

Compilation of Changes to the CPC Scheme Between 2016.01 and 2016.02

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

Project: MP0258 (B32B)

- U B32B 29/00** Layered products comprising {a layer of} paper or cardboard
- M B32B 29/08** • Corrugated paper, ~~corrugated~~ or cardboard

Project: MP0258 (H04M)

- U H04M 1/00** Substation equipment, e.g. for use by subscribers; Analogous equipment at exchanges (prepayment telephone coin boxes [H04M 17/00](#); current supply arrangements [H04M 19/00](#); {telephone sets particularly adapted for data transmission [H04M 11/066](#); network interface devices [H04Q 1/028](#)})
- U H04M 1/26** • Devices for signalling identity of wanted subscriber (constructional features [H04M 1/23](#))
- U H04M 1/30** • • Devices which can set up and transmit only one digit at a time
- U H04M 1/31** • • • by interrupting current to generate trains of pulses; by periodically opening and closing contacts to generate trains of pulses
- M H04M 1/315** • • • • ~~Clutches; Spring assemblies; Clutches, spring assemblies, speed~~ *Speed* regulators, e.g. centrifugal brakes ([H04M 1/32](#) to ~~H04M 1/40~~ take precedence)

Project: MP0259 (G03B)

- M G03B 7/00** Control of exposure by setting shutters, diaphragms or filters, separately or conjointly (control of exposure in television cameras by means of circuitry ~~for compensating for variation in~~ *influencing* the ~~brightness~~ *optical part* of the ~~object~~ *camera* [H04N 5/235](#) [H04N 5/238](#))

WARNING

Group [G03B 7/00](#) is impacted by reclassification into groups [G03B 7/01](#) and [G03B 7/30](#).

Groups [G03B 7/00](#), [G03B 7/01](#) and [G03B 7/30](#) should be considered in order to perform a complete search.

Project: MP0259 (H04N)

- U H04N 5/00** Details of television systems (scanning details or combination thereof with generation of supply voltages [H04N 3/00](#); specially adapted for colour television [H04N 9/00](#); {servers specially adapted for the distribution of content [H04N 21/20](#); client devices specially adapted for the reception of or interaction with content [H04N 21/40](#)})

NOTE

Groups [H04N 5/341](#) to [H04N 5/378](#) are based on IPC2012.01

- U H04N 5/222 · Studio circuitry; Studio devices; Studio equipment; {Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, TV cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles}
- U H04N 5/225 · · Television cameras; {Cameras comprising an electronic image sensor, e.g. digital cameras, video cameras, video cameras, camcorders, webcams, camera modules for embedding in other devices e.g. mobile phones, computers or vehicles (optical systems [G02B](#); associated working of recording or reproducing apparatus with TV camera or receiver in which the television signal is not significantly involved [G11B 31/006](#); tubes [H01J](#))}
- M H04N 5/235 · · · Circuitry {or methods} for compensating for variation in the brightness of the object {, e.g. based on an electric image signals provided by an electronic image sensor ~~(exposure control for film cameras or cameras using an additional sensor G03B 7/00)~~}

Project: MP0260 (A43B)

- M A43B 17/00 ~~{(Inserted) insoles~~ ***insoles for insertion***, e.g. footbeds or inlays, for attachment to the shoe after the upper has been joined (special medical insertions for shoes [A61F 5/14](#))

Project: MP0260 (A47C)

- M A47C 13/00 Convertible chairs, stools; or benches (step-stools requiring conversion between the step and seat functions [A47C 12/02](#); ~~stretchers, for patients or disabled persons, convertible into chairs A61G 1/017~~)

Project: MP0260 (A47G)

- U A47G 9/00 Bed-covers; Counterpanes; Travelling rugs; Sleeping rugs; Sleeping bags; Pillows ~~{(loose filling materials for bedding B68G 1/00)}~~
- M A47G 9/02 · Bed linen; Blankets; Counterpanes ~~(sheets specially adapted for use as or with stretchers for patients or invalids A61G 1/01)~~

Project: MP0260 (A61J)

- M A61J 19/00 Devices for receiving spittle, e.g. spittoons (~~{devices for taking sputum samples A61B 10/0051}~~; for dentists [A61C 17/04](#) [A61C 17/14](#))

Project: MP0260 (A63B)

- M A63B 59/00 Bats, rackets; or the like, not covered by groups [A63B 49/00](#) - [A63B 57/00](#) ~~{(details A63B 60/00)}~~

NOTES

- In this group, the following term is used with the meaning indicated:
 - "ball" covers also pucks or other objects to be hit during the game.
- When classifying in group [A63B 59/00](#) and subgroups, subject matter related to details or accessories of golf clubs, bats, rackets or the like are further classified in group [A63B 60/00](#).

WARNING

Group [A63B 59/00](#) is impacted by reclassification into groups [A63B 60/00](#), [A63B 60/46](#), [A63B 2102/00](#), [A63B 2102/10](#), [A63B 2102/12](#), [A63B 2102/26](#), [A63B 2102/28](#), [A63B 2102/30](#), and [A63B 2102/38](#).

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

U A63B 60/00 Details or accessories of golf clubs, bats, rackets or the like**WARNING**

Group [A63B 60/00](#) is incomplete pending reclassification of documents from groups [A63B 49/00](#) - [A63B 49/14](#), [A63B 53/00](#) - [A63B 53/14](#), [A63B 59/00](#), [A63B 59/20](#), [A63B 59/40](#) and [A63B 59/60](#) - [A63B 59/80](#).

Groups [A63B 59/00](#), [A63B 59/20](#), [A63B 59/40](#) and [A63B 59/60](#) - [A63B 59/80](#) should also be considered in order to perform a complete search.

M A63B 60/06

- Handles ~~{{(structurally associated with frames of stringed rackets [A63B 49/08](#))}}~~

WARNING

Group [A63B 60/06](#) is impacted by reclassification into groups [A63B 60/08](#) and [A63B 60/10](#).

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

Project: MP0260 (B65D)**M B65D 83/14**

- for delivery of liquid or semi-liquid contents by internal gaseous pressure, i.e. aerosol containers **comprising propellant** {for a product delivered by a propellant (spraying devices for the destruction of noxious animals or plants [A01M 7/00](#), for therapeutic purposes [A61M 11/00](#); ~~spraying or atomizing apparatus in general B05B; aerosol compositions, e.g. propellants C09K 3/30; pumping of fluid by direct contact of another fluid, e.g. siphons F04F; fluid-delivery valves in general F16K 21/00; discharge nozzles in general F16K 31/58~~; vessels for containing or storing compressed, liquefied, or solidified gases [F17C](#))}

U B65D 83/16

- • characterised by the actuating means {{(actuation occurring by moving the aerosol container relative to an outer shell [B65D 83/386](#); involved in metering valve assemblies [B65D 83/546](#))}}

M B65D 83/20

- • {operated by manual action, e.g. button-type actuator or} actuator **capcaps** {{(actuators formed as a rigid elongate spout [B65D 83/306](#))}}

M B65D 83/38

- • Details of **the** container body (pressure relief devices [B65D 83/70](#))

M B65D 83/60

- • **Product Contents** and propellant separated {{(portable fire extinguishers wherein extinguishing material and pressure gas are stored in separate containers [A62C 13/66](#))}}

M B65D 83/68

- • Dispensing two or more **products; contents** {, e.g. sequential dispensing or simultaneous dispensing of two or more products without mixing them}

Project: RP0294 (H02P)**U H02P 3/00**

Arrangements for stopping or slowing electric motors, generators, or dynamo-electric converters (stopping of synchronous motors with electronic commutators except reluctance motors, [H02P 6/24](#); stopping dynamo-electric motors rotating step by step [H02P 8/24](#); vector control [H02P 21/00](#))

U H02P 3/06

- for stopping or slowing an individual dynamo-electric motor or dynamo-electric converter

U H02P 3/18

- • for stopping or slowing an ac motor

U H02P 3/26

- • • by combined electrical and mechanical braking

M H02P 4/00

Arrangements specially adapted for regulating or controlling the speed or torque of electric motors that can be connected to two or more different **voltage or current electric power supplies (~~starting [H02P 1/00](#); stopping or slowing [H02P 3/00](#)~~; vector control [H02P 21/00](#))**

