#), [C12G 3/025](#), and [C12G 3/021](#) should be considered in order to perform a complete search.

**N C12G 3/022**

- • of botanical genus Oryza, e.g. rice

**WARNING**

Group [C12G 3/022](#) is incomplete pending reclassification of documents from groups [C12G 3/02](#) and [C12G 3/025](#).

Groups [C12G 3/02](#), [C12G 3/025](#), and [C12G 3/022](#) should be considered in order to perform a complete search.

- N C12G 3/023
- • of botanical family Solanaceae, e.g. potato
- WARNING  
Group [C12G 3/023](#) is incomplete pending reclassification of documents from groups [C12G 3/02](#) and [C12G 3/025](#).  
Groups [C12G 3/02](#) and [C12G 3/025](#) and [C12G 3/023](#) should be considered in order to perform a complete search.
- N C12G 3/024
- • of fruits other than botanical genus Vitis
- WARNING  
Group [C12G 3/024](#) is incomplete pending reclassification of documents from group [C12G 3/02](#) and [C12G 3/025](#).  
Groups [C12G 3/02](#), [C12G 3/025](#), and [C12G 3/024](#) should be considered in order to perform a complete search.
- C C12G 3/025
- • {Low ~~alcoholic~~ -alcohol beverages (produced by after-treatment of fermented solutions [C12G 3/08](#) methods for reducing the alcohol content after fermentation [C12H 3/00](#))}
- WARNING  
Group [C12G 3/025](#) is incomplete pending reclassification of documents from group [C12G 3/02](#).  
Group [C12G 3/025](#) is also impacted by reclassification into groups [C12G 3/021](#), [C12G 3/022](#), [C12G 3/023](#), [C12G 3/024](#), and [C12G 3/026](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N C12G 3/026
- • with health-improving ingredients, e.g. flavonoids, flavones, polyphenols or polysaccharides, added before or during the fermentation stage; with flavouring ingredients added before or during the fermentation stage
- WARNING  
Group [C12G 3/026](#) is incomplete pending reclassification of documents from groups [C12G 3/02](#) and [C12G 3/025](#).  
Groups [C12G 3/02](#), [C12G 3/025](#) and [C12G 3/026](#) should be considered in order to perform a complete search.
- C C12G 3/04
- by mixing, e.g. for preparation of liqueurs
- WARNING  
Group [C12G 3/04](#) is impacted by reclassification into group [C12G 3/05](#) and [C12G 3/055](#).  
Groups [C12G 3/04](#), [C12G 3/05](#) and [C12G 3/055](#) should be considered in order to perform a complete search.
- N C12G 3/05
- • with health-improving ingredients, e.g. flavonoids, flavones, polyphenols or polysaccharides
- WARNING  
Group [C12G 3/05](#) is incomplete pending reclassification of documents from group [C12G 3/04](#).  
Groups [C12G 3/04](#) and [C12G 3/05](#) should be considered in order to perform a complete search.
- N C12G 3/055
- • • extracted from plants
- WARNING  
Group [C12G 3/055](#) is incomplete pending reclassification of documents from group [C12G 3/04](#).  
Groups [C12G 3/04](#) and [C12G 3/055](#) should be considered in order to perform a complete search.

- U C12G 3/06 . . with flavouring ingredients
- D C12G 3/065 . . . {~~Flavouring with wood or wood extract; Pretreatment of the wood used therefor~~}  
<administratively transferred to [C12G 3/07](#)>
- N C12G 3/07 . . . *Flavouring with wood extracts, e.g. generated by contact with wood; Wood pretreatment therefor*
- C C12G 3/08 . by **other** methods for **varying/altering** the composition of fermented solutions; e.g. by **reducing the alcohol content** or **alcoholic beverages not provided for in groups C12G 3/02 - C12G 3/07** (methods for reducing the alcohol content of fermented solutions or alcoholic beverages [C12H 3/00](#); methods for increasing the alcohol content of fermented solutions or alcoholic beverages [C12H 6/00](#))
- WARNING**  
Group [C12G 3/08](#) is impacted by reclassification into groups [C12H 3/00](#) and [C12H 3/02](#).  
Groups [C12G 3/08](#), [C12H 3/00](#) and [C12H 3/02](#) should be considered in order to perform a complete search.
- D C12G 3/085 . . {using membranes, e.g. by ultra filtration, by dialysis, by osmosis, by inverse osmosis, by electro dialysis}  
<administratively transferred to [C12H 3/04](#)>
- D C12G 3/10 . . Increasing the alcohol content  
<administratively transferred to [C12H 6/00](#)>
- D C12G 3/105 . . . {~~by refrigeration and separation of the crystals formed~~}  
<administratively transferred to [C12H 6/04](#)>
- D C12G 3/12 . . . by distillation  
<administratively transferred to [C12H 6/02](#)>

## Project: RP0569 (C12H)

- M C12H **PASTEURISATION, STERILISATION, PRESERVATION, PURIFICATION, CLARIFICATION OR AGEING OF ALCOHOLIC BEVERAGES; STERILISATION METHODS FOR ALTERING THE ALCOHOL CONTENT OF FERMENTED SOLUTIONS OR ALCOHOLIC BEVERAGES (simulation ageing by flavouring [C12G 3/06](#)); PRESERVATION; PURIFICATION; CLARIFICATION; AGEING**

**NOTE**

When classifying in this subclass, classification is also made in group [B01D 15/08](#) insofar as subject matter of general interest relating to chromatography is concerned.

**WARNING**

The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:

<a href="#">C12H 1/044</a> - <a href="#">C12H 1/048</a>	covered by	<a href="#">C12H 1/0408</a>
<a href="#">C12H 1/052</a> - <del><a href="#">C12H 1/056</a></del>	covered by	<a href="#">C12H 1/0416</a>
<a href="#">C12H 1/056</a>	covered by	<a href="#">C12H 1/0424</a>
<a href="#">C12H 1/065</a>	covered by	<a href="#">C12H 1/061</a>
<a href="#">C12H 1/07</a> - <del><a href="#">C12H 1/075</a></del>	covered by	<a href="#">C12H 1/063</a>
<a href="#">C12H 1/15</a>	covered by	<a href="#">C12H 1/003</a>
<del><a href="#">C12H 3/00</a> - <a href="#">C12H 3/04</a></del>	covered by	

**N C12H 3/00****Methods for reducing the alcohol content of fermented solutions or alcoholic beverage to obtain low alcohol or non-alcoholic beverages**WARNING

Group [C12H 3/00](#) is incomplete pending reclassification of documents from groups [C12C 12/04](#), [C12G 1/06](#), and [C12G 3/08](#).

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

**N C12H 3/02**

- by evaporating

WARNING

Group [C12H 3/02](#) is incomplete pending reclassification of documents from groups [C12C 12/04](#), [C12G 1/06](#), and [C12G 3/08](#).

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

**N C12H 3/04**

- using semi-permeable membranes

WARNING

Group [C12H 3/04](#) is incomplete pending reclassification of documents from groups [C12C 12/04](#) and [C12G 1/06](#).

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

**N C12H 6/00****Methods for increasing the alcohol content of fermented solutions or alcoholic beverages**WARNING

Group [C12H 6/00](#) is incomplete pending reclassification of documents from group [C12G 1/06](#).

Groups [C12G 1/06](#) and [C12H 6/00](#) should be considered in order to perform a complete search.

**N C12H 6/02**

- by distillation

WARNING

Group [C12H 6/02](#) is incomplete pending reclassification of documents from group [C12G 1/06](#).

Groups [C12G 1/06](#) and [C12H 6/02](#) should be considered in order to perform a complete search.

**N C12H 6/04**

- by freezing

WARNING

Group [C12H 6/04](#) is incomplete pending reclassification of documents from group [C12G 1/06](#).

Groups [C12G 1/06](#) and [C12H 6/04](#) should be considered in order to perform a complete search.

**Project: RP0578 (C12N)****U C12N 1/00**

**Microorganisms, e.g. protozoa; Compositions thereof (medicinal preparations containing material from microorganisms [A61K 35/66](#); preparing medicinal bacterial antigen or antibody compositions, e.g. bacterial vaccines [A61K 39/00](#)); Processes of propagating, maintaining or preserving microorganisms or compositions thereof; Processes of preparing or isolating a composition containing a microorganism; Culture media therefor**

- M C12N 1/12 · Unicellular algae; Culture media therefor (~~culture of multi-cellular plants A01G~~; as new plants [A01H 13/00](#))

**Project: RP0573 (C40B)**

- U C40B 30/00** **Methods of screening libraries**
- D C40B 30/02 · ~~In-silico~~-screening  
<administratively transferred to [G16B 35/00](#) and [G16C 20/60](#)>
- U C40B 50/00** **Methods of creating libraries, e.g. combinatorial synthesis**
- D C40B 50/02 · ~~In-silico~~ or mathematical conception of libraries  
<administratively transferred to [G16B 35/00](#) and [G16C 20/60](#)>

**Project: MP0314 (D03D)**

- U D03D 51/00** **Driving, starting, or stopping arrangements; Automatic stop motions {(loom control associated with fabric inspection on the loom [D03J 1/007](#))}**
- M D03D 51/002 · {Avoiding starting marks}
- WARNING**  
Not complete, see [D03D 51/00](#)
- M D03D 51/005 · {Independent drive motors (independent frame drives for dobbies [D03C 1/146](#), for other shedding mechanisms [D03C 13/02](#))}
- WARNING**  
Not complete pending the completion of a reclassification, see also groups [D03D 51/00](#) and [D03D 51/02](#)
- M D03D 51/007 · {Loom optimisation}
- WARNING**  
Not complete pending the completion of a reclassification, see also groups [D03D 51/00](#) and [D03D 51/02](#)

**Project: N/A (E04)**

**E04** **BUILDING** (~~layered materials, layered products in general B32B~~)

**Project: RP0568 (E05Y)**

- U E05Y 2800/00** **Details, accessories and auxiliary operations not otherwise provided for**
- U E05Y 2800/45 · Manufacturing
- E05Y 2800/455 · · Extrusion (in general ~~B29C 47/00~~ [B29C 48/00](#), [B21C 23/00](#))

**Project: RP0586 (F02M)**

**M F02M** **SUPPLYING COMBUSTION ENGINES IN GENERAL, WITH COMBUSTIBLE MIXTURES OR CONSTITUENTS THEREOF** (~~charging such engines F02B~~)

NOTES

- Attention is drawn to the notes preceding class [F01](#).
- In this subclass the following terms are used with the meanings indicated:
  - "Carburettors" means essentially apparatus for mixing fuel with air, the fuel being brought into mixing contact with the air by lowering the air pressure, e.g. in a venturi;
  - "Fuel injection apparatus" means apparatus for introducing fuel into a space, e.g. engine cylinder, by pressurising the fuel, e.g. by a pump acting behind the fuel, and thus embraces the so-called "solid fuel injection" in which liquid fuel is introduced without any admixture of gas;

- "Low-pressure fuel injection" means fuel injection in which the fuel-air mixture containing fuel thus injected will be substantially compressed in the compression stroke of the engine;
- "Pumping element" means a single piston-cylinder unit in a reciprocating-piston fuel-injection pump or the equivalent unit in any other type of fuel-injection pump.

**WARNING**

~~1. The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:~~

<del>F02M 7/23</del>	<del>covered by</del>	<del>F02M 7/103</del>
<del>F02M 51/08</del>	<del>covered by</del>	<del>F02M 51/06</del>

~~2. 1. {In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.}~~

- |          |  |  |
|----------|--|--|
| <b>M</b> | <b>F02M 1/00 -<br/>F02M 21/00<br/>F02M 19/00</b> | <b>Carburettors <i>for liquid fuels</i> (for gaseous fuels F02M 21/00; combined with low-pressure fuel-injection apparatus F02M 71/00)</b>   |
| U        | F02M 1/08  | • the means to facilitate starting or idling becoming operative or inoperative automatically (in connection with auxiliary carburetting apparatus <a href="#">F02M 1/04</a> )  |
| M        | F02M 1/14  | • • dependent on pressure in combustion-air- or fuel-air-mixture intake ( <del>F02M 1/10 takes precedence</del> <i>dependent on both pressure in combustion-air or fuel-air-mixture intake and engine temperature F02M 1/10</i> )          |
| <b>M</b> | <b>F02M 3/00</b>                                 | <b>Idling devices <i>for carburettors</i> (with means for facilitating <i>engine's</i> idling below operational temperatures <a href="#">F02M 1/00</a>)</b>  |
| U        | F02M 3/08  | • Other details of idling devices (fighting ice-formation by heating idling ports <a href="#">F02M 15/02</a> )   |
| M        | F02M 3/09  | • • Valves responsive to engine conditions, e.g. manifold vacuum ( <del>F02M 1/00; F02M 5/00 - F02M 33/00 take precedence</del> <i>carburettors with means for facilitating engine's idling below operational temperatures F02M 1/00</i> ) |
| <b>U</b> | <b>F02M 5/00</b>                                 | <b>Float-controlled apparatus for maintaining a constant fuel level</b>  |
| M        | F02M 5/12  | • Other details, e.g. floats, valves, setting devices or tools ( <del>floats in general F16K 33/00</del> )   |
| <b>U</b> | <b>F02M 7/00</b>                                 | <b>Carburettors with means for influencing, e.g. enriching or keeping constant, fuel/air ratio of charge under varying conditions (choke valves for starting <a href="#">F02M 1/00</a>)</b>  |
| M        | F02M 7/02  | • Carburettors having aerated fuel spray nozzles ( <del>with valve control for amount of air for aerating fuel F02M 7/24</del> )   |
| C        | F02M 7/06  | • Means for enriching charge on sudden {air} throttle opening, i.e. at acceleration, e.g. storage means in passage way system  |

**WARNING**

*Group [F02M 7/06](#) is impacted by reclassification into groups [F02M 71/00](#), [F02M 71/02](#), and [F02M 71/04](#).  
All groups listed in this Warning should be considered in order to perform a complete search.*

- |   |           |                 |
|---|-----------|-----------------|
| C | F02M 7/08 | • • using pumps |
|---|-----------|-----------------|

**WARNING**

*Group [F02M 7/08](#) is impacted by reclassification into groups [F02M 71/00](#), [F02M 71/02](#), and [F02M 71/04](#).  
All groups listed in this Warning should be considered in order to perform a complete search.*

- C F02M 7/083
- • • {a pump sucking fuel from the conduit system leading to the spray nozzle downstream of the metering cross-section during deceleration}
- WARNING**  
*Group F02M 7/083 is impacted by reclassification into groups [F02M 71/00](#), [F02M 71/02](#), and [F02M 71/04](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- C F02M 7/087
- • • changing output according to temperature in engine
- WARNING**  
*Group F02M 7/087 is impacted by reclassification into groups [F02M 71/00](#), [F02M 71/02](#), and [F02M 71/04](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- C F02M 7/093
- • • changing output according to intake vacuum
- WARNING**  
*Group F02M 7/093 is impacted by reclassification into groups [F02M 71/00](#), [F02M 71/02](#), and [F02M 71/04](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- C F02M 7/10
- Other installations, without moving parts, for influencing fuel/air ratio, e.g. electrical means (*fuel aerating devices for influencing fuel/air ratio [F02M 7/23](#)*)
- WARNING**  
*Group F02M 7/10 is impacted by reclassification into groups [F02M 7/23](#), [F02M 7/24](#), [F02M 7/245](#), [F02M 7/26](#), and [F02M 7/28](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- C F02M 7/103
- • {with self-acting equaliser jets}
- WARNING**  
*Group F02M 7/103 is impacted by reclassification into groups [F02M 7/23](#), [F02M 7/24](#), [F02M 7/245](#), [F02M 7/26](#), and [F02M 7/28](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- C F02M 7/106
- • {Fluid amplifier as a device for influencing the fuel-air mixture}
- WARNING**  
*Group F02M 7/106 is impacted by reclassification into groups [F02M 7/23](#), [F02M 7/24](#), [F02M 7/245](#), [F02M 7/26](#), and [F02M 7/28](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- C F02M 7/11
- • Altering float-chamber pressure (enriching the fuel-air mixture during starting by depressing float to flood carburettor [F02M 1/18](#))
- WARNING**  
*Group F02M 7/11 is impacted by reclassification into groups [F02M 7/23](#), [F02M 7/24](#), [F02M 7/245](#), [F02M 7/26](#), and [F02M 7/28](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- U F02M 7/12
- Other installations, with moving parts, for influencing fuel/air ratio, e.g. having valves ([F02M 7/24](#) takes precedence)