- C H02P 5/00** Arrangements specially adapted for regulating or controlling the speed or torque of two or more electric motors (~~starting H02P 1/00; stopping or slowing H02P 3/00; {synchronous motors or other dynamo-electric motors with electronic commutators in dependence on the rotor position H02P 6/00; motors rotating step by step H02P 8/00;} vector control H02P 21/00~~**H02P 6/04, H02P 8/40 take precedence**)
- WARNING**
Group H02P 5/00 is impacted by reclassification into groups H02P 6/04, H02P 8/40, H02P 8/40.
All groups listed in this Warning should be considered in order to perform a complete search.
- U H02P 5/46 • for speed regulation of two or more dynamo-electric motors in relation to one another
- U H02P 5/48 • • by comparing mechanical values representing the speeds
- D H02P 5/483 • • • {using differential movement}
- N H02P 5/485 • • • *using differential movement of the two motors, e.g. using differential gearboxes*
- D H02P 5/486 • • • {by intermittently closing or opening electrical contacts}
- N H02P 5/49 • • • *by intermittently closing or opening electrical contacts*
- U H02P 5/50 • • by comparing electrical values representing the speeds
- D H02P 5/503 • • • {using equalising lines}
- N H02P 5/505 • • • *using equalising lines, e.g. rotor and stator lines of first and second motors*
- D H02P 5/506 • • • {Direct ratio control}
- N H02P 5/51 • • • *Direct ratio control*
- M H02P 5/52 • • additionally providing control of relative angular displacement ~~{of relative angular position or phase}~~
- D H02P 5/523 • • • {Speed and position comparison by mechanical means}
- D H02P 5/526 • • • {Speed and position comparison by electrical means}
- N H02P 5/54 • • • *Speed and position comparison between the motors by mechanical means*
- N H02P 5/56 • • • *Speed and position comparison between the motors by electrical means*
- C H02P 6/00** Arrangements for controlling synchronous motors or other dynamo-electric motors **with using** electronic ~~commutators in dependence~~**commutation dependent** on the rotor position; Electronic commutators therefor (~~stepping motors H02P 8/00; vector control H02P 21/00; reluctance motors H02P 25/08~~)
- NOTE**
Groups Group H02P 6/006 and H02P 6/26 ~~H02P 6/008 take~~ **takes** precedence over groups ~~H02P 6/001 to H02P 6/005 and H02P 6/04 to~~ H02P 6/24 and H02P 6/28 – H02P 6/34
- WARNING**
Group H02P 6/00 is impacted by reclassification into group H02P 6/32.
Groups H02P 6/00 and H02P 6/32 should be considered in order to perform a complete search.
- D H02P 6/001 • {Details, e.g. modelling, simulation, comparisons, control principles in general}
- D H02P 6/002 • {Arrangements for controlling current (H02P 6/10 takes precedence)}
- D H02P 6/003 • {Controlling the direction of rotation}
- D H02P 6/008 • {Controlling single phase motors}

- C H02P 6/04
- Arrangements for controlling or regulating *the* speed or torque of more than one motor (*H02P 6/10 takes precedence*)
- WARNING**
Group *H02P 6/04* is impacted by reclassification into group *H02P 6/10*. Groups *H02P 6/04* and *H02P 6/10* should be considered in order to perform a complete search.
- C H02P 6/08
- Arrangements for controlling the speed or torque of a single motor ~~{(H02P 6/002 takes precedence~~*H02P 6/10, H02P 6/28 take precedence)}*
- WARNING**
Group *H02P 6/08* is impacted by reclassification into group *H02P 6/10*. Groups *H02P 6/08* and *H02P 6/10* should be considered in order to perform a complete search.
- E H02P 6/10
- ~~Arrangements for controlling torque ripple, e.g.~~ providing reduced torque ripple; *controlling torque ripple*
- WARNING**
Group *H02P 6/10* is incomplete pending reclassification of documents from group *H02P 6/04* and group *H02P 6/08*. Groups *H02P 6/04, H02P 6/08* and *H02P 6/10* should be considered in order to perform a complete search.
- U H02P 6/14
- Electronic commutators
- D H02P 6/142
- ~~{Changing commutation time}~~
- D H02P 6/145
- ~~• {wherein the commutation is advanced from position signals phase in function of the speed}~~
- D H02P 6/147
- ~~• {wherein the commutation is function of electro magnetic force [EMF]}~~
- N H02P 6/15
- *Controlling commutation time*
- N H02P 6/153
- ~~• {wherein the commutation is advanced from position signals phase in function of the speed}~~
- N H02P 6/157
- ~~• {wherein the commutation is function of electro-magnetic force [EMF]}~~
- M H02P 6/16
- Circuit arrangements for detecting position ~~(structural arrangement of position sensors H02K 29/06)~~
- D H02P 6/165
- ~~• {and generating speed information}~~
- N H02P 6/17
- ~~• and for generating speed information~~
- M H02P 6/18
- ~~• without separate position detecting elements, e.g. using back-emf in windings {(H02P 6/165 takes precedence)}~~
- M H02P 6/182
- ~~• {using back-emf in windings}~~
- M H02P 6/185
- ~~• {using *inductance sensing, e.g.* pulse excitation}~~
- M H02P 6/20
- Arrangements for starting (*H02P 6/08; H02P 6/22 take takes precedence*)
- D H02P 6/205
- ~~{Open loop start}~~
- N H02P 6/21
- *Open loop start*
- M H02P 6/22
- ~~Arrangements for starting~~ in a selected direction of rotation
- U H02P 6/24
- Arrangements for stopping
- N H02P 6/26
- *Arrangements for controlling single phase motors*
- N H02P 6/28
- *Arrangements for controlling current (H02P 6/10 takes precedence)*
- N H02P 6/30
- *Arrangements for controlling the direction of rotation (H02P 6/22 takes precedence)*

- N H02P 6/32
- Arrangements for controlling wound field motors, e.g. motors with exciter coils
- WARNING
Group [H02P 6/32](#) is incomplete pending reclassification of documents from group [H02P 6/00](#).
Groups [H02P 6/00](#) and [H02P 6/32](#) should be considered in order to perform a complete search.
- N H02P 6/34
- Modelling or simulation for control purposes
- C H02P 7/00
- Arrangements for regulating or controlling the speed or torque of electric DC motors (~~starting H02P 1/00; stopping or slowing H02P 3/00; {synchronous motors or other dynamo-electric motors with electronic commutators in dependence on the rotor position H02P 6/00; motors rotating step by step H02P 8/00;} vector control H02P 21/00~~)**
- WARNING
Group [H02P 7/00](#) is impacted by reclassification into groups [H02P 7/02](#), [H02P 7/025](#).
Groups [H02P 7/00](#), [H02P 7/02](#), and [H02P 7/025](#) should be considered in order to perform a complete search.
- D H02P 7/0038
- {Controlling the direction of rotation of DC motors}
- D H02P 7/0044
- • {by means of a H-bridge circuit}
- D H02P 7/0066
- • {by means of electronic switching}
- U H02P 7/0094
- {wherein the position is detected using the ripple of the current caused by the commutator}
- N H02P 7/02
- the DC motors being of the linear type
- WARNING
Group [H02P 7/02](#) is incomplete pending reclassification of documents from group [H02P 7/00](#).
Groups [H02P 7/00](#) and [H02P 7/02](#) should be considered in order to perform a complete search.
- N H02P 7/025
- • the DC motors being of the moving coil type, e.g. voice coil motors
- WARNING
Group [H02P 7/025](#) is incomplete pending reclassification of documents from group [H02P 7/00](#).
Groups [H02P 7/00](#) and [H02P 7/025](#) should be considered in order to perform a complete search.
- N H02P 7/03
- for controlling the direction of rotation of DC motors
- N H02P 7/04
- • {by means of a H-bridge circuit}
- N H02P 7/05
- • {by means of electronic switching}
- U H02P 7/06
- for regulating or controlling an individual dc dynamo-electric motor by varying field or armature current
- U H02P 7/18
- • by master control with auxiliary power
- U H02P 7/24
- • • using discharge tubes or semiconductor devices
- M H02P 7/28
- • • • using semiconductor devices