- M F02M 7/133
- Auxiliary jets, i.e. operating only under certain conditions, e.g. full power (~~F02M 7/04, F02M 7/06 take precedence~~ means for enriching charge at high combustion-air flow F02M 7/04; means for enriching charge on sudden throttle opening, i.e. at acceleration F02M 7/06)
- U F02M 7/14
- with means for controlling cross-sectional area of fuel spray nozzle (dependent on air-throttle valve position F02M 7/22)
- U F02M 7/16
- operated automatically, e.g. dependent on exhaust-gas analysis
- E F02M 7/17
- by a pneumatically adjustable piston-like element, e.g. constant depression carburettors
- WARNING**  
Group F02M 7/17 is incomplete pending reclassification of documents from groups F02M 9/06 and F02M 9/065. Groups F02M 9/06, F02M 9/065, and F02M 7/17 should be considered in order to perform a complete search.
- U F02M 7/22
- fuel flow cross-sectional area being controlled dependent on air-throttle-valve position (the throttle valve being slidably arranged transversely to air passage F02M 9/06)
- U F02M 7/225
- {The fuel orifice opening is controlled by a manually actuatable throttle valve so as to vary the cross-sectional area of the orifice}
- N F02M 7/23
- Fuel aerating devices
- WARNING**  
Groups F02M 7/23, F02M 7/24, F02M 7/245, F02M 7/26, and F02M 7/28 are incomplete pending reclassification of documents from groups F02M 7/10, F02M 7/103, F02M 7/106, and F02M 7/11. All groups listed in this Warning should be considered in order to perform a complete search.
- E F02M 7/24
- with means for controlling amount Controlling flow of air for aerating fuel/air
- E F02M 7/245
- {Accessories, e.g. sieves, accelerating wheels, whirl generating devices and the like, for the intimate mixing of emulsifying air with fuel}
- E F02M 7/26
- dependent on position of optionally operable throttle means
- E F02M 7/28
- dependent on temperature or pressure
- U F02M 9/00**
- Carburettors having air or fuel-air mixture passage throttling valves other than of butterfly type (register-type carburettors F02M 11/00); Carburettors having fuel-air mixing chambers of variable shape or position**
- U F02M 9/02
- having throttling valves, e.g. of piston shape, slidably arranged transversely to the passage
- C F02M 9/06
- with means for varying cross-sectional area of fuel spray nozzle dependent on throttle position (installations, operated automatically by a pneumatically adjustable piston-like element, for influencing fuel/air ratio F02M 7/17)
- WARNING**  
Group F02M 9/06 is impacted by reclassification into group F02M 7/17. Groups F02M 9/06 and F02M 7/17 should be considered in order to perform a complete search.
- C F02M 9/065
- {Automatically and not automatically controlled throttle valves operating mutually}
- WARNING**  
Group F02M 9/065 is impacted by reclassification into group F02M 7/17. Groups F02M 9/065 and F02M 7/17 should be considered in order to perform a complete search.

- U F02M 13/00** Arrangements of two or more separate carburettors (re-atomising condensed fuel or homogenising fuel-air mixture [F02M 29/00](#)); Carburettors using more than one fuel (apparatus for adding small quantities of secondary fuel [F02M 25/00](#))
- M F02M 15/00** Carburettors with heating, cooling, or thermal insulating means for combustion-air, fuel, or fuel-air mixture (~~heating, cooling, or thermally insulating float apparatus F02M 5/00; apparatus for thermally treating combustion-air, fuel, or fuel-air mixture not being part of a carburettor F02M 31/00~~)
- M F02M 17/00** Carburettors having pertinent characteristics not provided for in, or of interest apart from, the apparatus of preceding main groups [F02M 1/00](#) - [F02M 15/00](#) (apparatus for treating combustion-air, fuel, or fuel-air mixture by catalysts, electric means, magnetism, rays, **soundsonic** waves, or the like [F02M 27/00](#); combinations of carburettors and low-pressure fuel-injection apparatus [F02M 71/00](#))
- M F02M 17/16** • Carburettors having continuously-rotating bodies, e.g. surface carburettors (~~fuel injection by centrifugal forces F02M 69/06~~)
- M F02M 17/34** • Other carburettors combined or associated with other apparatus, e.g. air filters (~~predominant aspects of the apparatus, see the relevant classes for such apparatus~~)
- M F02M 17/52** • Use of cold, produced by carburettors, for other purposes (~~apparatus using the cold, see the relevant classes for such apparatus~~)
- M F02M 19/00** Details, component parts, or accessories of carburettors, not provided for in, or of interest apart from, the apparatus of groups [F02M 1/00](#) - [F02M 17/00](#) (~~measuring or testing apparatus in general G01~~)
- M F02M 19/03** • Fuel atomising nozzles; Arrangement of emulsifying air conduits (~~atomising in general B05B~~)

**Project: N/A (F02M)**

- U F02M 19/035** • Mushroom-shaped atomising nozzles

**Project: RP0586 (F02M)**

- M F02M 19/12** • External control gear, e.g. having **dashpots dash-pots** (dampening means in later stages of **multistage multi-stage** carburettors [F02M 11/04](#); ~~carburettor control gear in which the carburettor aspects do not predominate, see the relevant classes~~)
- U F02M 21/00** **Apparatus for supplying engines with non-liquid fuels, e.g. gaseous fuels stored in liquid form**
- NOTE  
- in this group the following indexing codes are used:  
[F02M 2700/12](#) - [F02M 2700/13](#)
- M F02M 21/02** • for gaseous fuels (~~apparatus for vaporising liquid fuel by heat F02M 31/00; engines with apparatus generating gas from solid fuel, e.g. from wood, F02B 43/08~~)
- M F02M 21/04** • Gas-air mixing apparatus (~~carburettors adapted to use liquid and gaseous fuels F02M 13/08; carburetting gases in general C10J~~)
- M F02M 21/06** • Apparatus for de-liquefying, e.g. by heating (~~discharging liquefied gases in general F17C~~)
- M F02M 21/08** • for non-gaseous fuels (~~for engines operating on fuel containing oxidants F02B~~)
- M F02M 21/12** • for fuels in pulverised state (~~engine plants with fuel-pulverising apparatus F02B~~)

- M F02M 25/00** Engine-pertinent apparatus for adding non-fuel substances or small quantities of secondary fuel to combustion-air, main fuel; or fuel-air mixture (~~F02M 43/00 takes precedence~~; adding secondary air to fuel-air mixture [F02M 23/00](#); adding exhaust gases [F02M 26/00](#); *fuel-injection apparatus operating simultaneously on two or more fuels or on a liquid fuel and another liquid F02M 43/00*)
- U F02M 26/00** Engine-pertinent apparatus for adding exhaust gases to combustion-air, main fuel or fuel-air mixture, e.g. by exhaust gas recirculation [EGR] systems
- M F02M 26/50**
  - Arrangements or methods for preventing or reducing deposits, corrosion or wear caused by impurities (~~F02M 26/35, F02M 26/74 take precedence~~*arrangement or layout of EGR passages with means for cleaning or treating the recirculated gases F02M 26/35; protection of EGR valves from damage F02M 26/74*)
- U F02M 26/52**
  - Systems for actuating EGR valves
- M F02M 26/63**
  - the EGR valve being directly controlled by an operator (~~F02M 26/64 takes precedence~~*the EGR valve being operated together with an intake air throttle F02M 26/64*)
- U F02M 29/00** Apparatus for re-atomising condensed fuel or homogenising fuel-air mixture (combined with secondary-air supply [F02M 23/12](#) {; collecting condensed fuel [F02M 33/02](#)})
- C F02M 29/02**
  - having rotary parts {, e.g. fan wheels}

**WARNING**  
*Group F02M 29/02 is impacted by reclassification into groups F02M 29/04, F02M 29/06, F02M 29/08, and F02M 29/10. All groups listed in this Warning should be considered in order to perform a complete search.*
- E F02M 29/04**
  - having screens, gratings, baffles; or the like (~~rotary F02M 29/02~~)

**WARNING**  
*Groups F02M 29/04, F02M 29/06, F02M 29/08, and F02M 29/10 are incomplete pending reclassification of documents from group F02M 29/02. Groups F02M 29/02 and F02M 29/04 should be considered in order to perform a complete search.*
- M F02M 31/00** Apparatus for thermally treating combustion-air, fuel, or fuel-air mixture (~~F02M 21/06, F02M 21/10 take precedence; such apparatus being part of a carburettor or fuel-injection apparatus F02M 15/00, F02M 53/00; adding hot secondary air to fuel-air mixture F02M 23/14~~*carburettors with heating, cooling or thermal insulating means for combustion-air, fuel or fuel-air mixture F02M 15/00; apparatus for de-liquefying non-liquid fuels by heating F02M 21/06; apparatus having heating means for non-gaseous fuels with low melting point F02M 21/10; apparatus characterised by adding hot secondary air to fuel-air mixture F02M 23/14; fuel-injection apparatus characterised by having heating, cooling or thermally insulating means F02M 53/00*)
- C F02M 31/02**
  - for heating *{{F02M 31/005 takes precedence;} for purifying liquid fuel F02M 37/30}}*

**WARNING**  
*Group F02M 31/02 is impacted by reclassification into group F02M 37/30. Groups F02M 31/02 and F02M 37/30 should be considered in order to perform a complete search.*

- C F02M 31/04
- • combustion-air or fuel-air mixture (electrically [F02M 31/12](#); by using heat from working cylinders or cylinder heads [F02M 31/14](#); heating of combustion-air as an engine starting aid [F02N 7/04](#))
- WARNING**  
Group [F02M 31/04](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/04](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/042
- • • {Combustion air}
- WARNING**  
Group [F02M 31/042](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/042](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/045
- • • {Fuel-air mixture}
- WARNING**  
Group [F02M 31/045](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/045](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/047
- • • {for fuel enriched partial mixture flow path}
- WARNING**  
Group [F02M 31/047](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/047](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/06
- • • by hot gases, e.g. by mixing cold and hot air
- WARNING**  
Group [F02M 31/06](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/06](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/062
- • • {with thermostat and pneumatic actuator both working on the air mixture control valve}
- WARNING**  
Group [F02M 31/062](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/062](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/064
- • • {pneumatically controlled ([F02M 31/062](#) takes precedence)}
- WARNING**  
Group [F02M 31/064](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/064](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/066
- • • {operated manually, e.g. by means of valves on the air filter}
- WARNING**  
Group [F02M 31/066](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/066](#) and [F02M 37/30](#) should be considered in order to perform a complete search.

- C F02M 31/068 . . . . {particular constructional aspects of the switching devices, e.g. connecting linkage between two control valves}
- WARNING  
Group F02M 31/068 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/068 and F02M 37/30 should be considered in order to perform a complete search.
- C F02M 31/07 . . . . Temperature-responsive control, e.g. using thermostatically-controlled valves (~~F02M 31/083 takes precedence~~ *temperature-responsive control of the amount of exhaust gas or combustion air directed to the heat exchange surface F02M 31/083*)
- WARNING  
Group F02M 31/07 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/07 and F02M 37/30 should be considered in order to perform a complete search.
- C F02M 31/08 . . . . the gases being exhaust gases {(adding exhaust gases to the air intake passage F02M 26/00)}
- WARNING  
Group F02M 31/08 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/08 and F02M 37/30 should be considered in order to perform a complete search.
- C F02M 31/0805 . . . . {Pneumatic control of the amount of exhaust gas or combustion air directed to the heat exchange surfaces, e.g. as a function of the pressure in the air intake passage}
- WARNING  
Group F02M 31/0805 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/0805 and F02M 37/30 should be considered in order to perform a complete search.
- C F02M 31/081 . . . . {Manual switching of the fluids directed to the heat exchange surfaces}
- WARNING  
Group F02M 31/081 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/081 and F02M 37/30 should be considered in order to perform a complete search.
- C F02M 31/0815 . . . . {Heat exchange surfaces arranged inside a flange}
- WARNING  
Group F02M 31/0815 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/0815 and F02M 37/30 should be considered in order to perform a complete search.
- C F02M 31/082 . . . . {Particular shape of air input passage near to the branch}
- WARNING  
Group F02M 31/082 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/082 and F02M 37/30 should be considered in order to perform a complete search.