NOTE

Group [H02P 7/281](#) takes precedence over groups [H02P 7/282](#) to [H02P 7/298](#)

- M H02P 7/281 {the DC- motor being operated in ~~the~~ four quadrants}
- NOTE**
Group [H02P 7/281](#) takes precedence over groups [H02P 7/282](#) – [H02P 7/298](#).
- M H02P 7/2815 {whereby the speed is regulated by measuring the motor speed and comparing it with a given physical value}
- NOTE**
Groups ~~H02P 7/2815~~ takes precedence over groups ~~H02P 7/2825~~, ~~H02P 7/2855~~
- U H02P 7/285 controlling armature supply only
- U H02P 7/29 using pulse modulation
- D H02P 7/2906 {with on-off control between two set points}
- N [H02P 7/291](#) with on-off control between two set points, e.g. controlling by hysteresis
- M H02P 7/292 using static converters, e.g. ~~ac~~AC to ~~dc~~DC
- D H02P 7/2925 {using phase control (~~H02P 7/295~~ takes precedence)}
- N [H02P 7/293](#) using phase control ([H02P 7/295](#) takes precedence)
- U H02P 7/34 using Ward-Leonard arrangements
- C H02P 7/343 {in which **only the both** generator **field is and motor fields are** controlled}
- WARNING**
Group [H02P 7/343](#) is impacted by reclassification into group [H02P 7/347](#).
Groups [H02P 7/343](#) and [H02P 7/347](#) should be considered in order to perform a complete search.
- D H02P 7/346 {in which both generator and motor fields are controlled}
- N [H02P 7/347](#) in which only the generator field is controlled
- WARNING**
Group [H02P 7/347](#) is incomplete pending reclassification of documents from group [H02P 7/343](#).
Groups [H02P 7/343](#) and [H02P 7/347](#) should be considered in order to perform a complete search.
- U H02P 8/00 Arrangements for controlling dynamo-electric motors of the kind having motors rotating step by step (vector control [H02P 21/00](#))**
- E H02P 8/40 . Special adaptations for controlling two or more stepping motors
- WARNING**
Group [H02P 8/40](#) is incomplete pending reclassification of documents from group [H02P 5/00](#).
Groups [H02P 5/00](#) and [H02P 8/40](#) should be considered in order to perform a complete search.
- M H02P 21/00 Arrangements or methods for the control of electric machines by vector control, e.g. by control of field orientation**
- NOTES**
1. **Groups** ~~When H02P-21/06 to classifying in H02P-21/12 cover vector~~ **this group, classification should also be made in group [H02P 25/00](#) when the method of**

control ~~arrangements or methods involving~~ *is characterised by* the ~~use~~ *kind* of ~~rotor position or speed sensors.~~ *motor being controlled.*

~~2. Vector control arrangements or methods not involving the use of rotor position or speed sensors are classified in groups H02P 21/0039 and subgroups~~

~~3.2. When classifying in this group, it is desirable to~~ *classification should* also ~~classify~~ *be made* in ~~groups~~ *group* ~~H02P 25/00 to H02P 27/00 if when~~ the ~~kind~~ *method* of ~~AC motor, structural details, or control is characterised by~~ the kind of supply voltage ~~are~~ of ~~interest~~ *the motor being controlled.*

- | | | |
|---|--------------|--|
| D | H02P 21/0032 | • {Arrangements for starting} |
| D | H02P 21/0035 | • {Current control} |
| D | H02P 21/0039 | • {not involving the use of rotor position or speed sensors} |
| D | H02P 21/0042 | • • {Rotor flux based control} |
| D | H02P 21/0046 | • • {Stator flux based control} |
| D | H02P 21/005 | • • • {Direct torque control [DTC] or field acceleration method [FAM]} |
| D | H02P 21/0053 | • • {Determining the initial rotor position (arrangements for starting H02P 21/0032; position detection in general H02P 6/16-H02P 6/185)} |
| D | H02P 21/0092 | • {Arrangements for braking or slowing; Four quadrants control} |
| D | H02P 21/0096 | • {Vector control arrangements or methods not otherwise provided for in H02P 21/00-H02P 21/148} |
| M | H02P 21/04 | • specially adapted for very low speeds {arrangements for starting H02P 21/0032; determining the initial rotor position H02P 21/0053} |
| M | H02P 21/06 | • Rotor flux based control {involving the use of rotor position or <i>rotor speed sensor</i> } <i>sensors</i> |
| M | H02P 21/08 | • • Indirect field-oriented control, e.g. field phase angle calculation based on rotor voltage equation by adding slip frequency and speed proportional frequency; {Rotor flux feed-forward control} |
| D | H02P 21/085 | • • • {adding slip frequency and speed proportional frequency} |
| N | H02P 21/09 | • • • <i>Field phase angle calculation based on rotor voltage equation by adding slip frequency and speed proportional frequency</i> |
| M | H02P 21/10 | • • Direct field-oriented control; {Rotor flux feed-back control} |
| M | H02P 21/12 | • Stator flux based control, {involving the use of rotor position or <i>rotor speed sensor</i> } <i>sensors</i> |
| M | H02P 21/14 | • Estimation or adaptation of machine parameters, e.g. rotor time constant, flux, speed, current or voltage |
| U | H02P 21/143 | • • {Inertia or moment of inertia estimation} |
| D | H02P 21/145 | • • {constants estimation, e.g. of the rotor time constant} |
| D | H02P 21/146 | • • {Position or speed estimation} |
| D | H02P 21/148 | • • {Torque estimation} |
| N | H02P 21/16 | • • <i>Estimation of constants, e.g. the rotor time constant</i> |
| N | H02P 21/18 | • • <i>Estimation of position or speed</i> |
| N | H02P 21/20 | • • <i>Estimation of torque</i> |
| N | H02P 21/22 | • <i>Current control, e.g. using a current control loop</i> |
| N | H02P 21/24 | • <i>Vector control not involving the use of rotor position or rotor speed sensors</i> |
| N | H02P 21/26 | • • <i>Rotor flux based control</i> |
| N | H02P 21/28 | • • <i>Stator flux based control</i> |
| N | H02P 21/30 | • • • <i>Direct torque control [DTC] or field acceleration method [FAM]</i> |
| N | H02P 21/32 | • • <i>Determining the initial rotor position (H02P 21/34 takes precedence)</i> |

- N H02P 21/34 · Arrangements for starting
- N H02P 21/36 · Arrangements for braking or slowing; Four quadrant control
- N H02P 21/50 · {Vector control arrangements or methods not otherwise provided for in [H02P 21/00- H02P 21/36](#)}
- M H02P 23/00 Arrangements or methods for the control of AC motors characterised by a control method other than vector control (~~starting H02P 1/00; stopping or slowing H02P 3/00; of two or more motors H02P 5/00; of synchronous motors with electronic commutators H02P 6/00; of DC motors H02P 7/00; of stepping motors H02P 8/00~~)**
- NOTE**
- When classifying in this group, *it is desirable to subject matter also classify in relating to groups [H02P 21/00](#), [H02P 25/00](#) to or [H02P 27/00](#) if the kind of AC motor, structural details, or the kind of supply voltage are of interest is further classified in those groups whenever appropriate.*
- E H02P 23/0004 · {Control strategies in general, e.g. linear type e.g. P, PI, PID, using robust control (~~control strategies related to the motor H02P 23/0036~~)}
- D H02P 23/0036 · {Control strategies related to the functioning of the motor}
- D H02P 23/004 · · {Direct torque control [DTC]; Field acceleration method [FAM]}
- D H02P 23/0045 · {Control of angular speed of one shaft by controlling the prime mover (H02P 23/005 takes precedence)}
- D H02P 23/005 · {Control of angular speed together with angular position or phase}
- D H02P 23/0054 · · {of one shaft without controlling the prime mover}
- D H02P 23/0059 · · {of one shaft by controlling the prime mover}
- D H02P 23/0063 · {Control of acceleration or deceleration}
- D H02P 23/0068 · {Digital speed control using a reference oscillator, a speed proportional pulse rate feedback and a digital comparator}
- D H02P 23/0072 · {Controlling the direction, e.g. clockwise – counterclockwise}
- D H02P 23/0081 · {Power Factor Control}
- D H02P 23/0095 · {controlled by the switch frequency of the switches connected to a DC supply and the motor phases}
- U H02P 23/06 · Controlling the motor in four quadrants
- D H02P 23/065 · · {Polyphase or monophas asynchronous induction motors}
- N H02P 23/07 · · *Polyphase or monophas asynchronous induction motors*
- U H02P 23/14 · Estimation or adaptation of motor parameters, e.g. rotor time constant, flux, speed, current or voltage
- N H02P 23/16 · *Controlling the angular speed of one shaft ([H02P 23/18](#) takes precedence)*
- N H02P 23/18 · *Controlling the angular speed together with angular position or phase*
- N H02P 23/183 · · {of one shaft without controlling the prime mover}
- N H02P 23/186 · · {of one shaft by controlling the prime mover}
- N H02P 23/20 · *Controlling the acceleration or deceleration*
- N H02P 23/22 · *Controlling the speed digitally using a reference oscillator, a speed proportional pulse rate feedback and a digital comparator*
- N H02P 23/24 · *Controlling the direction, e.g. clockwise or counterclockwise*
- N H02P 23/26 · *Power factor control [PFC]*
- N H02P 23/28 · *Controlling the motor by varying the switching frequency of switches connected to a DC supply and the motor phases*
- N H02P 23/30 · *Direct torque control [DTC] or field acceleration method [FAM]*