- C F02M 31/0825 . . . . {Particular constructional characteristics of the heat exchange surfaces, e.g. finned pipes, coiled pipes or the like}
- WARNING  
*Group F02M 31/0825 is impacted by reclassification into group F02M 37/30.  
 Groups F02M 31/0825 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/083 . . . . Temperature-responsive control of the amount of exhaust gas or combustion air directed to the heat exchange surface
- WARNING  
*Group F02M 31/083 is impacted by reclassification into group F02M 37/30.  
 Groups F02M 31/083 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/087 . . . . Heat-exchange arrangements between the air intake and exhaust gas passages, e.g. by means of contact between the passages
- WARNING  
*Group F02M 31/087 is impacted by reclassification into group F02M 37/30.  
 Groups F02M 31/087 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/093 . . . . Air intake passage surrounding the exhaust gas passage; Exhaust gas passage surrounding the air intake passage
- WARNING  
*Group F02M 31/093 is impacted by reclassification into group F02M 37/30.  
 Groups F02M 31/093 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/10 . . . by hot liquids, e.g. lubricants {or cooling water}
- WARNING  
*Group F02M 31/10 is impacted by reclassification into group F02M 37/30.  
 Groups F02M 31/10 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/102 . . . {Particular constructional characteristics of the shape of the heat exchange surfaces}
- WARNING  
*Group F02M 31/102 is impacted by reclassification into group F02M 37/30.  
 Groups F02M 31/102 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/105 . . . {Particular constructional characteristics of the switching apparatus}
- WARNING  
*Group F02M 31/105 is impacted by reclassification into group F02M 37/30.  
 Groups F02M 31/105 and F02M 37/30 should be considered in order to perform a complete search.*

- C F02M 31/107 . . . {Controlled or manual switching}
- WARNING  
*Group F02M 31/107 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/107 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/12 . . electrically
- WARNING  
*Group F02M 31/12 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/12 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/125 . . . Fuel
- WARNING  
*Group F02M 31/125 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/125 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/13 . . . Combustion air
- WARNING  
*Group F02M 31/13 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/13 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/135 . . . Fuel-air mixture
- WARNING  
*Group F02M 31/135 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/135 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/14 . . by using heat from working cylinders or cylinder heads
- WARNING  
*Group F02M 31/14 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/14 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/145 . . . {with particular constructional means}
- WARNING  
*Group F02M 31/145 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/145 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/16 . . Other apparatus for heating fuel
- WARNING  
*Group F02M 31/16 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/16 and F02M 37/30 should be considered in order to perform a complete search.*
- C F02M 31/163 . . . {Preheating by burning an auxiliary mixture}
- WARNING  
*Group F02M 31/163 is impacted by reclassification into group F02M 37/30.  
Groups F02M 31/163 and F02M 37/30 should be considered in order to perform a complete search.*

- C F02M 31/166 . . . {with mechanical generation of heat, e.g. by surface friction}
- WARNING**  
Group [F02M 31/166](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/166](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/18 . . . to vaporise fuel
- WARNING**  
Group [F02M 31/18](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/18](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/183 . . . . {Control}
- WARNING**  
Group [F02M 31/183](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/183](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- C F02M 31/186 . . . . {with simultaneous mixing of secondary air}
- WARNING**  
Group [F02M 31/186](#) is impacted by reclassification into group [F02M 37/30](#). Groups [F02M 31/186](#) and [F02M 37/30](#) should be considered in order to perform a complete search.
- M F02M 31/20 . for cooling (~~cooling of charging-air or of scavenging-air F02B~~ {; ~~F02M 31/005 takes precedence~~; use of cold [F02M 17/52](#); ~~F02M 31/005 takes precedence~~}; ~~cooling of charging-air or of scavenging-air F02B 29/04~~)
- M F02M 33/00** **Other apparatus for treating combustion-air, fuel, or fuel-air mixture (combustion-air cleaners [F02M 35/00](#); arrangements for purifying liquid fuel [F02M 37/22](#))**
- M 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~~)**
- M F02M 35/10 . Air intakes; Induction systems (~~using kinetic or wave energy of charge in induction systems for improving quantity of charge {F02B 27/00}~~)
- U F02M 35/104 . . Intake manifolds
- C F02M 35/108 . . . with primary and secondary intake passages
- WARNING**  
Group [F02M 35/108](#) is impacted by reclassification into groups [F02M 35/112](#), [F02M 35/116](#), and [F02M 35/1165](#). All groups listed in this Warning should be considered in order to perform a complete search.
- C F02M 35/1085 . . . . {the combustion chamber having multiple intake valves (modifying induction systems for imparting a rotation to the charge in the cylinder and having multiple air inlets [F02B 31/08](#); shape or arrangement of intake or exhaust channels in cylinder heads [F02F 1/42](#))}
- WARNING**  
Group [F02M 35/1085](#) is impacted by reclassification into groups [F02M 35/112](#), [F02M 35/116](#), and [F02M 35/1165](#).

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

- E F02M 35/112 . . . for engines with cylinders all in one line ~~(F02M 35/108 takes precedence)~~

**WARNING**

*Group F02M 35/112 is incomplete pending reclassification of documents from groups F02M 35/108 and F02M 35/1085. Groups F02M 35/108, F02M 35/1085, and F02M 35/112 should be considered in order to perform a complete search.*

- E F02M 35/116 . . . for engines with cylinders in V-arrangement or arranged oppositely relative to the main shaft ~~(F02M 35/108 takes precedence)~~

**WARNING**

*Group F02M 35/116 is incomplete pending reclassification of documents from groups F02M 35/108 and F02M 35/1085. Groups F02M 35/108, F02M 35/1085, and F02M 35/116 should be considered in order to perform a complete search.*

- M F02M 35/1165 . . . {Boxer or pancake engines}

**WARNING**

*Group F02M 35/1165 is incomplete pending reclassification of documents from groups F02M 35/108 and F02M 35/1085. Groups F02M 35/108, F02M 35/1085, and F02M 35/1165 should be considered in order to perform a complete search.*

- M F02M 35/16 . characterised by use in vehicles ~~(predominant vehicle aspects, see the relevant classes for the vehicles)~~

- M F02M 37/00 Apparatus or systems for feeding liquid fuel from storage containers to carburettors or fuel-injection apparatus ~~(F02M 69/00 takes precedence); fuel injection apparatus characterised by their conduits and venting means F02M 55/00; fuel injection apparatus having a common rail F02M 63/0225; control of fuel feeding F02D 33/003; feeding liquid fuel to combustion apparatus, in general F23K 5/00; fuel supply to apparatus for generating combustion products of high pressure or high velocity F23R 3/28); Arrangements for purifying liquid fuel specially adapted for, or arranged on, internal-combustion engines (separating apparatus, filters per se B01D; centrifuges B04B)~~**

- M F02M 37/04 . Feeding by means of driven pumps ~~(pump construction F04)~~

- U F02M 37/22 . Arrangements for purifying liquid fuel specially adapted for, or arranged on, internal-combustion engines, e.g. arrangements in the feeding system

**WARNING**

Group [F02M 37/22](#) is impacted by reclassification into groups [F02M 37/24](#), [F02M 37/26](#), [F02M 37/28](#), [F02M 37/30](#), [F02M 37/32](#), [F02M 37/34](#), [F02M 37/36](#), [F02M 37/38](#), [F02M 37/40](#), [F02M 37/42](#), [F02M 37/44](#), [F02M 37/46](#), [F02M 37/48](#), [F02M 37/50](#), [F02M 37/52](#), and [F02M 37/54](#).

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

- M F02M 37/30 . . characterised by heating means

**WARNING**

Group [F02M 37/30](#) is incomplete pending reclassification of documents from groups [F02M 31/02](#), [F02M 31/04](#), [F02M 31/042](#), [F02M 31/045](#), [F02M 31/047](#), [F02M 31/06](#), [F02M 31/062](#), [F02M 31/064](#), [F02M 31/066](#), [F02M 31/068](#), [F02M 31/07](#), [F02M 31/08](#), [F02M 31/0805](#), [F02M 31/081](#), [F02M 31/0815](#), [F02M 31/082](#), [F02M 31/0825](#), [F02M 31/083](#), [F02M 31/087](#),

*F02M 31/093, F02M 31/10, F02M 31/102, F02M 31/105, F02M 31/107, F02M 31/12, F02M 31/125, F02M 31/13, F02M 31/135, F02M 31/14, F02M 31/145, F02M 31/16, F02M 31/163, F02M 31/166, F02M 31/18, F02M 31/183, F02M 31/186, F02M 37/22, and F02M 37/24.*

*Groups All F02M 37/22, groups F02M 37/24, and listed in F02M 37/30 this Warning should be considered in order to perform a complete search.*

C F02M 39/00

Arrangements of fuel-injection apparatus with respect to engines; Pump drives adapted to such arrangements (*fuel-injection apparatus in which injection pumps are driven, or injectors are actuated, by the pressure in engine working cylinders, or by impact of engine working piston F02M 49/00*; arrangements of injectors [F02M 61/14](#))

NOTE

Low-pressure fuel injection is classified in groups [F02M 51/00](#), [F02M 69/00](#) or [F02M 71/00](#).

**WARNING**

*Group F02M 39/00 is impacted by reclassification into groups [F02M 49/00](#), [F02M 49/02](#), and [F02M 49/04](#).*

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

C F02M 39/005

- {Arrangements of fuel feed-pumps with respect to fuel injection apparatus ([F02M 37/00](#) takes precedence)}

**WARNING**

*Group F02M 39/005 is impacted by reclassification into groups [F02M 49/00](#), [F02M 49/02](#), and [F02M 49/04](#).*

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

M F02M 39/02

- Arrangements of fuel-injection apparatus to facilitate the driving of pumps; Arrangements of fuel-injection pumps; Pump drives (~~F02M 49/00 takes precedence~~)

M F02M 45/00

Fuel-injection apparatus characterised by having a cyclic delivery of specific time/pressure or time/quantity relationship ~~{(fuel-injectors having such deliveries by means of valves furnished at seated ends with pintle- or plug-shaped extensions F02M 61/06 {-; pumps having such delivery by means of delivery valves [F02M 59/462](#)})}~~

M F02M 47/00

Fuel-injection apparatus operated cyclically with fuel-injection valves actuated by fluid pressure (~~F02M 49/00 takes precedence; apparatus with injection valves opened by fuel pressure and closed by non-fluid means; see the groups providing for other characteristics~~ *fuel- injectors actuated by the pressure in engine working cylinders F02M 49/00*)

M F02M 49/00

Fuel-injection apparatus in which injection pumps are driven or injectors are actuated, by the pressure in engine working cylinders, or by impact of engine working piston

**WARNING**

*Groups [F02M 49/00](#), [F02M 49/02](#), and [F02M 49/04](#) are incomplete pending reclassification of documents from groups [F02M 39/00](#) and [F02M 39/005](#). Groups [F02M 39/00](#), [F02M 39/005](#), and [F02M 49/00](#) should be considered in order to perform a complete search.*

U F02M 51/00

Fuel-injection apparatus characterised by being operated electrically

- M F02M 51/02
- specially for low-pressure fuel-injection (~~{F02M 51/005 takes precedence}; pumps per se F02M 51/04;}~~ *pumps per se F02M 51/04; injectors per se F02M 51/08*)
- C F02M 51/06
- Injectors peculiar thereto {with means directly operating the valve needle}
- WARNING**  
*Group F02M 51/06 is impacted by reclassification into group F02M 51/08. Groups F02M 51/06 and F02M 51/08 should be considered in order to perform a complete search.*
- D F02M 2051/08
- {Specially for low-pressure fuel injection}
  - <administratively transferred to [F02M 51/08](#) INV>
- N F02M 51/08
- specially for low-pressure fuel-injection
- WARNING**  
*Group F02M 51/08 is incomplete pending reclassification of documents from group F02M 51/06. Groups F02M 51/06 and F02M 51/08 should be considered in order to perform a complete search.*
- M F02M 59/00**
- Pumps specially adapted for fuel-injection and not provided for in groups [F02M 39/00](#) - [F02M 57/00](#); {, e.g. rotary cylinder-block type of pumps}(general features of pumps F04)**
- NOTE**
- in this group the following indexing codes are used: [F02M 2700/1323](#), [F02M 2700/1341](#), [F02M 2700/1352](#), [F02M 2700/1388](#)
- M F02M 59/20
- Varying fuel delivery in quantity or timing (~~(for distributor pumps F02M 41/123; F02M 41/1411)~~)
- U F02M 59/36
- by variably-timed valves controlling fuel passages {to pumping elements or overflow passages}
- U F02M 59/361
- {Valves being actuated mechanically}
- M F02M 59/362
- {valves rotating *Rotary valves*} (~~combined with rotary fuel distributor F02M 41/063~~)
- U F02M 59/44
- Details, components parts, or accessories not provided for in, or of interest apart from, the apparatus of groups [F02M 59/02](#) - [F02M 59/42](#); {Pumps having transducers, e.g. to measure displacement of pump rack or piston}
- M F02M 59/46
- Valves (~~in general F16K~~)
- U F02M 61/00**
- Fuel-injectors not provided for in groups [F02M 39/00](#) - [F02M 57/00](#) or [F02M 67/00](#)**
- NOTE**
- in this group the following indexing codes are used: [F02M 2700/07](#), [F02M 2700/074](#)
- M F02M 61/04
- having valves; {, e.g. having a plurality of valves in series}(valves in general F16K)
- U F02M 61/16
- Details not provided for in, or of interest apart from, the apparatus of groups [F02M 61/02](#) - [F02M 61/14](#)
- M 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~~)}

- M F02M 69/00** **Low-pressure fuel-injection apparatus** ~~{(electrically operated F02M 51/00); {Apparatus with both continuous and intermittent injection; Apparatus injecting different types of fuel}}~~
- NOTE  
- in this group the following indexing codes are used: [F02B 2720/15](#)
- U F02M 69/16** • characterised by means for metering continuous fuel flow to injectors or means for varying fuel pressure upstream of {continuously or intermittently operated} injectors
- M F02M 69/18** • • the means being metering valves throttling fuel passages to injectors or by-pass valves throttling overflow passages, the metering valves being actuated by a device responsive to the engine working parameters, e.g. engine load, speed, temperature or quantity of air (~~F02M 69/26 takes precedence~~*the means varying fuel pressure in a fuel by-pass passage, the pressure acting on a throttle valve against the action of metered or throttled fuel pressure for variably throttling fuel flow to injection nozzles F02M 69/26*)
- M F02M 69/20** • • the device being a servo-motor, e.g. using engine intake air pressure or vacuum (~~F02M 69/22 takes precedence~~*the actuating device comprising a member movably mounted in the air intake conduit and displaced according to the quantity of air admitted to the engine F02M 69/22*)
- M F02M 69/30** • characterised by means for facilitating the starting-up or idling of engines or by means for enriching fuel charge, e.g. below operational temperatures or upon high power demand of engines (~~at acceleration F02M 69/44~~)
- U F02M 69/36** • • having an enrichment mechanism modifying fuel flow to injectors, e.g. by acting on the fuel metering device or on the valves throttling fuel passages to injection nozzles or overflow passages {(at acceleration [F02M 69/44](#))}
- M F02M 69/38** • • using fuel pressure, e.g. by varying fuel pressure in the control chambers of the fuel metering device (~~F02M 69/26 takes precedence~~*the means varying fuel pressure in a fuel by-pass passage, the pressure acting on a throttle valve against the action of metered or throttled fuel pressure for variably throttling fuel flow to injection nozzles F02M 69/26*)
- E F02M 71/00** **Combinations of carburettors and low-pressure fuel-injection apparatus** ~~(means for enriching charge on sudden air throttle opening of carburettors F02M 7/06)~~
- NOTE  
- in this group the following indexing codes are used: [F02M 2700/1347](#)
- WARNING  
*Groups F02M 71/00, F02M 71/02, and F02M 71/04 are incomplete pending reclassification of documents from groups [F02M 7/06](#), [F02M 7/08](#), [F02M 7/083](#), [F02M 7/087](#), and [F02M 7/093](#). All groups listed in this Warning should be considered in order to perform a complete search.*
- E F02M 71/02** • with fuel-air mixture being produced by the carburettor and being compressed by a pump for subsequent injection into main combustion-air (~~adaptations or arrangements of such pumps F02B~~)

**Project: MP0314 (F15D)**

- U F15D 1/00** **Influencing flow of fluids**

- M F15D 1/002 • {by influencing the boundary layer ([F15D 1/06](#) and [F15D 1/12](#) take precedence)}
- WARNING**  
F15D 1/002 and subgroups are not complete pending a reorganisation, see also [F15D 1/06](#), [F15D 1/065](#) and [F15D 1/12](#)
- M F15D 1/009 • {by means of vortex rings}
- WARNING**  
Not complete pending a reorganisation, see also [F15D 1/00](#)
- M F15D 1/0095 • {by means of injecting jet pulses of fluid wherein the injected fluid is taken from the fluid and re-injected again, e.g. synthetic jet actuators ([F15D 1/008](#) takes precedence)}
- WARNING**  
Not complete pending a reorganisation, see also [F15D 1/00](#)
- U F15D 1/02 • in pipes or conduits
- M F15D 1/025 • {by means of orifice or throttle elements}
- WARNING**  
Not complete pending a reorganisation, see also [F15D 1/02](#)

## Project: RP0542 (F16C)

- M F16C 17/00 - **Bearings for rotary parts** (~~[F16C 9/00](#), [F16C 13/02](#) take precedence; allowing for linear movement also [F16C 31/00](#)~~)
- M F16C 29/00 - ~~{Other bearings (for bridges [E01D 19/04](#))}~~

## Project: RP0572 (F24F)

- M F24F **AIR-CONDITIONING; AIR-HUMIDIFICATION; VENTILATION; USE OF AIR CURRENTS FOR SCREENING** (removing dirt or fumes from areas where they are produced [B08B 15/00](#); vertical ducts for carrying away waste gases from buildings [E04F 17/02](#); tops for chimneys or ventilating shafts, terminals for flues [F23L 17/02](#))

## NOTES

- In this subclass:
  - air-humidification as auxiliary treatment in air-conditioning, i.e. in units wherein the air is also either cooled or heated, is covered by groups [F24F 1/00](#) or [F24F 3/14](#);
  - air-humidification per se, e.g. "room humidifiers", is covered by group [F24F 6/00](#).
- In this subclass, the following terms or expressions are used with the meanings indicated:
  - "air-conditioning" means the supply of air to *or the treatment of air in* rooms or spaces by means *which provide for the treatment of cooling or a combination of the air in at least two of the following ways: heating — cooling — any other and a further* kind of *air* treatment, e.g. humidification; *heating or air purification*;
  - "ventilation" means the supply of air to, or its extraction from, rooms or spaces, and systems for circulating air within rooms or spaces, but does not cover the mere treatment of air being supplied to, extracted from, or circulated within, rooms or spaces.
- In this subclass, control or safety arrangements are classified in [F24F 11/00](#). In order to indicate the type of air- treatment system in which these

arrangements are used, further classification may be made in main groups [F24F 1/00](#) -[F24F 9/00](#).

**WARNING**

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

- M F24F 1/00** Room units **for air-conditioning**, e.g. separate or self-contained units or units receiving primary air from a central station ~~{or with supply of heating or cooling agents from a central station, such as those applied to air-treatment systems included in F24F 3/00 and F24F 5/00}~~
- M F24F 1/0003** • **{Split characterised by a split arrangement, wherein parts of the air-conditioning system, e.g. evaporator and condenser, are in separately located units}**
- C F24F 1/0007** • ~~{Fan-coil Indoor units, e.g. using an evaporating refrigerant}~~ fan coil units (self-contained units [F24F 1/02](#))
- WARNING**  
Group [F24F 1/0007](#) is impacted by reclassification into groups [F24F 1/00073](#), [F24F 1/00075](#), [F24F 1/00077](#), [F24F 1/0035](#), [F24F 1/0038](#), [F24F 1/0041](#), [F24F 1/0043](#), [F24F 1/0047](#), [F24F 1/005](#), [F24F 1/0053](#), [F24F 1/0057](#), [F24F 1/0059](#), [F24F 1/0063](#), [F24F 1/0067](#), [F24F 1/0068](#), [F24F 1/0071](#), [F24F 1/0073](#), [F24F 1/0076](#), [F24F 1/008](#), [F24F 1/0083](#), [F24F 1/0087](#), [F24F 1/009](#), [F24F 1/0093](#), [F24F 1/0097](#), [F24F 1/032](#), [F24F 1/0323](#), [F24F 1/0325](#), [F24F 1/0326](#), [F24F 1/0328](#), [F24F 1/035](#), [F24F 1/0353](#) and [F24F 1/037](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F24F 1/00073** • • {comprising a compressor in the indoor unit housing}
- WARNING**  
Group [F24F 1/00073](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/00073](#) should be considered in order to perform a complete search.
- N F24F 1/00075** • • {receiving air from a central station}
- WARNING**  
Group [F24F 1/00075](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/00075](#) should be considered in order to perform a complete search.
- N F24F 1/00077** • • {receiving heat exchange fluid entering and leaving the unit as a liquid}
- WARNING**  
Group [F24F 1/00077](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/00077](#) should be considered in order to perform a complete search.
- M F24F 1/0011** • • {characterised by the air outlet}outlets
- M F24F 1/0014** • • • {withhaving two or more blow-out-outlet openings}
- M F24F 1/0018** • • {characterised by the fan}fans (with secondary air induced by injector action of the primary air [F24F 1/01](#))
- M F24F 1/0022** • • • {Centrifugal or radial fan}fans
- M F24F 1/0025** • • • {Cross-flow or tangential fan}fans

- M F24F 1/0029 . . . {Axial fan}fans
- M F24F 1/0033 . . . {comprisinghaving two or more fans}
- Q F24F 1/0035 . . . characterised by introduction of outside air to the room
- WARNING  
Group [F24F 1/0035](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#). Group [F24F 1/0035](#) is also impacted by reclassification into group [F24F 1/0038](#).  
Groups [F24F 1/0035](#), [F24F 1/0007](#) and [F24F 1/0038](#) should be considered in order to perform a complete search.
- D F24F 2001/0037 . . . {mounted in or under the ceiling}  
<administratively transferred to [F24F 1/0047](#) INV>
- N F24F 1/0038 . . . in combination with simultaneous exhaustion of inside air
- WARNING  
Group [F24F 1/0038](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0035](#) and [F24F 1/0041](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- D F24F 2001/004 . . . {mounted or standing on the floor}  
<administratively transferred to [F24F 1/005](#) INV>
- Q F24F 1/0041 . . . characterised by exhaustion of inside air from the room (in combination with simultaneous introduction of outside air [F24F 1/0038](#))
- WARNING  
Group [F24F 1/0041](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Group [F24F 1/0041](#) is also impacted by reclassification into group [F24F 1/0038](#).  
Groups [F24F 1/0041](#), [F24F 1/0007](#) and [F24F 1/0038](#) should be considered in order to perform a complete search.
- N F24F 1/0043 . . . characterised by mounting arrangements
- WARNING  
Group [F24F 1/0043](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/0043](#) should be considered in order to perform a complete search.
- D F24F 2001/0044 . . . {mounted at least partially under the floor or the outlet air is being distributed under the floor (HVAC with raised floors F24F 2221/40)}  
<administratively transferred to [F24F 1/0053](#) INV>
- N F24F 1/0047 . . . mounted in the ceiling or at the ceiling
- WARNING  
Group [F24F 1/0047](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/0047](#) should be considered in order to perform a complete search.
- D F24F 2001/0048 . . . {mounted in or on the wall}  
<administratively transferred to [F24F 1/0057](#) INV>
- N F24F 1/005 . . . mounted on the floor; standing on the floor
- WARNING  
Group [F24F 1/005](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/005](#) should be considered in order to perform a complete search.

- D F24F 2001/0051
- {Introducing outside air to rooms}  
<administratively transferred to [F24F 1/0035](#) INV>
- N F24F 1/0053
- • • mounted at least partially below the floor; with air distribution below the floor
- WARNING  
Group [F24F 1/0053](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/0053](#) should be considered in order to perform a complete search.
- D F24F 2001/0055
- {Exhausting internal air from rooms}  
<administratively transferred to [F24F 1/0041](#) INV>
- N F24F 1/0057
- • • mounted in or on a wall
- WARNING  
Group [F24F 1/0057](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/0057](#) should be considered in order to perform a complete search.
- C F24F 1/0059
- {characterised by ~~the~~ heat exchanger}exchangers
- WARNING  
Group [F24F 1/0059](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Group [F24F 1/0059](#) is also impacted by reclassification into groups [F24F 1/0063](#), [F24F 1/0067](#), [F24F 1/0068](#), [F24F 1/032](#), [F24F 1/0323](#), [F24F 1/0325](#) and [F24F 1/0326](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- D F24F 2001/0062
- {receiving air from a central station}  
<administratively transferred to [F24F 1/00075](#) INV>
- N F24F 1/0063
- • • by the mounting or arrangement of the heat exchangers
- WARNING  
Group [F24F 1/0063](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0059](#).  
Groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/0063](#) should be considered in order to perform a complete search.
- D F24F 2001/0066
- {with air treatment in the central station and in the room unit}  
<administratively transferred to [F24F 1/00075](#) INV>
- N F24F 1/0067
- • • by the shape of the heat exchangers or of parts thereof, e.g. of their fins
- WARNING  
Group [F24F 1/0067](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0059](#).  
Groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/0067](#) should be considered in order to perform a complete search.
- N F24F 1/0068
- • characterised by the arrangement of refrigerant piping outside the heat exchanger within the unit casing
- WARNING  
Group [F24F 1/0068](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0059](#).

Groups [F24F 1/0007](#) and [F24F 1/0059](#) and [F24F 1/0068](#) should be considered in order to perform a complete search.

- D F24F 2001/007
- ~~{with air treatment in the room unit}~~  
<administratively transferred to [F24F 1/00075](#) INV>
- Q F24F 1/0071
- ~~with means for purifying supplied air (perfuming or deodorising means [F24F 1/008](#))~~
- WARNING  
Group [F24F 1/0071](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Group [F24F 1/0071](#) is also impacted by reclassification into groups [F24F 1/0073](#), [F24F 1/0076](#), [F24F 1/0328](#), [F24F 1/035](#) and [F24F 1/0353](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F24F 1/0073
- • • characterised by the mounting or arrangement of filters
- WARNING  
Group [F24F 1/0073](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0071](#).  
Groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/0073](#) should be considered in order to perform a complete search.
- D F24F 2001/0074
- ~~{receiving heat exchange fluid}~~  
<administratively transferred to [F24F 1/0007](#) INV>
- N F24F 1/0076
- • • by electric means, e.g. ionisers or electrostatic separators
- WARNING  
Group [F24F 1/0076](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0071](#).  
Groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/0076](#) should be considered in order to perform a complete search.
- D F24F 2001/0077
- ~~{the fluid entering and leaving the room unit as a liquid}~~  
<administratively transferred to [F24F 1/00077](#) INV>
- N F24F 1/008
- ~~with perfuming or deodorising means~~
- WARNING  
Group [F24F 1/008](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/008](#) should be considered in order to perform a complete search.
- D F24F 2001/0081
- ~~{the fluid entering the room unit as a liquid and leaving it as a gas}~~  
<administratively transferred to [F24F 1/0007](#) INV>
- N F24F 1/0083
- ~~with dehumidification means~~
- WARNING  
Group [F24F 1/0083](#) is/are incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/0083](#) should be considered in order to perform a complete search.
- D F24F 2001/0085
- ~~{using the cooling effect of evaporating fluid either evaporating directly in the room air, in the air supplied to the room or in the outside air}~~  
<administratively transferred to [F24F 1/0007](#) INV>

- N F24F 1/0087
- with humidification means
- WARNING  
Group [F24F 1/0087](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/0087](#) should be considered in order to perform a complete search.
- D F24F 2001/0088
- {evaporating directly in the room air or the air supplied to the room}  
<administratively transferred to [F24F 1/0007](#) INV>
- N F24F 1/009
- characterised by heating arrangements (characterised by heat exchangers [F24F 1/0059](#))
- WARNING  
Group [F24F 1/009](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/009](#) should be considered in order to perform a complete search.
- D F24F 2001/0092
- {evaporating in the outside air, e.g. evaporation heat being extracted from the room air by indirect heat exchange}  
<administratively transferred to [F24F 1/0007](#) INV>
- N F24F 1/0093
- with additional radiant heat-discharging elements, e.g. electric heaters
- WARNING  
Group [F24F 1/0093](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/0093](#) should be considered in order to perform a complete search.
- D F24F 2001/0096
- {Units supplying highly filtered air to a room or to a limited area within a room}  
<administratively transferred to [F24F 1/0071](#) INV>
- N F24F 1/0097
- using thermoelectric or thermomagnetic means, e.g. Peltier elements
- WARNING  
Group [F24F 1/0097](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).  
Groups [F24F 1/0007](#) and [F24F 1/0097](#) should be considered in order to perform a complete search.
- M F24F 1/01
- in which secondary air is induced by injector action of the primary air  
(~~F24F 1/02 takes precedence; {arrangement or assembly of or components for the regulation of the air supply through a heat exchanger and the associated bypass for the secondary treatment of the air F24F 11/81; nozzle for induction unit F24F 13/26}~~)
- C F24F 1/02
- self-contained **room units for air-conditioning**, i.e. with all apparatus for treatment installed in a common casing ~~{(arrangement or assembly of components for the primary treatment of air in independent units F24F 11/30)}~~
- WARNING  
Group [F24F 1/02](#) is impacted by reclassification into groups [F24F 1/028](#), [F24F 1/0284](#), [F24F 1/0287](#), [F24F 1/029](#), [F24F 1/03](#), [F24F 1/031](#), [F24F 1/0314](#), [F24F 1/0317](#), [F24F 1/032](#), [F24F 1/0323](#), [F24F 1/0325](#), [F24F 1/0326](#), [F24F 1/0328](#), [F24F 1/035](#), [F24F 1/0353](#), [F24F 1/0355](#), [F24F 1/0358](#), [F24F 1/037](#), [F24F 1/0373](#), [F24F 1/0375](#), [F24F 1/0378](#) and [F24F 1/039](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- E F24F 1/022
- ~~{Comprising comprising a compressor cycle}~~

- D F24F 1/025 . . . {Portable}  
<administratively transferred to [F24F 1/022](#) and [F24F 1/04](#)>
- M F24F 1/027 . . . {mounted in wall openings, e.g. in windows}
- N F24F 1/028 . . . characterised by air supply means, e.g. fan casings, internal dampers or ducts (with secondary air induced by injector action of the primary air [F24F 1/01](#))  
WARNING  
Group [F24F 1/028](#) is/are incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/028](#) should be considered in order to perform a complete search.
- N F24F 1/0284 . . . with horizontally arranged fan axis  
WARNING  
Group [F24F 1/0284](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0284](#) should be considered in order to perform a complete search.
- N F24F 1/0287 . . . with vertically arranged fan axis  
WARNING  
Group [F24F 1/0287](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0287](#) should be considered in order to perform a complete search.
- N F24F 1/029 . . . characterised by the layout or mutual arrangement of components, e.g. of compressors or fans  
WARNING  
Group [F24F 1/029](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/029](#) should be considered in order to perform a complete search.
- N F24F 1/03 . . . characterised by mounting arrangements  
WARNING  
Group [F24F 1/03](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/03](#) should be considered in order to perform a complete search.
- N F24F 1/031 . . . penetrating a wall or window  
WARNING  
Group [F24F 1/031](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/031](#) should be considered in order to perform a complete search.
- N F24F 1/0314 . . . mounted on a wall  
WARNING  
Group [F24F 1/0314](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0314](#) should be considered in order to perform a complete search.

- N F24F 1/0317
- • • suspended from the ceiling
- WARNING  
Group [F24F 1/0317](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0317](#) should be considered in order to perform a complete search.
- N F24F 1/032
- • characterised by heat exchangers
- WARNING  
Group [F24F 1/032](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/02](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F24F 1/0323
- • • by the mounting or arrangement of the heat exchangers
- WARNING  
Group [F24F 1/0323](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/02](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F24F 1/0325
- • • by the shape of the heat exchangers or of parts thereof, e.g. of their fins
- WARNING  
Group [F24F 1/0325](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/02](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F24F 1/0326
- • characterised by the arrangement of refrigerant piping outside the heat exchanger within the unit casing
- WARNING  
Group [F24F 1/0326](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/02](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F24F 1/0328
- • with means for purifying supplied air (perfuming or deodorising means [F24F 1/0355](#))
- WARNING  
Group [F24F 1/0328](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/02](#).  
All groups listed in this Warning should be considered in order to perform a complete search. .
- N F24F 1/035
- • • characterised by the mounting or arrangement of filters
- WARNING  
Group [F24F 1/035](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/02](#).  
All groups listed in this Warning should be considered in order to perform a complete search.
- N F24F 1/0353
- • • by electric means, e.g. ionisers or electrostatic separators
- WARNING  
Group [F24F 1/0353](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/02](#).