- M H02P 25/00** Arrangements or methods for the control of AC motors characterised by the kind of AC motor or by structural details ~~(starting H02P 1/00; stopping or slowing H02P 3/00; of two or more motors H02P 5/00; of synchronous motors with electronic commutators H02P 6/00; of DC motors H02P 7/00; of stepping motors H02P 8/00)~~
- NOTE**
When classifying in this group, *it is desirable to subject matter* also classify *in relating to* groups [H02P 21/00](#), [H02P 23/00](#) or [H02P 27/00](#) if the control method or the kind of supply voltage are of interest *is further classified in those groups whenever appropriate.*
- U H02P 25/02 . characterised by the kind of motor
- D H02P 25/021 . . {Synchronous motors}
- C H02P 25/022 . . . ~~{controlled by supply frequency}~~ Synchronous motors ([H02P 25/064](#) takes precedence)
- WARNING**
Group [H02P 25/022](#) is impacted by reclassification into group [H02P 25/024](#).
Groups [H02P 25/022](#) and [H02P 25/024](#) should be considered in order to perform a complete search.
- D H02P 25/023 . . . {thereby detecting the rotor position}
- N H02P 25/024 . . . controlled by supply frequency
- WARNING**
Group [H02P 25/024](#) is incomplete pending reclassification of documents from group [H02P 25/022](#) .
Groups [H02P 25/022](#) and [H02P 25/024](#) should be considered in order to perform a complete search.
- D H02P 25/025 . . . {Four quadrant control}
- C H02P 25/026 . . . ~~{with brushless excitation}~~ thereby detecting the rotor position
- WARNING**
Group [H02P 25/026](#) is impacted by reclassification into group [H02P 25/03](#).
Groups [H02P 25/026](#) and [H02P 25/03](#) should be considered in order to perform a complete search.
- D H02P 25/027 . . {Control of reciprocating, oscillating or vibrating motors (Note: see also H01F)}
- C H02P 25/028 . . . ~~{Control of voice coil motors with four quadrant control (Note: see also H01F)}~~
- WARNING**
Group [H02P 25/028](#) is impacted by reclassification into group [H02P 25/034](#).
Groups [H02P 25/028](#) and [H02P 25/034](#) should be considered in order to perform a complete search.
- N H02P 25/03 . . . with brushless excitation
- WARNING**
Group [H02P 25/03](#) is incomplete pending reclassification of documents from group [H02P 25/026](#).
Groups [H02P 25/026](#) and [H02P 25/03](#) should be considered in order to perform a complete search.

- N H02P 25/032 • • Reciprocating, oscillating or vibrating motors
- N H02P 25/034 • • • Voice coil motors (voice coil motors driven by DC power [H02P 7/025](#))
WARNING
 Group [H02P 25/034](#) is incomplete pending reclassification of documents from group [H02P 25/028](#).
 Groups [H02P 25/028](#) and [H02P 25/034](#) should be considered in order to perform a complete search.
- C H02P 25/06 • • Linear motors
WARNING
 Group [H02P 25/06](#) is impacted by reclassification into group [H02P 25/062](#), [H02P 25/064](#) and [H02P 25/066](#).
 All groups listed in this Warning should be considered in order to perform a complete search.
- N H02P 25/062 • • • of the induction type
WARNING
 Group [H02P 25/062](#) is incomplete pending reclassification of documents from group [H02P 25/06](#).
 Groups [H02P 25/06](#) and [H02P 25/062](#) should be considered in order to perform a complete search.
- N H02P 25/064 • • • of the synchronous type
WARNING
 Group [H02P 25/064](#) is incomplete pending reclassification of documents from group [H02P 25/06](#).
 Groups [H02P 25/06](#) and [H02P 25/064](#) should be considered in order to perform a complete search.
- N H02P 25/066 • • • • of the stepping type
WARNING
 Group [H02P 25/066](#) is incomplete pending reclassification of documents from group [H02P 25/06](#).
 Groups [H02P 25/06](#) and [H02P 25/066](#) should be considered in order to perform a complete search.
- U H02P 25/08 • • Reluctance motors
- N H02P 25/0805 • • • {whereby the speed is regulated by measuring the motor speed and comparing it with a given physical value}
- D H02P 25/081 • • • {Modifications for increasing the switching speed from one coil to the next one}
- D H02P 25/082 • • • {Commutation}
- C H02P 25/083 • • • • ~~{Sensorless control, see also direct torque control~~ *Arrangements for increasing the switching speed from [H02P 23/004](#) one coil to the next one*
WARNING
 Group [H02P 25/083](#) is impacted by reclassification into group [H02P 25/089](#).
 Groups [H02P 25/083](#) and [H02P 25/089](#) should be considered in order to perform a complete search.
- D H02P 25/085 • • • ~~{Converters specially adapted for controlling reluctance motors}~~

- C H02P 25/086 . . . ~~{wherein the converter comprises only one switch per phase}~~ **Commutation**
- WARNING**
Group [H02P 25/086](#) is impacted by reclassification into group [H02P 25/0925](#).
Groups [H02P 25/086](#) and [H02P 25/0925](#) should be considered in order to perform a complete search.
- D H02P 25/087 . . . {whereby the speed is regulated by measuring the motor speed and comparing it with a given physical value}
- D H02P 25/088 . . . {Arrangements for reducing torque ripple}
- N H02P 25/089 Sensorless control (direct torque control [H02P 23/30](#))
- WARNING**
Group [H02P 25/089](#) is incomplete pending reclassification of documents from group [H02P 25/083](#).
Groups [H02P 25/083](#) and [H02P 25/089](#) should be considered in order to perform a complete search.
- N H02P 25/092 . . . Converters specially adapted for controlling reluctance motors
- N H02P 25/0925 {wherein the converter comprises only one switch per phase}
- WARNING**
Group [H02P 25/0925](#) is incomplete pending reclassification of documents from group [H02P 25/086](#).
Groups [H02P 25/086](#) and [H02P 25/0925](#) should be considered in order to perform a complete search.
- N H02P 25/098 . . . Arrangements for reducing torque ripple
- M H02P 27/00 Arrangements or methods for the control of AC motors characterised by the kind of supply voltage (~~starting H02P 1/00; stopping or slowing H02P 3/00~~; of two or more motors [H02P 5/00](#); of synchronous motors with electronic commutators [H02P 6/00](#); of DC motors [H02P 7/00](#); of stepping motors [H02P 8/00](#))**
- NOTE**
When classifying in this group, ~~it is desirable to subject matter~~ also classify ~~in relating to~~ groups [H02P 21/00](#), [H02P 23/00](#) or [H02P 25/00](#) ~~if the control method, the kind of AC motor or structural details are of interest.~~ ~~is further classified in those groups whenever appropriate~~
- U H02P 27/02 . using supply voltage with constant frequency and variable amplitude
- D H02P 27/023 . . {wherein only rotor or only stator circuit is supplied with ac}
- N H02P 27/024 . . using AC supply for only the rotor circuit or only the stator circuit
- U H02P 27/04 . using variable-frequency supply voltage, e.g. inverter or converter supply voltage
- D H02P 27/042 . . {wherein only rotor or only stator circuit is supplied with ac}
- U H02P 27/047 . . {V/F converter, wherein the voltage is controlled proportionally with the frequency}
- N H02P 27/048 . . using AC supply for only the rotor circuit or only the stator circuit
- M H02P 27/05 . . using **acAC** supply for both **the** rotor and **the** stator circuits, the frequency of supply to at least one circuit being variable ~~-(see also H02P 6/005 or H02P 9/007, doubly fed motors or generators respectively)}~~
- U H02P 27/06 . . using dc to ac converters or inverters ([H02P 27/05](#) takes precedence)
- U H02P 27/08 . . . with pulse width modulation