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

- N F24F 1/0355
- with perfuming or deodorising means
- WARNING  
Group [F24F 1/0355](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0355](#) should be considered in order to perform a complete search.
- N F24F 1/0358
- with dehumidification means
- WARNING  
Group [F24F 1/0358](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0358](#) should be considered in order to perform a complete search.
- N F24F 1/037
- with humidification means
- WARNING  
Group [F24F 1/037](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/02](#).  
Groups [F24F 1/0007](#) and [F24F 1/02](#) and [F24F 1/037](#) should be considered in order to perform a complete search.
- N F24F 1/0373
- characterised by heating arrangements (characterised by heat exchangers [F24F 1/032](#))
- WARNING  
Group [F24F 1/0373](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0373](#) should be considered in order to perform a complete search.
- N F24F 1/0375
- with additional radiant heat-discharging elements, e.g. electric heaters
- WARNING  
Group [F24F 1/0375](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0375](#) should be considered in order to perform a complete search.
- N F24F 1/0378
- using thermoelectric or thermomagnetic means, e.g. Peltier elements
- WARNING  
Group [F24F 1/0378](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/0378](#) should be considered in order to perform a complete search.
- N F24F 1/039
- using water to enhance cooling, e.g. spraying onto condensers
- WARNING  
Group [F24F 1/039](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).  
Groups [F24F 1/02](#) and [F24F 1/039](#) should be considered in order to perform a complete search.
- E F24F 1/04
- Arrangements for portability

**Project: RP0566 (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 5/02** **· Plate construction**
- F41H 5/04** **· · composed of more than one layer {(outerwear resistant to mechanical aggressions [A41D 31/0055](#)[A41D 31/24](#); layered products [B32B](#); shaping reinforced articles [B29C 67/00](#))}**

**Project: RP0573 (G01C)**

- 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](#))**
- G01C 21/20** **· Instruments for performing navigational calculations ([G01C 21/24](#), [G01C 21/26](#) take precedence; ~~adaptations of digital computers to a specific function or application~~ [G06F 17/00](#), [G06F 19/00](#))**

**Project: N/A (G02B)**

- U G02B 5/00** **Optical elements other than lenses (light guides [G02B 6/00](#); optical logic elements [G02F 3/00](#))**
- U G02B 5/20** **· Filters (polarising elements [G02B 5/30](#); {manufacturing optical filters by photographic processes [G03C 7/12](#), by lithographic processes [G03F 7/0007](#)})**
- U G02B 5/28** **· · Interference filters**
- U G02B 5/285** **· · · {comprising deposited thin solid films ([G02B 5/281](#) - [G02B 5/289](#) take precedence; multilayered film filters for fibre optic multiplexing [G02B 6/29361](#))}**
- G02B 5/286** **· · · · {having four or fewer layers, e.g. for achieving a ~~color~~[colour](#) effect}**

**Project: RP0568 (G02B)**

- U G02B 6/00** **Light guides**
- U G02B 6/24** **· Coupling light guides (for electric waveguides [H01P 1/00](#))**
- U G02B 6/36** **· · Mechanical coupling means ({[G02B 6/06](#), [G02B 6/30](#), [G02B 6/35](#), [G02B 6/38](#)}, [G02B 6/255](#), [G02B 6/42](#) take precedence)**
- U G02B 6/3628** **· · · {for mounting fibres to supporting carriers ([G02B 6/3608](#), [G02B 6/3616](#) take precedence)}**
- U G02B 6/3684** **· · · · {characterised by the manufacturing process of surface profiling of the supporting carrier (manufacturing microsystems per se [B81C 1/00015](#))}**
- G02B 6/3696** **· · · · · {by moulding, e.g. injection moulding, casting, embossing, stamping, stenciling, printing, or with metallic mould insert manufacturing using LIGA or MIGA techniques (shaping the mould surface by machining [B29C 33/38](#); moulding techniques [B29C 39/00](#), [B29C 43/00](#), [B29C 45/00](#), ~~[B29C 47/00](#)~~[B29C 48/00](#), [B29C 59/00](#); stamping, printing or embossing techniques [B81C 1/00444](#); surface micromachining using LIGA [B81C 2201/032](#))}**

**Project: N/A (G02B)**

- U G02B 27/00** **Other optical systems; Other optical apparatus (means for bringing about special optical effects in shop-windows, showcases [A47F](#), e.g. [A47F 11/06](#); optical toys [A63H 33/22](#); designs or pictures characterised by special light effects [B44F 1/00](#))**

- U G02B 27/0025      · {for optical correction, e.g. distortion, aberration}
- G02B 27/005      · · {for correction of secondary **colorcolour** or higher-order chromatic aberrations}
- U G02B 27/10      · Beam splitting or combining systems (polarising systems [G02B 27/28](#); mixing and splitting light signals using optical waveguides [G02B 6/28](#); {beam shaping, e.g. changing the cross-sectional area, by dividing or superposing multiple light beams [G02B 27/0905](#)})
- U G02B 27/1006      · · {for splitting or combining different wavelengths ([G02B 27/1086](#), [G02B 27/141](#) take precedence)}
- G02B 27/1013      · · · {for **colorcolour** or multispectral image sensors, e.g. splitting an image into monochromatic image components on respective sensors (spectral imaging systems [G01J](#))}

**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](#) - [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)

WARNING

Group [G02F 1/01](#) is impacted by reclassification into groups [G02F 1/165](#), [G02F 1/166](#), [G02F 1/1673](#), and [G02F 1/169](#).

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

- U G02F 1/21      · · by interference
- G02F 2001/212      · · · {Mach-**ZenderZehnder** type}

**Project: MP0393 (G06F)**

- 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](#)})
- M G06F 3/16 · Sound input; Sound output (~~conversion of speech into digital information or vice versa~~ [G10L](#) *speech processing* [G10L](#))
- U G06F 8/00 Arrangements for software engineering (testing or debugging [G06F 11/36](#); administrative, planning or organisation aspects of software project management [G06Q 10/06](#))
- U G06F 8/30 · Creation or generation of source code
- M G06F 8/35 · · ~~Model~~ *model* driven

**Project: RP0573 (G06F)**

- F G06F 19/00  
(Frozen) Digital computing or data processing equipment or methods, specially adapted for specific applications (specially adapted for specific functions [G06F 17/00](#); data processing systems or methods specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes [G06Q](#); healthcare informatics [G16H](#))

**NOTE**

~~This group only covers specific applications related to the fields of healthcare or life sciences, e.g. bioinformatics (G09F 19/10), medical informatics (G06F 19/30), or chemoinformatics (G06F 19/70).~~

**WARNING**

*Group G06F 19/00 is no longer used for the classification of documents as of 02-01-2019. The content of this group is being reclassified into group G16Z 99/00.*

*Groups G06F 19/00 and G16Z 99/00 should be considered in order to perform a complete search.*

- D G06F 19/10 · Bioinformatics, i.e. methods or systems for genetic or protein-related data processing in computational molecular biology (~~in silico~~ methods of screening virtual chemical libraries [C40B 30/02](#); ~~in silico~~ or mathematical methods of creating virtual chemical libraries [C40B 50/02](#))
- NOTES**
1. This group also ~~covers~~ bioinformatics methods or systems where digital data processing is inherent or implicit, but not explicitly mentioned.
  2. In this group, the following term is used with the meaning indicated:
    - "systems" include apparatus.
  3. In this group, the first place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.
- <administratively transferred to [G16B 99/00](#)>
- D G06F 19/12 · · for modelling or simulation in systems biology, e.g. probabilistic or dynamic models, gene-regulatory networks, protein interaction networks or metabolic networks  
<administratively transferred to [G16B 5/00](#)>

- D G06F 19/14
- for phylogeny or evolution, e.g. evolutionarily conserved regions determination or phylogenetic tree construction  
<administratively transferred to [G16B 10/00](#)>
- D G06F 19/16
- for molecular structure, e.g. structure alignment, structural or functional relations, protein folding, domain topologies, drug targeting using structure data, involving two-dimensional or three-dimensional structures  
<administratively transferred to [G16B 15/00](#)>
- D G06F 19/18
- for functional genomics or proteomics, e.g. genotype-phenotype associations, linkage disequilibrium, population genetics, binding site identification, mutagenesis, genotyping or genome annotation, protein-protein interactions or protein-nucleic acid interactions  
<administratively transferred to [G16B 20/00](#)>
- D G06F 19/20
- for hybridisation or gene expression, e.g. microarrays, sequencing by hybridisation, normalisation, profiling, noise correction models, expression ratio estimation, probe design or probe optimisation  
<administratively transferred to [G16B 25/00](#)>
- D G06F 19/22
- for sequence comparison involving nucleotides or amino acids, e.g. homology search, motif or Single-Nucleotide Polymorphism [SNP] discovery or sequence alignment  
<administratively transferred to [G16B 30/00](#)>
- D G06F 19/24
- for machine learning, data mining or biostatistics, e.g. pattern finding, knowledge discovery, rule extraction, correlation, clustering or classification  
<administratively transferred to [G16B 40/00](#)>
- D G06F 19/26
- for data visualisation, e.g. graphics generation, display of maps or networks or other visual representations  
<administratively transferred to [G16B 45/00](#)>
- D G06F 19/28
- for programming tools or database systems, e.g. ontologies, heterogeneous data integration, data warehousing or computing architectures  
<administratively transferred to [G16B 50/00](#)>
- G06F 19/30  
(Frozen)
- {Medical informatics, i.e. computer-based analysis or dissemination of patient or disease data (~~bioinformatics G06F 19/10~~; measuring for diagnostic purposes [A61B 5/00](#); recognising patterns in biomedical signals [G06K 9/00496](#); data processing systems or methods specially adapted for administrative or managerial aspects of healthcare or welfare [G06Q 50/22](#))}
- WARNING**
- Group [G06F 19/30](#) is no longer used for the classification of documents as of January 1, 2018. The content of this group is being reclassified into groups [G16H 10/00](#) – [G16H 80/00](#).  
Groups [G06F 19/30](#) and [G16H 10/00](#) – [G16H 80/00](#) should be considered in order to perform a complete search.
- D G06F 19/70
- {Chemoinformatics, i.e. data processing methods or systems for the retrieval, analysis, visualisation, or storage of physicochemical or structural data of chemical compounds (~~in silico methods of screening virtual chemical libraries C40B 30/02; in silico or mathematical methods of creating virtual chemical libraries C40B 50/02; computer-aided design per se G06F 17/50; bioinformatics G06F 19/10; processing of 2D or 3D images G06T~~)}
- <administratively transferred to [G16C 99/00](#)>
- D G06F 19/701
- {for molecular modelling, e.g. calculation and theoretical details of quantum mechanics, molecular mechanics, molecular dynamics, Monte Carlo methods, conformational analysis or the like (molecular modelling of nucleic acids or proteins G06F 19/16)}
- <administratively transferred to [G16C 10/00](#)>

- D G06F 19/702
- {for analysis and planning of chemical reactions and syntheses, e.g. synthesis design, reaction prediction, mechanism elucidation}  
<administratively transferred to [G16C 20/10](#)>
- D G06F 19/703
- {for computer-assisted identification of chemical compounds or molecular structures, e.g. computer-assisted structure elucidation [CASE] systems}  
<administratively transferred to [G16C 20/20](#)>
- D G06F 19/704
- {for prediction of properties of compounds, e.g. calculating and selecting molecular descriptors, details related to the development of SAR/QSAR/QSPR models, ADME/Tox models or PK/PD models}  
<administratively transferred to [G16C 20/30](#)>
- D G06F 19/705
- {for database search of chemical structures, e.g. full structure search, substructure search, similarity search, pharmacophore search, 3D structure search (information retrieval in general **G06F17/30**)}  
<administratively transferred to [G16C 20/40](#)>
- D G06F 19/706
- {for drug design with the emphasis on a therapeutic agent, e.g. ligand-biological target interactions, pharmacophore generation (drug targeting using protein structure data G06F 19/16; binding site identification G06F 19/18)}  
<administratively transferred to [G16C 20/50](#)>
- D G06F 19/707
- {using machine learning, data mining or chemometrics, e.g. pattern recognition, knowledge discovery, rule extraction, correlation, clustering or classification, chemical name to structure conversion (use of machine learning, data mining or biostatistics for processing genetic or protein-related data G06F 19/24)}  
<administratively transferred to [G16C 20/70](#)>
- D G06F 19/708
- {for data visualisation, e.g. molecular structure representations, graphics generation, display of maps or networks or other visual representations (data visualisation specially adapted for processing genetic or protein-related data G06F 19/26)}  
<administratively transferred to [G16C 20/80](#)>
- D G06F 19/709
- {for programming tools or database systems, e.g. ontologies, heterogeneous data integration, data warehousing or computing architectures (programming tools or database systems specially adapted for processing genetic or protein-related data G06F 19/28)}  
<administratively transferred to [G16C 20/90](#)>

**Project: MP0393 (G06F)**

- U G06F 21/00 Security arrangements for protecting computers, components thereof, programs or data against unauthorised activity**
- U G06F 21/10
- Protecting distributed programs or content, e.g. vending or licensing of copyrighted material
- M G06F 21/16
- Program or content traceability, e.g. by watermarking (~~digital watermarking on images H04N 1/32~~)

**Project: RP0573 (G06K)**

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 16/00](#); ~~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](#) - [G06K 9/00852](#). The CPC subgroups in the range [G06K 9/00006](#) - [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](#)

**Project: RP0573 (G06Q)**

U G06Q 50/00

**Systems or methods specially adapted for specific business sectors, e.g. utilities or tourism (healthcare informatics [G16H](#))**

U G06Q 50/10

- Services

U G06Q 50/22

- Social work

WARNING

Group [G06Q 50/22](#) is impacted by reclassification into groups [G06Q 50/22](#) and [G16H 10/00](#) – [G16H 80/00](#).

Groups [G06Q 50/22](#) and [G16H 10/00](#) – [G16H 80/00](#) should be considered in order to perform a complete search.

G06Q 50/24  
(Frozen)

- Patient record management (~~processing of medical or biological data for scientific purposes G06F 19/00~~)

WARNING

Group [G06Q 50/24](#) is no longer used for the classification of documents as of January 1, 2018. The content of this group is being reclassified into groups [G16H 10/00](#) – [G16H 80/00](#).

Groups [G06Q 50/24](#) and [G16H 10/00](#) – [G16H 80/00](#) should be considered in order to perform a complete search.

**Project: RP0565 (G07F)**

U G07F 15/00

**Coin-freed apparatus with meter-controlled dispensing of liquid, gas or electricity (tariff-metering apparatus in general [G01D 4/00](#))**

U G07F 15/003

- {for electricity}

G07F 15/005

- {dispensed for the electrical charging of vehicles (electrical charging as such, ~~B60L 11/00~~[B60L 50/00](#))}

**Project: RP0573 (G07F)**

- U G07F 17/00** **Coin-freed apparatus for hiring articles; Coin-freed facilities or services**  
 G07F 17/0092 · {for assembling and dispensing of pharmaceutical articles (medical dispensers for private use, [A61J 7/00](#); ~~data processing for medical purposes G06F 19/00~~)}

**Project: RP0573 (G16)**

- M G16** **INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR SPECIFIC APPLICATION FIELDS**

NOTES

1. This subclass does not cover:
  - a. pattern recognition, which is covered by group [G06K 9/00](#);
  - b. digital computing or data processing systems or methods specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes, which are covered by subclass [G06Q](#);
  - c. image data processing or generation, which is covered by subclass [G06T](#).
2. In this ~~subclass~~class, the following terms or expressions are used with the meaning indicated:
  - a. ICT [information and communication technology] also covers IT [information technology]; ~~means~~
  - b. "ICT specially adapted for" also covers the expression "digital computing or data processing systems or methods specially adapted for", which is used in group ~~G06F 19/00~~[G06F 17/00](#) and in subclass [G06Q](#).

**Project: RP0573 (G16B)**

- N G16B** **BIOINFORMATICS, i.e. INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR GENETIC OR PROTEIN-RELATED DATA PROCESSING IN COMPUTATIONAL MOLECULAR BIOLOGY**

- Q G16B 5/00** **ICT specially adapted for modelling or simulations in systems biology, e.g. gene-regulatory networks, protein interaction networks or metabolic networks**

WARNING

Groups [G16B 5/00](#), [G16B 5/10](#), [G16B 5/20](#), [G16B 5/30](#) are incomplete pending reclassification of documents from group [G16B 99/00](#).

Group [G16B 5/00](#) is also impacted by reclassification into groups [G16B 5/10](#), [G16B 5/20](#), and [G16B 5/30](#).

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

- N G16B 5/10** · Boolean models  
**N G16B 5/20** · Probabilistic models  
**N G16B 5/30** · Dynamic-time models

- N G16B 10/00** **ICT specially adapted for evolutionary bioinformatics, e.g. phylogenetic tree construction or analysis**

WARNING

Group [G16B 10/00](#) is incomplete pending reclassification of documents from group [G16B 99/00](#).

Groups [G16B 99/00](#) and [G16B 10/00](#) should be considered in order to perform a complete search.

- Q G16B 15/00** **ICT specially adapted for analysing two-dimensional or three-dimensional molecular structures, e.g. structural or functional relations or structure alignment**
- WARNING  
 Groups [G16B 15/00](#), [G16B 15/10](#), [G16B 15/20](#), [G16B 15/30](#) are incomplete pending reclassification of documents from group [G16B 99/00](#).  
 Group [G16B 15/00](#) is also impacted by reclassification into groups [G16B 15/10](#), [G16B 15/20](#), and [G16B 15/30](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N G16B 15/10      · Nucleic acid folding
- N G16B 15/20      · Protein or domain folding
- N G16B 15/30      · Drug targeting using structural data; Docking or binding prediction
- Q G16B 20/00** **ICT specially adapted for functional genomics or proteomics, e.g. genotype-phenotype associations**
- WARNING  
 Groups [G16B 20/00](#), [G16B 20/10](#), [G16B 20/20](#), [G16B 20/30](#), [G16B 20/40](#), [G16B 20/50](#) are incomplete pending reclassification of documents from group [G16B 99/00](#).  
 Group [G16B 20/00](#) is also impacted by reclassification into groups [G16B 20/10](#), [G16B 20/20](#), [G16B 20/30](#), [G16B 20/40](#), and [G16B 20/50](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N G16B 20/10      · Ploidy or copy number detection
- N G16B 20/20      · Allele or variant detection, e.g. single nucleotide polymorphism [SNP] detection
- N G16B 20/30      · Detection of binding sites or motifs
- N G16B 20/40      · Population genetics; Linkage disequilibrium
- N G16B 20/50      · Mutagenesis
- Q G16B 25/00** **ICT specially adapted for hybridisation; ICT specially adapted for gene or protein expression**
- WARNING  
 Groups [G16B 25/00](#), [G16B 25/10](#), [G16B 25/20](#), [G16B 25/30](#) are incomplete pending reclassification of documents from group [G16B 99/00](#).  
 Group [G16B 25/00](#) is also impacted by reclassification into groups [G16B 25/10](#), [G16B 25/20](#), and [G16B 25/30](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- N G16B 25/10      · Gene or protein expression profiling; Expression-ratio estimation or normalisation
- N G16B 25/20      · Polymerase chain reaction [PCR]; Primer or probe design; Probe optimisation
- N G16B 25/30      · Microarray design
- Q G16B 30/00** **ICT specially adapted for sequence analysis involving nucleotides or amino acids**
- WARNING  
 Groups [G16B 30/00](#), [G16B 30/10](#), [G16B 30/20](#) are incomplete pending reclassification of documents from group [G16B 99/00](#).  
 Group [G16B 30/00](#) is also impacted by reclassification into groups [G16B 30/10](#), and [G16B 30/20](#).

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

N G16B 30/10      · Sequence alignment; Homology search

N G16B 30/20      · Sequence assembly

**Q G16B 35/00**      **ICT specially adapted for *in silico* combinatorial libraries of nucleic acids, proteins or peptides**

WARNING

Groups [G16B 35/00](#), [G16B 35/10](#), [G16B 35/20](#) are incomplete pending reclassification of documents from group [G16B 99/00](#).

Group [G16B 35/00](#) is also impacted by reclassification into groups [G16B 35/10](#), and [G16B 35/20](#).

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

N G16B 35/10      · Design of libraries

N G16B 35/20      · Screening of libraries

**Q G16B 40/00**      **ICT specially adapted for biostatistics; ICT specially adapted for bioinformatics-related machine learning or data mining, e.g. knowledge discovery or pattern finding**

WARNING

Groups [G16B 40/00](#), [G16B 40/10](#), [G16B 40/20](#), [G16B 40/30](#) are incomplete pending reclassification of documents from group [G16B 99/00](#).

Group [G16B 40/00](#) is also impacted by reclassification into groups [G16B 40/10](#), [G16B 40/20](#), and [G16B 40/30](#).

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

N G16B 40/10      · Signal processing, e.g. from mass spectrometry [MS] or from PCR

N G16B 40/20      · Supervised data analysis

N G16B 40/30      · Unsupervised data analysis

**N G16B 45/00**      **ICT specially adapted for bioinformatics-related data visualisation, e.g. displaying of maps or networks**

**Q G16B 50/00**      **ICT programming tools or database systems specially adapted for bioinformatics**

WARNING

Groups [G16B 50/00](#), [G16B 50/10](#), [G16B 50/20](#), [G16B 50/30](#), [G16B 50/40](#), [G16B 50/50](#) are incomplete pending reclassification of documents from group [G16B 99/00](#).

Group [G16B 50/00](#) is also impacted by reclassification into groups [G16B 50/10](#), [G16B 50/20](#), [G16B 50/30](#), [G16B 50/40](#) and [G16B 50/50](#).

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

N G16B 50/10      · Ontologies; Annotations

N G16B 50/20      · Heterogeneous data integration

N G16B 50/30      · Data warehousing; Computing architectures

N G16B 50/40      · Encryption of genetic data

N G16B 50/50      · Compression of genetic data

**Q G16B 99/00** **Subject matter not provided for in other groups of this subclass**

WARNING

Group [G16B 99/00](#) is impacted by reclassification into groups [G16B 5/00](#), [G16B 5/10](#), [G16B 5/20](#), [G16B 5/30](#), [G16B 10/00](#), [G16B 15/00](#), [G16B 15/10](#), [G16B 15/20](#), [G16B 15/30](#), [G16B 20/00](#), [G16B 20/10](#), [G16B 20/20](#), [G16B 20/30](#), [G16B 20/40](#), [G16B 20/50](#), [G16B 25/00](#), [G16B 25/10](#), [G16B 25/20](#), [G16B 25/30](#), [G16B 30/00](#), [G16B 30/10](#), [G16B 30/20](#), [G16B 35/00](#), [G16B 35/10](#), [G16B 35/20](#), [G16B 40/00](#), [G16B 40/10](#), [G16B 40/20](#), [G16B 40/30](#), [G16B 45/00](#), [G16B 50/00](#), [G16B 50/10](#), [G16B 50/20](#), [G16B 50/30](#), [G16B 50/40](#), and [G16B 50/50](#).

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

**Project: RP0573 (G16C)**

**N G16C** **COMPUTATIONAL CHEMISTRY; CHEMOINFORMATICS; COMPUTATIONAL MATERIALS SCIENCE**

**N G16C 10/00** **Computational theoretical chemistry, i.e. ICT specially adapted for theoretical aspects of quantum chemistry, molecular mechanics, molecular dynamics or the like**

WARNING

Group [G16C 10/00](#) is incomplete pending reclassification of documents from group [G16C 99/00](#).

Groups [G16C 99/00](#) and [G16C 10/00](#) should be considered in order to perform a complete search.

**N G16C 20/00** **Chemoinformatics, i.e. ICT specially adapted for the handling of physicochemical or structural data of chemical particles, elements, compounds or mixtures**

WARNING

Groups [G16C 20/00](#) – [G16C 20/50](#), [G16C 20/70](#) – [G16C 20/90](#) are incomplete pending reclassification of documents from group [G16C 99/00](#).

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

- N G16C 20/10      • Analysis or design of chemical reactions, syntheses or processes
- N G16C 20/20      • Identification of molecular entities, parts thereof or of chemical compositions
- N G16C 20/30      • Prediction of properties of chemical compounds, compositions or mixtures
- N G16C 20/40      • Searching chemical structures or physicochemical data
- N G16C 20/50      • Molecular design, e.g. of drugs
- Q G16C 20/60      • *In silico* combinatorial chemistry

WARNING

Group [G16C 20/60](#) is incomplete pending reclassification of documents from group [G16C 99/00](#).

Group [G16C 20/60](#) is also impacted by reclassification into groups [G16C 20/62](#) and [G16C 20/64](#).

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

- N G16C 20/62      • • Design of libraries
- N G16C 20/64      • • Screening of libraries
- N G16C 20/70      • Machine learning, data mining or chemometrics
- N G16C 20/80      • Data visualisation

- N G16C 20/90 · Programming languages; Computing architectures; Database systems; Data warehousing
- N G16C 60/00 **Computational materials science, i.e. ICT specially adapted for investigating the physical or chemical properties of materials or phenomena associated with their design, synthesis, processing, characterisation or utilisation**  
**WARNING**  
 Group [G16C 60/00](#) is incomplete pending reclassification of documents from group [G16C 99/00](#).  
 Groups [G16C 99/00](#) and [G16C 60/00](#) should be considered in order to perform a complete search.
- Q G16C 99/00 **Subject matter not provided for in other groups of this subclass**  
**WARNING**  
 Group [G16C 99/00](#) is impacted by reclassification into groups [G16C 10/00](#), [G16C 20/00](#), [G16C 20/10](#), [G16C 20/20](#), [G16C 20/30](#), [G16C 20/40](#), [G16C 20/50](#), [G16C 20/60](#), [G16C 20/62](#), [G16C 20/64](#), [G16C 20/70](#), [G16C 20/80](#), [G16C 20/90](#), and [G16C 60/00](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.

**Project: RP0573 (G16Z)**

- N G16Z **INFORMATION AND COMMUNICATION TECHNOLOGY [ICT] SPECIALLY ADAPTED FOR SPECIFIC APPLICATION FIELDS, NOT OTHERWISE PROVIDED FOR**
- N G16Z 99/00 **Subject matter not provided for in other main groups of this subclass**  
**WARNING**  
 Group [G16Z 99/00](#) is incomplete pending reclassification of documents from group [G06F 19/00](#).  
 Groups [G06F 19/00](#) and [G16Z 99/00](#) should be considered in order to perform a complete search.

**Project: RP0566 (G21F)**

- U G21F 3/00 **Shielding characterised by its physical form, e.g. granules, or shape of the material**
- M G21F 3/02 · Clothing (~~protective garments in general A41D 13/00~~)

**Project: RP0568 (H01B)**

- U H01B 13/00 **Apparatus or processes specially adapted for manufacturing conductors or cables**
- U H01B 13/06 · Insulating conductors or cables ([H01B 13/32](#) takes precedence)
- H01B 13/14 · · by extrusion {(extrusion in general ~~B29C 47/00~~ [B29C 48/00](#))}
- U H01B 13/22 · Sheathing; Armouring; Screening; Applying other protective layers ([H01B 13/32](#) takes precedence)
- H01B 13/24 · · by extrusion {(extrusion of cables with plastic material in general ~~B29C 47/02~~ [B29C 48/15](#))}

**Project: RP0573 (H01J)****U H01J 49/00 Particle spectrometers 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 49/0027 · {Methods for using particle spectrometers}
- H01J 49/0036 · · {Step by step routines describing the handling of the data generated during a measurement (recognising patterns in signals [G06K 9/00496](#); ~~bioinformatics~~ [G06F 19/10](#))}

**Project: RP0557 (H01R)****M H01R**

**LINE CONNECTORS ELECTRICALLY-CONDUCTIVE CONNECTIONS; STRUCTURAL ASSOCIATIONS OF A PLURALITY OF MUTUALLY-INSULATED ELECTRICAL CONNECTING ELEMENTS; COUPLING DEVICES; CURRENT COLLECTORS (switches, fuses H01H; coupling devices of the waveguide type H01P 5/00; switching arrangements for the supply or distribution of electric power H02B; installations of electric lines, cables or auxiliary apparatus H02G; printed means for providing electric connections to or between printed circuits H05K)**

NOTES

1. This subclass covers:

- all kinds of contact-making disconnectible and non-disconnectible electric line connectors, coupling devices, lamp or similar holders or current collectors for all kinds of electric lines, cables or apparatus;
- non-printed means for electric connections to or between printed circuits.

2. This subclass does not cover mounting of connections in or specified apparatus. Such mounting is covered by the relevant subclass for such apparatus, e.g. mounting in junction or distribution boxes is covered by subclass [H02B](#) or [H02G](#), high-temperature connections for heating elements is covered by group [H05B 3/08](#). Structural association of one part of a two-part coupling device with specific electric apparatus is classified with the apparatus e.g. association of cap with incandescent lamp is covered by subclass [H01K](#).