- M H02P 27/12
- • • pulsing by guiding the flux- *vector*, current-; *vector* or voltage- vector on a circle or a closed curve, e.g. *for* direct torque control ~~{{direct torque control per se, H02P 23/004}}~~
- C H02P 29/00
- Arrangements for regulating or controlling electric motors, appropriate for both ~~ac-AC~~ and DC motors (~~starting H02P 1/00; stopping or slowing H02P 3/00; arrangements for starting electric motors H02P 1/00; arrangements for stopping or slowing electric motors H02P 3/00;~~ control of motors that can be connected to two or more different ~~voltage or current~~ electric power supplies [H02P 4/00](#); *regulating or controlling the speed or torque of two or more electric motors H02P 5/00*; vector control [H02P 21/00](#))
- WARNING**
- Group H02P 29/00 is impacted by reclassification into groups H02P 29/10, H02P 29/20, H02P 29/40, H02P 29/50, H02P 29/60, H02P 29/62, H02P 29/64, H02P 29/66 and H02P 29/68.
All groups listed in this Warning should be considered in order to perform a complete search.*
- M H02P 29/02
- Providing protection against overload without automatic interruption of supply; ~~e.g. monitoring { (protection during start H02P 1/022; protection for stepper motors H02P 8/36; generator overload and transient protection H02P 9/10; protection with automatic interruption H02H 7/0833~~ *protection against faults of stepper motors H02P 8/36)*}
- NOTE**
- Informative note
- References listed below indicate places which could also be of interest when carrying out a search in respect of the subject matter covered by the preceding group:
- Emergency protective circuit arrangements with automatic interruption if supply, in general [H02H 7/08](#);
- Emergency protective circuit arrangements for limiting excess current or voltage without disconnection in general [H02H 7/08](#)
- D H02P 29/021
- {Detecting a fault condition, e.g. short circuit, locked rotor, open circuit or loss of load}
- D H02P 29/022
- • {the motor continuing operation despite a fault condition, e.g. eliminating, compensating or remediating for the fault}
- D H02P 29/023
- • {the fault being a broken phase}
- C H02P 29/024
- • ~~{the Detecting a fault being an overvoltage}~~ *condition, e.g. short circuit, locked rotor, open circuit or loss of load*
- WARNING**
- Group H02P 29/024 is impacted by reclassification into group H02P 29/0241.
Groups H02P 29/024 and H02P 29/0241 should be considered in order to perform a complete search.*
- N H02P 29/0241
- • • {the fault being an overvoltage}
- WARNING**
- Group H02P 29/0241 is incomplete pending reclassification of documents from group H02P 29/024.
Groups H02P 29/024 and H02P 29/0241 should be considered in order to perform a complete search.*
- N H02P 29/0243
- • • {the fault being a broken phase}
- U H02P 29/025
- • • {the fault being a power interruption}

- M H02P 29/026 . . . {the fault being a power ~~fluctuations~~fluctuation}
- U H02P 29/027 . . . {the fault being an over-current}
- C H02P 29/028 . . . {~~Preventing damage to~~the motor continuing operation despite the motor fault condition, e.g. ~~setting individual current limits~~eliminating, ~~compensating~~ for different drive conditions}or remedying the fault
- WARNING**
Group [H02P 29/028](#) is impacted by reclassification into group [H02P 29/032](#).
Groups [H02P 29/028](#) and [H02P 29/032](#) should be considered in order to perform a complete search.
- N H02P 29/032 . . . Preventing damage to the motor, e.g. setting individual current limits for different drive conditions
- WARNING**
Group [H02P 29/032](#) is incomplete pending reclassification of documents from group [H02P 29/028](#).
Groups [H02P 29/028](#) and [H02P 29/032](#) should be considered in order to perform a complete search.
- U H02P 29/04 . . . by means of a separate brake
- U H02P 29/045 . . . {whereby the speed is regulated by measuring the motor speed and comparing it with a given physical value}
- N H02P 29/10 . . . for preventing overspeed or under speed
- WARNING**
Group [H02P 29/10](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/10](#) should be considered in order to perform a complete search.
- N H02P 29/20 . . . for controlling one motor used for different sequential operations
- WARNING**
Group [H02P 29/20](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/20](#) should be considered in order to perform a complete search.
- N H02P 29/40 . . . Regulating or controlling the amount of current drawn or delivered by the motor for controlling the mechanical load
- WARNING**
Group [H02P 29/40](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/40](#) should be considered in order to perform a complete search.
- N H02P 29/50 . . . Reduction of harmonics
- WARNING**
Group [H02P 29/50](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/50](#) should be considered in order to perform a complete search.

- N H02P 29/60
- Controlling or determining the temperature of the motor or of the drive ([H02P 29/02](#) takes precedence)
- WARNING
Group [H02P 29/60](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/60](#) should be considered in order to perform a complete search.
- N H02P 29/62
- for raising the temperature of the motor
- WARNING
Group [H02P 29/62](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/62](#) should be considered in order to perform a complete search.
- N H02P 29/64
- Controlling or determining the temperature of the winding
- WARNING
Group [H02P 29/64](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/64](#) should be considered in order to perform a complete search.
- N H02P 29/66
- Controlling or determining the temperature of the rotor
- WARNING
Group [H02P 29/66](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/66](#) should be considered in order to perform a complete search.
- N H02P 29/68
- based on the temperature of a drive component or a semiconductor component
- WARNING
Group [H02P 29/68](#) is incomplete pending reclassification of documents from group [H02P 29/00](#).
Groups [H02P 29/00](#) and [H02P 29/68](#) should be considered in order to perform a complete search.
- U H02P 2201/00 **Indexing scheme relating to controlling arrangements characterised by the converter used**
- H02P 2201/15
- Power factor Correction [PFC] circuit generating the DC link voltage for motor driving inverter (motor power factor control [H02P-23/0081](#)[H02P 23/26](#))

Project: RP0296 (A41D)

- U A41D 13/00 Professional, industrial, or sporting protective garments, e.g. garments affording protection against blows or punches, surgeon's gowns (helmets [A42B 3/00](#); clothing affording protection against {heat or harmful} chemical agents or for use at high altitudes [A62B 17/00](#); life-saving garments for use at sea, diving-bell suits [B63C](#); bulletproof or armoured clothing [F41H](#); clothing affording protection against radiation [G21F 3/02](#); electric heating elements [H05B](#))
- A41D 13/12
- Surgeons' or patients' gowns or dresses {(operating gloves [A61B-19/04](#)[A61B 42/10](#))}

M A41D 19/00 Gloves (~~brush bodies shaped as gloves [A46B 5/04](#); gloves for washing the body [A47K 7/02](#); gloves for domestic washing or cleaning [A47L 13/18](#)~~); ~~operating gloves [A61B 19/04](#); surgical gloves [A61B 42/10](#)~~; swimming gloves [A63B 31/02](#); as accessories for games or sports, e.g. baseball, boxing or golf gloves [A63B 71/14](#); gloves for glove-boxes [B25J 1/02](#))