3. *In this subclass, the following expressions are used with the meaning indicated:*

- "pin" is a rigid or flexible conductor for engagement with an appropriately shaped socket to establish contact therewith;
- "socket" is a rigid or flexible conductor for receiving an appropriate pin to establish electrical contact therewith;
- "coupling devices" are devices having two or more parts specially adapted so as to be capable of ready and repeated physical engagement or disengagement, without the use of a tool, for the purpose of establishing or breaking an electrical path. Examples of such devices having more than two parts are:
  - a. adapters for linking two coupling parts;

*b. rails or bus-bars provided with a plurality of discrete connecting locations for counterparts.*

*4. General details are classified in groups H01R 4/00, H01R 9/00, H01R 11/00.*

~~3-5.~~ {In this subclass, a contact in a coupling device is **only** regarded as an additional earth contact **only** if this contact is clearly designed for that purpose.}

~~4. General details are classified in groups H01R 4/00, H01R 9/00, H01R 11/00.~~

#### WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

- U H01R 3/00**      **Electrically-conductive connections not otherwise provided for**
- M H01R 3/08      • for making connection to a liquid ~~{{(slip rings with liquid contacts H01R 39/30, H01R 39/646; H01R 39/646); electrodes for batteries or accumulators H01M}}~~
- M H01R 4/00**      **Electrically-conductive connections between two or more conductive members in direct contact and means for effecting or maintaining such contact, i.e. touching one another**~~(details of disengageable contacts of two-part coupling devices H01R 13/00; two-part coupling devices H01R 12/70, H01R 24/00 - H01R 33/00; flexible or turnable line connectors H01R 35/00; non rotary current collectors H01R 41/00); Means for effecting or maintaining such contact; Electrically-conductive connections having two or more spaced connecting locations for conductors and using contact members penetrating insulation~~
- U H01R 4/28      • Clamped connections, spring connections (made by means of terminals specially adapted for contact with, or insertion into, printed circuits [H01R 12/00](#))
- U H01R 4/30      • • utilising a screw or nut clamping member ([H01R 4/50](#) takes precedence; utilising a clamping member acted on by screw or nut [H01R 4/38](#); {for coaxial cables [H01R 9/0521](#)})
- M H01R 4/301      • • • {having means for preventing complete unscrewing of screw or nut ~~(measures against loss of bolt or nut in general F16B 41/002)}~~
- M H01R 4/302      • • • {having means for preventing loosening of screw or nut, e.g. vibration-proof connection ~~(locking of screw or nut in general F16B 39/00 and subgroups)}~~
- M H01R 4/307      • • • {characterised by the thread of the screw or nut ~~(shapes of thread, special thread forms F16B 33/02)}~~
- U H01R 4/70      • Insulation of connections (end caps [H01R 4/22](#))
- M H01R 4/72      • • using a heat shrinking insulating sleeve ~~(heat recoverable plastics B29C 61/00)~~
- M H01R 9/00**      **Connectors and connecting arrangements providing *Structural associations of a plurality of mutually -insulated connections electrical connecting elements, e.g. terminal strips or terminal blocks*; Terminals or binding posts mounted upon a base or in a case; *Terminal strips Bases therefor*; Terminal blocks (details of direct connections or connections using contact members penetrating insulation H01R 4/00; {individual connecting parts H01R 11/00;} specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures H01R 12/00; coupling devices H01R 12/70, H01R 24/00-H01R 33/00; flexible or turnable line connectors H01R 35/00)**
- U H01R 9/03      • Connectors arranged to contact a plurality of the conductors of a multiconductor cable {, e.g. tapping connections}

- F H01R 9/032  
(Frozen)
- • {for shielded multiconductor cable (coaxial cables with one conductor surrounded by shield [H01R 9/05](#); flat shielded cables [H01R 12/594](#))}
- WARNING**  
This group and *Groups H01R 9/032-H01R 9/038* it subgroups are no longer used for the classification of new documents as from January 1, 2011. The backlog content of *this group and its subgroups* these groups is being continuously reclassified to *into groups H01R 13/658 and its subgroups – H01R 13/6599.*  
*All groups listed in this Warning should be considered in order to perform a complete search.*
- F H01R 9/034  
(Frozen)
- • • {connection of the shield to an additional grounding conductor}
- F H01R 9/035  
(Frozen)
- • • {twisted pair surrounded by shield}
- F H01R 9/037  
(Frozen)
- • • {connection to shield by action of a resilient member}
- F H01R 9/038  
(Frozen)
- • • {each conductor being individually surrounded by shield}
- U H01R 9/05
- • for coaxial cables
- M H01R 9/0518
- • • {Connection to outer conductor by crimping or by crimping ferrule ~~(in general H01R 4/18)~~}
- M H01R 9/0521
- • • {Connection to outer conductor by action of a nut ~~(in general H01R 4/30)~~}
- M H01R 9/0524
- • • {Connection to outer conductor by action of a clamping member, e.g. screw fastening means ([H01R 9/0515](#) takes precedence; ~~in general H01R 4/38~~)}
- M H01R 9/0527
- • • {Connection to outer conductor by action of a resilient member, e.g. spring ~~(in general H01R 4/48)~~}
- D H01R 9/07
- • {for flat or ribbon cables or flexible printed circuits}
- WARNING**  
This group and it subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and it subgroups is being continuously reclassified to H01R 12/00, H01R 12/50 and their respective subgroups.  
<administratively transferred to [H01R 12/00](#)>
- D H01R 9/0707
- • • {with exposed conductor portions for connection}
- <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0714
- • • • {to another flat or ribbon cable or flexible printed circuit, e.g. by pressing contact areas against each other}
- <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0721
- • • • • {by means of interconnecting elements}
- <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0728
- • • • • {to a cable of another type, e.g. round section cable}
- <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0735
- • • • • {to conductive elements on a rigid planar substrate, e.g. to a printed circuit board}
- <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0742
- • • • • {to contact elements}
- <administratively transferred to [H01R 12/00](#)>
- D H01R 9/075
- • • {with contacts penetrating cable insulation for making contact with conductors, e.g. needle points ~~(in general H01R 4/24)~~}
- <administratively transferred to [H01R 12/00](#)>

- D H01R 9/0757
  - . . . {with contacts having at least a slotted plate for penetration of cable insulation, e.g. insulation displacement contacts for round conductor flat cables (in general H01R 4/2416)}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0764
  - . . . . {to another flat or ribbon cable or flexible printed circuit, e.g. tapping connection}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0771
  - . . . . {with permanent deformation of contacts, e.g. crimping contacts for rectangular conductor flat cables (in general H01R 4/2495)}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0778
  - . . . {for shielded flat cable}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0785
  - . . . . {connection of the shield to an additional grounding conductor}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/0792
  - . . . . {each conductor being individually surrounded by shield, e.g. multiple coaxial cables in flat structure}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/09
  - . {Connectors for printed circuits (printed connections to or between printed circuits H05K); Terminals, terminal strips, terminal blocks or bases for printed circuits}

**WARNING**

This group and its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to H01R 12/00, H01R 12/50 and their respective subgroups.

<administratively transferred to [H01R 12/00](#)>
- D H01R 9/091
  - . . {terminals for or connections to a printed circuit board (H01R 9/0515 takes precedence)}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/092
  - . . . {Terminals having a press fit or a compliant portion and a shank passing through a hole in the printed circuit board}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/093
  - . . . {Terminal blocks providing connections to wires or cables}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/095
  - . . . {Connections on the surface of the printed circuit}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/096
  - . . {Connections between two or more printed circuits}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/097
  - . . . {by an interconnection through aligned holes in the boards or multilayer board}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 9/098
  - . . . {the printed circuits being on the same board (with plated through holes H05K 3/42)}
  - <administratively transferred to [H01R 12/00](#)>
- M H01R 9/16
  - . Fastening of connecting parts to base or case; Insulating connecting parts from base or case (~~lead-through insulators H01B 17/26~~)
- U H01R 9/22
  - . Bases, e.g. strip, block, panel {(for printed circuits [H01R 12/50](#))}
- U H01R 9/24
  - . . Terminal blocks
- U H01R 9/26
  - . . . Clip-on terminal blocks for side-by-side rail- or strip-mounting
- M H01R 9/2691
  - . . . . {with ground wire connection to the rail (~~in general H01R 4/64~~)}

- M H01R 11/00** **Connectors providing two or more spaced connecting locations for conductive members which are thereby interconnected; End Individual connecting elements providing two or more spaced connecting locations for conductive members which are, or may be, thereby interconnected, e.g. end pieces for wires or cables; supported by the wire or cable and having means for facilitating electrical connection to some other wire, terminal, or conductive member; blocks of binding posts (connections between members in direct contact H01R 4/00; structural associations of a plurality of mutually-insulated electrical connecting elements H01R 9/00; coupling devices H01R 12/70, H01R 24/00-H01R 29/00, H01R 33/00; flexible or turnable line connectors H01R 35/00)**
- M H01R 11/11 · End pieces or tapping pieces for wires, supported by the wire and for facilitating electrical connection to some other wire, terminal or conductive member ([H01R 11/01](#) takes precedence; ~~for multiconductor cables H01R 9/11~~)
- M H01R 12/00** **Structural associations of a plurality of mutually-insulated electrical connecting elements, specially adapted for printed circuits, e.g. printed circuit boards [PCBs], flat or ribbon cables, or like generally planar structures, e.g. terminal strips, terminal blocks; Coupling devices specially adapted for printed circuits, flat or ribbon cables, or like generally planar structures; Terminals specially adapted for contact with, or insertion into, printed circuits, flat or ribbon cables, or like generally planar structures (printed connections to, or between, printed circuits [H05K 1/11](#))**
- WARNING**  
Not complete pending completion of a reclassification; see also groups H01R 9/07, H01R 9/09, H01R 23/66, H01R 23/68, H01R 23/70, H01R 23/72 and their respective subgroups
- M H01R 12/50 · Fixed connections
- WARNING**  
~~This group and its subgroups are not complete pending completion of a reclassification; see also groups H01R 9/07, H01R 9/09 and their respective subgroups~~
- U H01R 12/59 · · for flexible printed circuits, flat or ribbon cables or like structures
- U H01R 12/61 · · · connecting to flexible printed circuits, flat or ribbon cables or like structures
- U H01R 12/613 · · · · {by means of interconnecting elements}
- M H01R 12/616 · · · · · {having contacts penetrating insulation for making contact with conductors, e.g. needle points (~~in general H01R 4/24~~)}
- U H01R 12/65 · · · characterised by the terminal
- U H01R 12/67 · · · · insulation penetrating terminals
- M H01R 12/675 · · · · · {with contacts having at least a slotted plate for penetration of cable insulation, e.g. insulation displacement contacts for round conductor flat cables (~~in general H01R 4/2416~~)}
- M H01R 12/70 · Coupling devices
- WARNING**  
~~This group and its subgroups are not complete pending completion of a reclassification; see also groups H01R 23/66, H01R 23/68, H01R 23/70, H01R 23/72 and their respective subgroups~~
- M H01R 12/7076 · · {for connection between PCB and component, e.g. display (~~plugging components in general H05K 7/10~~)}
- U H01R 12/71 · · for rigid printing circuits or like structures
- U H01R 12/72 · · · coupling with the edge of the rigid printed circuits or like structures

- U H01R 12/73           · · · · connecting to other rigid printed circuits or like structures
- U H01R 12/735       · · · · · {Printed circuits including an angle between each other}
- M H01R 12/737       · · · · · {Printed circuits being substantially perpendicular to each other  
(~~for printed connections H05K 3/366 takes precedence~~ *for printed connections H05K 3/366*)}
- U H01R 12/77       · · for flexible printed circuits, flat or ribbon cables or like structures
- U H01R 12/771       · · · {Details}
- M H01R 12/775       · · · · {Ground or shield arrangements (~~in general H01R 13/658~~)}
- M H01R 13/00**       **Details of coupling devices of the kinds covered by groups [H01R 12/70](#) or [H01R 24/00](#) - [H01R 33/00](#) (~~electro-optical connectors G02B 6/24~~)**
- U H01R 13/02       · Contact members
- M H01R 13/193       · · Means for increasing contact pressure at the end of engagement of coupling part {, e.g. zero insertion force or no friction (~~combined with printed circuit boards H01R 23/6813~~)}
- M H01R 13/35       · · for non-simultaneous co-operation with different types of contact member, e.g. socket co-~~operation~~ *operating* with either round or flat pin (~~H01R 27/00 takes precedence~~)}
- M 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 13/5804      · · {comprising a separate cable clamping part ([H01R 13/5841](#) takes precedence)}
- M H01R 13/5816      · · · {for cables passing through an aperture in a housing wall, the separate part being captured between cable and contour of aperture (~~in general H01B 17/586~~)}
- M H01R 13/646       · specially adapted for high-frequency, e.g. structures providing an impedance match or phase match (non-coaxed protective earth or shield arrangements [H01R 13/648](#) -[H01R 13/6599](#); coaxial connectors specifically adapted for high frequency [H01R 24/40](#)- [H01R 24/56](#))

**WARNING**

This group and its subgroups are not complete pending completion of a reclassification, see also [H01R 9/035](#), [H01R 13/6658](#), [H01R 24/44](#), ~~[H01R 23/005](#)~~ [H01R 24/00](#) , ~~[H01R 23/6873](#)~~ [H01R 12/00](#) , ~~[H01R 23/688](#)~~

- U H01R 13/648       · Protective earth or shield arrangements on coupling devices (coaxially arranged shields [H01R 24/38](#) ){, e.g. anti-static shielding}
- M H01R 13/658       · · High frequency shielding arrangements, e.g. against EMI [Electro-Magnetic Interference] or EMP [Electro-Magnetic Pulse] {(coaxial coupling devices specially adapted for high frequency [H01R 24/40](#); for flat or ribbon cable connectors [H01R 12/774](#); for coaxial cable [H01R 9/05](#))}

**WARNING**

~~This group is~~ *Groups H01R 13/658 not complete – H01R 13/6599 are incomplete* pending reclassification, ~~see also~~ *of documents from groups [H01R 9/032](#), [H01R 13/658](#), [H01R 23/6873](#) and their respective subgroups – [H01R 9/038](#).*

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

- D H01R 13/65802
- • • {with resilient grounding means}
- WARNING  
This group is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group is being continuously reclassified to H01R 13/6582 and H01R 13/6583
- <administratively transferred to [H01R 13/658](#)>
- D H01R 13/65805
- • • {using dielectric material made conductive, e.g. plastics material coated with metal}
- WARNING  
This group is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group is being continuously reclassified to H01R 13/6599
- <administratively transferred to [H01R 13/658](#)>
- D H01R 13/65807
- • • {and comprising shielding between neighboring signal paths}
- WARNING  
This group is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group is being continuously reclassified to H01R 13/6585 and H01R 13/6586
- <administratively transferred to [H01R 13/658](#)>
- D 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 1, 2011. The backlog of this group is being continuously reclassified to H01R 24/00 and its subgroups. See also H01R 2107/00 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.
- <administratively transferred to [H01R 24/00](#)>
- D H01R 23/005
- {comprising means for reducing cross-talk, e.g. special layout of conductors between input and output pins (by shielding of neighboring signal paths H01R 13/65807, H01R 23/688; twisted pair cables H01B 11/02; in-line transmission systems H04B 3/32; ground circuit layout on printed circuit boards H05K 9/0039)}
- WARNING  
This group is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group is being continuously reclassified to H01R 13/6461, H01R 13/6473 and their respective subgroups
- <administratively transferred to [H01R 24/00](#)>
- D H01R 23/02
- {having parallelly-arranged contacts for sliding engagement with their counter-contacts}
- WARNING  
This group and its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to H01R 24/00 and its subgroups. See also H01R 2107/00 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.
- <administratively transferred to [H01R 24/00](#)>

- D H01R 23/025
- {sliding engagement on one side only, e.g. modular jack type}  
<administratively transferred to [H01R 24/00](#)>
- D H01R 23/10
- {wherein one coupling part is secured to wire or cable and the other part is secured to apparatus or structure}  
<administratively transferred to [H01R 24/00](#)>
- D H01R 23/26
- {having concentrically or coaxially arranged contacts}
- WARNING  
This group is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group is being continuously reclassified to H01R 24/38 and its subgroups. See also H01R 2107/00 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.  
<administratively transferred to [H01R 24/00](#)>
- D H01R 23/27
- {Hermaphroditic coupling devices (hermaphroditic contact members H01R 13/28)}
- WARNING  
This group is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group is being continuously reclassified to H01R 24/84  
<administratively transferred to [H01R 24/84](#)>
- D H01R 23/66
- {for connection to or between flat or ribbon cables}
- WARNING  
This group and its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to H01R 12/00, H01R 12/70 and their respective subgroups.  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/661
- {Details, e.g. strain-relieving means, retainers}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/662
- • {Earth or shield arrangements (in general H01R 13/648)}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/664
- {Coupling parts carrying pins, blades or analogous contacts (H01R 23/667, H01R 23/668 take precedence)}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/665
- {Coupling parts carrying sockets, clips or analogous countercontacts (H01R 23/667, H01R 23/668 take precedence)}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/667
- {for connection of flat or ribbon cables between each other, e.g. adaptors}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/668
- {for connection of flat or ribbon cables to a printed circuit board}  
<administratively transferred to [H01R 12/00](#)>
- D 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 its subgroups is no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to H01R 12/00, H01R 12/70 and their respective subgroups.  
<administratively transferred to [H01R 12/00](#)>

- D H01R 23/6806
  - • {for connection between PCB and component, e.g. display (plugging components in general H05K 7/10)}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6813
  - • {with low or zero insertion force}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/682
  - • • {and with pivoting of PCB after insertion}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6826
  - • • {Contact pressure producing means activated after insertion of PCB}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6833
  - • • • {acting linearly (H01R 23/6846, H01R 23/6853 and H01R 23/686 take precedence)}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/684
  - • • • {acting by rotation or by pivoting (H01R 23/6846, H01R 23/6853 and H01R 23/686 take precedence)}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6846
  - • • • {acting automatically by insertion of PCB}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6853
  - • • • {fluid activated}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/686
  - • • • {activated by shape memory material}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6866
  - • {Arrangements for power supply bus-bars}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6873
  - • {adapted for high frequency}
  - WARNING
  - This group and its subgroups are no longer used for the classification of new documents as from January 1, 2011. The backlog of this group and its subgroups is being continuously reclassified to H01R 13/646, H01R 13/658 and their respective subgroups
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/688
  - • • {and comprising shielding between neighboring signal paths}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6886
  - • {Coupling parts supported only by cooperation with PCB}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/6893
  - • {Connectors for contacting one or more arrays of pins or sockets mounted on a PCB (counterparts presenting such arrays H01R 23/7073)}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/70
  - • {co-operating with the edge of the printed circuit or with a counterpart provided on the edge of the printed circuit (H01R 23/6813 takes precedence); Counterparts therefor; Special features of the edge of the board}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/7005
  - • • {Guiding, mounting, polarizing or locking means; Extractors (for printed circuit boards H05K)}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/701
  - • • • {locking or fixing a connector to a PCB}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/7015
  - • • • • {Snap means}
  - <administratively transferred to [H01R 12/00](#)>
- D H01R 23/7021
  - • • • • {integral with the coupling device}
  - <administratively transferred to [H01R 12/00](#)>

- D H01R 23/7026 . . . . . {not integral with the coupling device}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7031 . . . . . {involving non-elastic deformation, e.g. plastic deformation, melting  
(H01R 23/7057 takes precedence)}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7036 . . . . . {Gluing or taping}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7042 . . . . . {with a fastener through a screw hole in the coupling device}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7047 . . . . . {characterised by the locating members}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7052 . . . . . {characterised by the movement, e.g. pivoting, camming or translating  
parallel to the PCB}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7057 . . . . . {Press fitting}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7063 . . . . . {Soldering or welding}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7068 . . . {cooperating directly with the edge of the PCB}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7073 . . . {Counterparts, e.g. containing pins forming a right angle, mounted on the  
edge of the PCB}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7078 . . . . . {Counterparts presenting a contact carrying strip, e.g. edge-like strip}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7084 . . . . . {Counterparts presenting arrays of sockets}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7089 . . . . . {Contact members without an insulating housing provided on the edge of  
the PCB}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/7094 . . . {with switch operated by engagement of PCB}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/72 . . . {co-operating with the surface of the printed circuit or with a counterpart  
provided on the surface of the printed circuit (H01R 23/6813, H01R 23/70  
take precedence)}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/722 . . . {with contacts abutting directly the printed circuit; Button contacts therefor  
provided on the printed circuit}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/725 . . . {Counterparts provided on the PCB}  
<administratively transferred to [H01R 12/00](#)>
- D H01R 23/727 . . . . . {Contact members provided on the PCB without an insulating housing  
(contacts for abutting H01R 23/722)}  
<administratively transferred to [H01R 12/00](#)>

- M H01R 24/00** Two-part coupling devices, or either of their cooperating parts, characterised by their overall structure ~~(specially adapted for printed circuits, flat or ribbon cables, or like structures H01R 12/00; specially adapted for supporting apparatus H01R 33/00)~~
- NOTE  
In this group, it is desirable to add the indexing codes of groups [H01R 2101/00](#) - [H01R 2107/00](#)
- WARNING  
This group and its subgroups are not complete pending reclassification; see also groups H01R 2201/16, H01R 2201/16 and their respective subgroups, and H01R 23/00, H01R 23/26, H01R 23/27
- U H01R 25/00** Coupling parts adapted for simultaneous co-operation with two or more identical counterparts, e.g. for distributing energy to two or more circuits (supported only by co-operation with a counterpart [H01R 31/00](#); with a holder adapted for supporting apparatus to which its counterpart is attached [H01R 33/88](#))
- M H01R 25/14**
  - Rails or bus-bars constructed so that the counterparts can be connected thereto at any point along their length, ~~{e.g. track lighting systems}~~ (installation of bus bars H02G 5/00 supporting elements for lighting devices, displaceable along guiding elements and making electrical contact with conductors running along the guiding elements F21V 21/35)
- M H01R 25/16**
  - Rails or bus-bars provided with a plurality of discrete connecting locations for counterparts ~~{(protective tubings or conduits H02G 3/00; installations of bus-bars H02G 5/00)}~~
- U H01R 31/00** Coupling parts supported only by co-operation with counterpart
- M H01R 31/02**
  - Intermediate parts for distributing energy to two or more circuits in parallel, e.g. splitter (for linking coupling parts that cannot co-operated H01R 31/06; with a holder adapted for supporting apparatus to which its counterpart is attached [H01R 33/92](#))
- M H01R 31/08**
  - Short-circuiting members for bridging contacts in a counterpart ~~(insulating members for separating contacts in a counterpart H01H 27/04)~~
- M H01R 33/00** Coupling devices ~~in which a holder is specially~~ adapted for supporting apparatus ~~to and having one part acting as a holder providing support and electrical connection via a counterpart~~ which ~~its counterpart is attached~~ ~~structurally associated with the apparatus, e.g. lamp holders~~; Separate parts thereof ~~(structural association of counterpart with specific apparatus, see the relevant subclass for the apparatus)~~
- M H01R 35/00** Flexible or turnable line connectors, {, i.e. the rotation angle being limited} (rotary current collectors, distributors [H01R 39/00](#); ~~arrangement of these connectors in vehicle steering wheels B60R 16/027; arrangements of electric cables or lines between relatively movable parts H02G 11/00~~)
- M H01R 39/00** Rotary current collectors, distributors, or interrupters ~~(cam-operated switches H01H 19/00; structural association with dynamo-electric machine H02K 13/00)~~
- M H01R 43/00** Apparatus or processes specially adapted for manufacturing, assembling, maintaining, or repairing of line connectors or current ~~connectors~~ ~~collectors~~ or for joining electric conductors (of trolley lines [B60M 1/28](#); ~~joining cables H02G 1/14~~)
- M H01R 43/02**
  - for soldered or welded connections ~~(soldering or welding in general B23K)~~

- M H01R 43/28 · for wire processing before connecting to contact members-, *not provided for in groups H01R 43/02 - H01R 43/26* (H01R 43/02 – H01R 43/26 take precedence)

## Project: RP0567 (H02J)

- M H02J **CIRCUIT ARRANGEMENTS OR SYSTEMS FOR SUPPLYING OR DISTRIBUTING ELECTRIC POWER; SYSTEMS FOR STORING ELECTRIC ENERGY** ~~(for digital computers G06F 1/18; circuits or apparatus for the conversion of electric power, arrangements for control or regulation of such circuits or apparatus H02M; interrelated control of several motors; control of a prime-mover/generator combination H02P; control of high-frequency power H03L; additional use of power line or power network for transmission of information H04B)~~

## NOTES

- This subclass covers:
  - ac or dc mains or distribution networks;
  - circuit arrangements for battery supplies, including charging or control thereof, or coordinated supply from two or more sources of any kind;
  - circuit arrangements or systems for wireless supply or distribution of electric power.
- This subclass does not cover:
  - control of a single motor, generator or dynamo-electric converter, of the types covered by subclass [H01F](#) or [H02K](#), which is covered by subclass [H02P](#);
  - control of a single motor or generator, of the types covered by subclass [H02N](#), which is covered by that subclass.

## WARNINGS

- The following IPC groups are not in the CPC scheme. The subject matter for these IPC groups is classified in the following CPC groups:  
[H02J 7/10](#) covered by [H02J 7/0072](#)
- In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

- U H02J 1/00** **Circuit arrangements for dc mains or dc distribution networks**
- M H02J 1/02 · Arrangements for reducing harmonics or ripples ~~(in converters H02M 1/14)~~
- M H02J 1/10 · Parallel operation of dc sources ~~(involving batteries H02J 7/34)~~
- M H02J 1/14 · Balancing the load in a network ~~(by batteries H02J 7/34)~~
- U H02J 3/00** **Circuit arrangements for ac mains or ac distribution networks**
- M H02J 3/01 · Arrangements for reducing harmonics or ripples ~~(in converters H02M 1/12)~~
- M H02J 3/18 · Arrangements for adjusting, eliminating, or compensating reactive power in networks (for adjustment of voltage [H02J 3/12](#) [H02J 3/16](#); use of Petersen coils [H02H 9/08](#))
- M H02J 3/34 · Arrangements for transfer of electric power between networks of substantially different frequency ~~(frequency-convertors H02M)~~
- M H02J 9/00** **Circuit arrangements for emergency or *standby* power supply, e.g. for emergency lighting** ~~(with provision for charging standby battery H02J 7/00)~~
- M H02J 11/00** **Circuit arrangements for providing service supply to auxiliaries of stations in which electric power is generated, distributed, or converted** ~~(emergency or standby arrangements H02J 9/00)~~

**Project: RP0573 (H04L)**

- U H04L 29/00** Arrangements, apparatus, circuits or systems, not covered by a single one of groups [H04L 1/00](#) - [H04L 27/00](#) (interconnection of, or transfer of information or other signals between, memories, input/output devices or central processing units [G06F 13/00](#) ){contains provisionally no documents}
- U H04L 29/02** . Communication control (in satellite networks [H04B 7/185](#)); Communication processing ([H04L 29/12](#), [H04L 29/14](#) take precedence){contains provisionally no documents}
- U H04L 29/06** . . characterised by a protocol
- U H04L 29/08** . . . Transmission control procedure, e.g. data link level control procedure
- U H04L 29/08081** . . . . {Protocols for network applications (protocols for multimedia communication [H04L 29/06027](#); protocols for telewriting [H04L 29/06034](#); message switching systems [H04L 51/00](#))}
- H04L 29/08558** . . . . {adapted for proprietary or special purpose networking environments, e.g. medical networks, sensor networks, networks in a car (~~digital computing or data processing equipment or methods, specially adapted for specific applications~~ [G06F 19/00](#);-home automation networks [H04L 12/2803](#); total factory control characterised by the network communication [G05B 19/4185](#); games involving transmission [A63F 13/30](#))}
- U H04L 67/00** {Network-specific arrangements or communication protocols supporting networked applications (message switching systems [H04L 51/00](#); network management protocols [H04L 41/00](#); routing or path finding of packets in data switching networks [H04L 45/00](#); protocols for real-time multimedia communication [H04L 65/00](#); information retrieval [G06F 16/00](#); services or facilities specially adapted for wireless communication networks [H04W 4/00](#); network structures or processes for video distribution between server and client or between remote clients [H04N 21/00](#); exchange systems providing special services or facilities to subscribers involving telephonic communications [H04M 3/42](#); distributed information systems [G06F 9/00](#), [G06F 17/00](#); lower layer network functionalities which support application layer provisions [H04L 12/00](#))}

NOTES

## 1. This group covers:

1. Networking arrangements or communication protocols to support networked applications which occur at the abstract network layers 5 to 7 of the OSI layer model. The higher layers constitute the interface between the network and the computer applications that use the network to communicate.
2. Network-specific aspects of client-server applications as well as of networking arrangements supporting networked/distributed applications, e.g. data transport, scheduling. This group also covers specific networked application layer protocols, e.g. FTP, WAP, HTTP.

## 2. This group does not cover:

1. Distributed applications which are network-agnostic, i.e. distributed information systems for which the network functions are transparent. These field are covered, e.g. by [G06F 9/00](#), [G06F 17/00](#). Data switching network provisions in general and the lower layer network functionalities which support application layer provisions are covered by [H04L 12/00](#)

- H04L 67/12
- {adapted for proprietary or special purpose networking environments, e.g. medical networks, sensor networks, networks in a car or remote metering networks (~~digital computing or data processing equipment or methods, specially adapted for specific applications in healthcare or life sciences G06F 19/00~~; home automation networks [H04L 12/2803](#); total factory control characterised by the network communication [G05B 19/4185](#); games involving transmission systems [A63F 13/30](#))}
- U H04L 69/00** {Application independent communication protocol aspects or techniques in packet data networks (data switching networks [H04L 12/00](#); broadcast or multicast [H04L 12/18](#); network topologies, i.e. networks characterized by the path configuration, media access control [H04L 12/28](#); hybrid switching systems [H04L 12/64](#); gateways [H04L 12/66](#); network management [H04L 41/00](#); network monitoring or testing [H04L 43/00](#); routing of packets [H04L 45/00](#); flow control [H04L 47/10](#); packet switches and switching fabrics [H04L 49/00](#); intermediate storage or scheduling [H04L 49/90](#); message switching systems, e.g. email, [H04L 51/00](#); interconnection arrangements between CPUs, memories, or peripherals within a single computer [G06F 13/00](#); transmission systems [H04B](#); networks specially adapted for wireless communication [H04W](#))}
- U H04L 69/30
- {Definitions, standards or architectural aspects of layered protocol stacks}
- U H04L 69/32
- · {High level architectural aspects of 7-layer open systems interconnection [OSI] type protocol stacks}
- U H04L 69/322
- · · {Aspects of intra-layer communication protocols among peer entities or protocol data unit [PDU] definitions}
- H04L 69/329
- · · · {in the application layer, i.e. layer seven (network arrangements or network communication protocols for networked applications [H04L 67/00](#); ~~digital computing or data processing equipment or methods, specially adapted for specific applications G06F 19/00~~; data processing systems and methods specially adapted for administrative, commercial, financial or managerial purposes [G06Q](#))}

**Project: RP0557 (H05K)**

- U H05K 1/00 Printed circuits**
- U H05K 1/02
- Details
- U H05K 1/14
- · Structural association of two or more printed circuits (providing electric connection to or between printed circuits [H05K 1/11](#), [H01R 12/00](#))
- U H05K 3/00 Apparatus or processes for manufacturing printed circuits**
- U H05K 3/30
- Assembling printed circuits with electric components, e.g. with resistor
- U H05K 3/306
- · {Lead-in-hole components, e.g. affixing or retention before soldering, spacing means ([H05K 3/32](#) takes precedence)}
- M H05K 3/308
- · · {Adaptations of leads (connectors to printed circuits ~~H01R 9/091~~[H01R 12/00](#))}
- U H05K 7/00 Constructional details common to different types of electric apparatus (casings, cabinets, drawers [H05K 5/00](#))**
- U H05K 7/02
- Arrangements of circuit components or wiring on supporting structure
- U H05K 7/10
- · Plug-in assemblages of components {, e.g. IC sockets}