Project: RP0296 (A45C)

A45C 3/00 Flexible luggage; Handbags (collapsible or extensible luggage, bags or the like [A45C 7/00](#); handbag mirrors [A45D 42/04](#); {bags for midwives [A61B 17/48](#); doctors' or nurses' bags ~~[A61B 19/0266](#)~~[A61B 50/312](#)})

Project: RP0296 (A47C)

A47C CHAIRS (seats specially adapted for vehicles [B60N 2/00](#); {hunting stands, e.g. hunting seats [A01M 31/02](#); seats adapted for angling, e.g. fisherman's seats [A01K 97/22](#); bath seats [A47K 3/12](#); shower seats [A47K 3/282](#); chairs with toilet means [A47K 11/04](#); seats for surgeons, dentists ~~[A61B 19/28](#)~~[A61B 90/60](#); chairs for disabled persons [A61G 5/00](#); operating chairs, dental chairs, physiotherapeutic chairs, gynaecological chairs [A61G 15/00](#); chairs with massage means [A61H 2201/0149](#); ski-lift seats [B61B 12/002](#); rail vehicles seats [B61D 33/00](#); vessel furniture, e.g. boat seats [B63B 29/04](#); aircraft seats [B64D 11/06](#)}); SOFAS; BEDS (upholstery in general [B68G](#); {beds specially adapted for nursing [A61G 7/00](#); sleeping accommodation for caravans [B60P 3/38](#), sleeping accommodation for rail vehicles [B61D 31/00](#); sleeping accommodation for load-carrying vehicles [B62D 33/0612](#); berths for vessels [B63B 29/10](#)})

WARNING

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

[A47C 1/038](#) covered by [A47C 1/0355](#)

[A47C 23/053](#) covered by [A47C 23/05](#), [A47C 23/0507](#), [A47C 23/0515](#)

Project: RP0296 (A61B)

M A61B 5/00 Detecting, measuring or recording for diagnostic purposes (radiation diagnosis [A61B 6/00](#); diagnosis by ultrasonic, sonic or infrasonic waves [A61B 8/00](#)); Identification of persons ~~{(measuring or recording in general subclasses of [G01](#); medical informatics [G06F 19/30](#))}~~

U A61B 5/103 • Detecting, measuring or recording devices for testing the shape, pattern, {colour,} size or movement of the body or parts thereof, for diagnostic purposes ([A61B 5/08](#) takes precedence; measuring aids for tailors [A41H 1/00](#); measuring instruments specially adapted for dentistry [A61C 19/04](#))

U A61B 5/11 • • Measuring movement of the entire body or parts thereof, e.g. head or hand tremor, mobility of a limb (for measuring pulse [A61B 5/02](#) {[A61B 5/1038](#) takes precedence; motion detection to correct for motion artifacts in physiological signals [A61B 5/721](#)})

U A61B 5/113 • • • occurring during breathing

U A61B 5/1135 • • • • {by monitoring thoracic expansion}

- C A61B 5/117
- Identification of persons, e.g. finger-printing, foot-printing, impression techniques (dental impression cups or articulators A61C 9/00, A61C 11/00; recognition of data G06K; recognising finger-prints G06K 9/00; identification tags G09F 3/00) methods or arrangements for recognising patterns, e.g. fingerprints, G06K 9/00; identification of persons by analysing their voice or speech G10L 17/00)
- WARNING**
Group A61B 5/117 is impacted by reclassification into group A61B 5/1171. Groups A61B 5/117 and A61B 5/1171 should be considered in order to perform a complete search.
- N A61B 5/1171
- based on the shapes or appearances of their bodies or parts thereof
- WARNING**
Group A61B 5/1171 is incomplete pending reclassification of documents from group A61B 5/117. Groups A61B 5/117 and A61B 5/1171 should be considered in order to perform a complete search.
- M A61B 5/1172
- • {Finger-printing} using fingerprinting
- M A61B 5/1174
- • {Foot-printing} using footprinting
- M A61B 5/1176
- • {Recognition of faces}
- M A61B 5/1178
- • {Recognition by using dental data}
- U A61B 5/15
- Devices for taking samples of blood (hypodermic syringes A61M 5/178)
- NOTE**
In these subgroups, the following terms are used with the meaning indicated:
- "piercing element" means skin penetrating component e.g. blade, needle, lancet, laser beam;
 - "piercing or lancing device" means device ready to be used for lancing;
 - "driving device" means device for driving a piercing element e.g. spring
- WARNING**
This group and its subgroups are not complete pending a reorganisation. See also A61B 5/14, A61B 5/1405 and subgroups
- U A61B 5/150007
- • {Details}
- A61B 5/150763
- • • {with identification means (identification means for surgical instruments A61B 19/44 A61B 90/90)}
- U A61B 6/00**
- Apparatus for radiation diagnosis, e.g. combined with radiation therapy equipment (analysis of materials using radiation G01N 23/00, detecting hidden objects by radiation G01V 5/0008, radiodiagnostic or X-ray contrast preparations A61K 49/00; radiation therapy per se A61N 5/00; instruments measuring radiation intensity for application in the field of nuclear medicine, e.g. in vivo counting G01T 1/161; apparatus for taking X-ray photographs G03B 42/02; X-ray photographic processes G03C 5/16; irradiation devices G21K; X-ray apparatus or circuits therefor H05G 1/00)**
- A61B 6/12
- Devices for detecting or locating foreign bodies (A61B 6/02 takes precedence; {radio-opaque markers A61B 19/54 A61B 90/39})
- U A61B 2017/00017
- {Electrical control of surgical instruments}
- A61B 2017/00115
- • {with audible or visual output (with imaging means A61B 19/5225 A61B 90/37, A61B 34/20)}
- A61B 2017/00535
- {pneumatically or hydraulically operated (A61B 2017/22051, A61B 2019/385 A61B 2090/401 take precedence)}

- U A61B 17/04 · for suturing wounds; Holders or packages for needles or suture materials (suture materials [A61L 17/00](#))
 - U A61B 17/06 · · Needles; {Sutures; Needle-suture combinations}; Holders or packages for needles or suture materials (puncturing needles [A61B 17/34](#); nerve needles [A61C 5/02](#); hypodermic needles [A61M 5/32](#); {sewing needles [D05B 85/00](#)})
 - A61B 17/06061 · · · {Holders for needles or sutures, e.g. racks, stands (hand-held holding instruments [A61B 17/0483](#); holders for articles [A61B 19/0256](#)[A61B 50/20](#); racks for syringes or for hypodermic or infusion needles [A61M 5/008](#))}
 - A61B 17/06114 · · · {Packages or dispensers for needles or sutures (packages for sharps [A61B 19/0262](#)[A61B 50/3001](#); for dental floss [A61C 15/043](#); packages for needles in general [B65D 85/24](#))}
 - A61B 17/06161 · · · {Devices for removing or collecting used needles or sutures ([A61B 17/0467](#) takes precedence; for sharps [A61B 19/0288](#)[A61B 50/362](#))}
 - U A61B 17/10 · for applying or removing wound clamps, {e.g. containing only one clamp or staple ([A61B 17/076](#) takes precedence; containing multiple wound clamps [A61B 17/068](#))}; Wound clamp magazines (containers, packaging elements or packages specially adapted for particular articles or with special means for dispensing contents [B65D 83/00](#), [B65D 85/00](#))
 - A61B 17/105 · · {Wound clamp magazines (for packaging sharps [A61B 19/0262](#)[A61B 50/3001](#))}
 - U A61B 17/12 · for ligaturing or otherwise compressing tubular parts of the body, e.g. blood vessels, umbilical cord (specially adapted for vas deferens or fallopian tubes [A61F 6/20](#); materials for ligaturing blood vessels [A61L 17/00](#))
 - U A61B 17/122 · · Clamps or clips, {e.g. for the umbilical cord (for the vas deferens [A61F 6/206](#))}
 - A61B 17/1222 · · · {Packages or dispensers therefor (clip magazines incorporated in a clip-applying instrument [A61B 17/128](#); for surgical articles [A61B 19/026](#)[A61B 50/30](#))}
 - M A61B 17/20 · for vaccinating or cleaning the skin previous to the vaccination (diagnosis by vaccination {other than by injuring the skin [A61B 10/0035](#)}; apparatus for injections [A61M](#))
- NOTE
Cleaning the skin previous to the vaccination is classified in [A61B 19/36](#)[A61B 90/80](#)
- U A61B 17/32 · Surgical cutting instruments {([A61B 18/042](#) takes precedence; suture cutters [A61B 17/0467](#); instruments for ligaturing or cutting [A61B 17/128](#); instruments for rupturing the amniotic membrane [A61B 17/4208](#); specially adapted knives for eye surgery [A61F 9/0133](#))}
 - A61B 2017/320052 · · {Guides for cutting instruments (by marking [A61B 2019/545](#)[A61B 2090/395](#))}
 - U A61B 17/3209 · · Incision instruments
 - U A61B 17/3211 · · · Surgical scalpels, knives; Accessories therefor
 - A61B 17/3215 · · · · Packages or dispensers for scalpel blades {(for sharps [A61B 19/0262](#)[A61B 50/3001](#))}
 - A61B 17/3217 · · · · Devices for removing or collecting used scalpel blades {(for sharps [A61B 19/0288](#)[A61B 50/362](#))}

- U A61B 17/56
- Surgical instruments or methods for treatment of bones or joints; Devices specially adapted therefor {{orthopaedic methods or devices for non-surgical treatment of bones or joints [A61F 5/00](#)}}
- NOTES
1. Documents concerning exclusively surgical methods are classified only in this group.
 2. Surgical instruments or devices are classified only in the relevant subgroups
- U A61B 17/58
- • for osteosynthesis, e.g. bone plates, screws, {setting implements} or the like ([A61B 17/14](#), [A61B 17/16](#) take precedence; {splints [A61B 5/01](#); traction bandages [A61F 13/10](#)})
- U A61B 17/68
- • • Internal fixation devices, {including fasteners and spinal fixators, even if a part thereof projects from the skin (bone staples [A61B 17/0642](#); dental regeneration membranes [A61C 8/0006](#))}
- WARNING
- Subgroups [A61B 17/686](#) and [A61B 17/688](#) are not complete pending a reorganisation. See also [A61B 17/68](#), [A61B 17/683](#) and [A61B 17/86](#)
- U A61B 17/70
- • • Spinal positioners or stabilisers; {Bone stabilisers comprising fluid filler in an implant}
- A61B 17/7074
- • • • {Tools specially adapted for spinal fixation operations other than for bone removal or filler handling ([A61B 17/7062](#), [A61B 17/808](#), [A61B 17/8858](#) take precedence; for spinal image producing devices [A61B 19/52](#)[A61B 90/36](#), [A61B 34/20](#); markers [A61B 19/54](#)[A61B 90/39](#))}
- U A61B 18/00**
- Surgical instruments, devices or methods for transferring non-mechanical forms of energy to or from the body (eye surgery [A61F 9/007](#); ear surgery [A61F 11/00](#))**
- U A61B 18/18
- by applying electromagnetic radiation, e.g. microwaves (radiation therapy [A61N 5/00](#))
- U A61B 18/20
- • using laser
- U A61B 18/22
- • • the beam being directed along or through a flexible conduit, e.g. an optical fibre; {Couplings}, hand-pieces therefor
- U A61B 18/28
- • • • for heating a thermal probe or absorber
- D A61B 19/00**
- Instruments, implements or accessories for surgery or diagnosis not covered by any of the groups A61B 1/00 to A61B 17/00, e.g. for stereotaxis, sterile operation, luxation treatment, wound edge protectors {{surgeon's or patient's gowns or dresses, surgical masks [A41D 13/00](#)}; devices for carrying-off, for treatment of, or for carrying-over, body liquids [A61M 1/00](#)}**
- D A61B 19/02
- Protective casings or covers for appliances or instruments, e.g. boxes or sterile covers; Instrument tables or cupboards; Doctors' bags {{cleaning devices for surgical instruments [A61B 19/34](#); instrument-protective drapes [A61B 19/081](#); for sterilising articles [A61L 2/00](#); for cleaning for sterilising hypodermic or infusion needles or syringes [A61M 5/001](#); for preservation of living parts of the human or animal body [A01N 1/02](#)}}
- D A61B 2019/0201
- • {having adhesive means, e.g. an adhesive strip}
- D A61B 2019/0202
- • {with a lid or cover}
- D A61B 2019/0203
- • • {closable by rotation}
- D A61B 2019/0204
- • • • {of two concentric cylinders with corresponding lateral openings, about their common longitudinal axis}
- D A61B 2019/0205
- • • • {of two concentric parallelepipeds about a common longitudinal axis}
- D A61B 2019/0206
- • • • {about the central longitudinal axis perpendicular to the lid plane}

- D A61B 2019/0208 {about a lateral axis perpendicular to the lid plane}
- D A61B 2019/0209 {about a lateral axis in the lid plane}
- D A61B 2019/021 {about a transverse axis in the lid plane}
- D A61B 2019/0211 . . . {closable by translation}
- D A61B 2019/0212 {parallel to the lid plane}
- D A61B 2019/0213 {perpendicular to the lid plane, e.g. by a downward movement}
- D A61B 2019/0214 {the height of the lid being adjustable with respect to the casing sidewalls}
- D A61B 2019/0216 . . . {closable by a combination of rotation and translation}
- D A61B 2019/0217 {Bayonet coupling}
- D A61B 2019/0218 {by screwing}
- D A61B 2019/0219 . . . {Peelable cover}
- D A61B 2019/022 . . . {with additional sealing means, e.g. O-ring}
- D A61B 2019/0221 . . . {Types of closures or fasteners (using adhesives A61B 2019/0201)}
- D A61B 2019/0222 {Cooperating dimples}
- D A61B 2019/0224 {Press-buttons}
- D A61B 2019/0225 {Locking clamps (A61B 2019/0229 takes precedence)}
- D A61B 2019/0226 {Draw-strings (ties A61B 2019/0228)}
- D A61B 2019/0227 {Plugs, e.g. rubber plugs}
- D A61B 2019/0228 {Ties (draw-strings A61B 2019/0226)}
- D A61B 2019/0229 {Toggle latches or clamps (locking clamps A61B 2019/0225; swingable wire bails A61B 2019/0231)}
- D A61B 2019/0231 {Swingable wire bails or handles (A61B 2019/0229 takes precedence; carrying handles A61B 2019/0281)}
- D A61B 2019/0232 {having additional locking means (permanent closure means A61B 2019/0245)}
- D A61B 2019/0233 {having additional unlocking means}
- D A61B 2019/0234 {Magnetic closures}
- D A61B 2019/0235 {Pegs inserted, e.g. forced, into openings}
- D A61B 2019/0236 {Pins cooperating with slots of a slideable locking bar}
- D A61B 2019/0237 {Rib-and-groove connection}
- D A61B 2019/0239 {Snap connection}
- D A61B 2019/024 {Tabs inserted into slots}
- D A61B 2019/0241 {Hook and loop}
- D A61B 2019/0242 {closed by or under vacuum}
- D A61B 2019/0243 {closed in two steps}
- D A61B 2019/0244 {Zip}
- D A61B 2019/0245 . . . {having permanent closure means}
- D A61B 2019/0247 {having additional means for temporarily preventing said permanent closure}
- D A61B 19/0248 . . . {Furniture specially adapted for surgery or diagnosis, e.g. cabinets, carts, cupboards or tables (supports for surgeons A61B 19/28; medicine cabinets A47B 67/00; accommodation for nursing A61G 12/00)}
- D A61B 2019/0249 . . . {Cabinets}
- D A61B 2019/025 . . . {Carts or trolleys}
- D A61B 2019/0251 {Mayo stands (other holding stands A61B 2019/0259)}

- D A61B 2019/0252 . . . {Cupboards}
- D A61B 2019/0254 {Drawers}
- D A61B 2019/0255 . . . {Tables}
- D A61B 19/0256 . . {Holders for articles, e.g. magnetic holders, racks, stands (holders for suture needles or materials A61B 17/06061; supports as part of surgical instruments A61B 19/26; drapes with means to hold surgical instruments A61B 19/10; hangers for particular articles A47F 7/00; for tooth drills A61C 3/04; for receptacles and tubing attached to beds A61G 7/0503; for pharmaceutical containers A61J 1/16; for irrigation devices A61M 3/0266; racks for syringes or for hypodermic or infusion needles A61M 5/008; for infusion devices A61M 5/1414; for catheters A61M 25/02; holding devices for laboratory apparatus B01L 9/00; racks for work tools B25H 3/04)}
- D A61B 2019/0257 . . . {Magnetic holders}
- D A61B 2019/0258 . . . {Racks}
- D A61B 2019/0259 . . . {Stands (Mayo stands A61B 2019/0251)}
- D A61B 19/026 . . {Casings for packaging, protecting or dispensing articles (for endoscopes A61B 1/00142; for test samples A61B 10/0096; for sutures A61B 17/06114; for ligaturing clips A61B 17/1222; for gloves or finger-stalls A61B 19/045; for dental floss A61C 15/043; for dental instruments A61C 19/02; for prostheses A61F 2/0095; for contraceptive devices A61F 6/005; for bandages or the like A61F 15/001; for pharmaceutical products A61J 1/00; for catheters A61M 25/002; in general B65D, e.g. with dispensing means B65D 83/00; for ampoules B65D 85/42; for clinical thermometers G01K 1/083; for optical fibres G02B 6/444; for X-ray films G03C 3/003)}
- D A61B 19/0262 . . . {for sharps (for suture needles A61B 17/06114; for scalpel-blades A61B 17/3215; for wound clamps A61B 17/105; for used sharps A61B 19/0288; for syringes or for hypodermic or infusion needles A61M 5/002, A61M 5/1626, A61M 5/3202)}
- D A61B 2019/0263 {including foam blocks for retaining sharps (for retaining suture needles A61B 2017/06147)}
- D A61B 19/0264 . . . {Carrying bags, cases, trusses (bags for midwives A61B 17/48; bags in general A45C; first-aid kits A61F 17/00)}
- D A61B 2019/0265 {Cases}
- D A61B 19/0266 {Doctors' or nurses' bags}
- D A61B 2019/0267 . . . {Flexible bags or pouches}
- D A61B 2019/0268 {double-or-multiple-walled}
- D A61B 2019/027 {Multi-pouches, e.g. strips of side-by-side pouches}
- D A61B 19/0271 . . . {Trays (serving trays A47G 23/06)}
- D A61B 2019/0272 . . . {Baskets made of metal wire}
- D A61B 2019/0273 . . . {containing desiccant means, e.g. desiccant pouches}
- D A61B 2019/0274 . . . {containing a preservative liquid, e.g. an antiseptic liquid (bactericidal products in casings for used articles A61B 2019/0293)}
- D A61B 2019/0275 . . . {Nested casings}
- D A61B 2019/0277 . . . {Stackable casings}
- D A61B 2019/0278 . . . {having multiple compartments (multiple flexible pouches A61B 2019/027)}
- D A61B 2019/0279 . . . {having means for connecting similar adjacent containers}
- D A61B 2019/028 . . . {carried on the medical practitioner's clothing or back}
- D A61B 2019/0281 . . . {having carrying handles (swingable locking handles A61B 2019/0231)}
- D A61B 2019/0282 {Wrist hangers}
- D A61B 2019/0283 . . . {having means for automatically ejecting the stored article}

- D A61B 2019/0285 . . . {waterproof (for prostheses A61F 2250/0076)}
- D A61B 2019/0286 . . . {transparent (for surgical instruments or accessories A61B 2017/00902; for prostheses A61F 2250/0091)}
- D A61B 19/0287 . . {Casings for removing or collecting used articles (for sutures A61B 17/06161; accessories for operating tables, e.g. for collecting body wastes A61G 13/10; combustible sputum cups A61J 19/06; sterilising refuse A61L 11/00; for destroying hypodermic or infusion needles or syringes A61M 5/3278; disposal of medical waste by destroying it or transforming it into something useful or harmless B09B 3/0075; for domestic refuse or the like B65F)}
- D A61B 19/0288 . . . {for sharps (for suture needles A61B 17/06161; for scalpel blades A61B 17/3217; for syringes or for hypodermic or infusion needles A61M 5/3205)}
- D A61B 2019/0289 {having additional means for destroying used sharps (for destroying used hypodermic or infusion needles or syringes A61M 5/3278)}
- D A61B 19/029 . . . {for absorbent articles, e.g. bandages, cotton balls, covers, drapes, dressings, garments, gauze, gowns, napkins, sponges, swabs or towels (devices for determining blood loss A61B 5/02042)}
- D A61B 2019/0291 {for sponges (counting means A61B 2019/4821)}
- D A61B 2019/0293 . . . {containing anti-microbial, anti-viral, bactericidal or disinfectant products (preservative liquid in packages or dispensers A61B 2019/0274)}
- D A61B 2019/0294 . . {having temperature-modifying means}
- D A61B 2019/0295 . . . {Cooling means}
- D A61B 2019/0296 . . . {Heating means}
- D A61B 2019/0297 {Chemical heating}
- D A61B 2019/0298 {Electric heating}
- D A61B 19/04 . . Operating gloves; Finger-stalls for operating; Devices for treating them, e.g. cleaning, powdering (glove-boxes for manipulating, gloves therefor B25J 21/02)
- D A61B 19/041 . . {Devices for detecting perforations in surgical gloves or finger-stalls}
- D A61B 2019/043 . . {Finger-stalls}
- D A61B 19/045 . . {Packages or dispensers for gloves or finger-stalls}
- D A61B 2019/046 . . {Devices for putting-on or taking-off gloves}
- D A61B 2019/048 . . {Devices for washing of, drying of, or applying powder to, gloves}
- D A61B 19/08 . . Surgical drapes (bandages, dressings or absorbent pads A61F 13/00)
- D A61B 19/081 . . {for protection of instruments, e.g. microscopes (for part of endoscope entering the body A61B 1/00142)}
- D A61B 2019/082 . . . {entering the body, e.g. non-transparent}
- D A61B 2019/083 {closed at the distal end}
- D A61B 2019/084 . . {with means for connecting to the patient}
- D A61B 2019/085 . . . {adhesive}
- D A61B 2019/086 . . {for extremities, e.g. having collection pouch (A61B 19/12 takes precedence)}
- D A61B 19/087 . . {for surgery through the lower body openings, e.g. urology, gynaecology}
- D A61B 19/088 . . {Drape material, e.g. laminates; Manufacture thereof}
- D A61B 19/10 . . . with means to retain or hold surgical implements {(holders for articles A61B 19/0256)}
- D A61B 2019/103 . . . {with means for retaining a catheter}
- D A61B 2019/106 . . . {with a drain tube or with means for collecting drain fluid}
- D A61B 19/12 . . . tubular, e.g. for arms or legs {(A61B 19/087 takes precedence)}
- D A61B 19/20 . . {for stereotaxic surgery (using radio-opaque markers A61B 19/54)}

- D A61B 19/201
 - • {with needle or instrument guides, e.g. arcuate slides, ball joints (needle guiding or locating means A61B 17/3403)}
- D A61B 2019/202
 - • • {guided by light, e.g. laser pointers}
- D A61B 19/203
 - • {Fixators for body parts, e.g. head fixators, skull clamps or bite blocks (tables with compression means for mammography A61B 6/0414; tables with patient immobilising means for radiation diagnosis A61B 6/0421); Constructional details thereof, e.g. fixating pins (bone screws or pins A61B 17/86)}
- D A61B 2019/204
 - • • {Bite blocks}
- D A61B 2019/205
 - • • {for soft tissue, e.g. breast holding devices}
- D A61B 2019/206
 - • • {Retaining sheets, e.g. immobilizing masks made from a thermoplastic material}
- D A61B 2019/207
 - • {for stereotaxic radiosurgery}
- D A61B 2019/208
 - • {Cranial plugs for access to brain}
- D A61B 19/22
 - {Manipulators specially adapted for use in surgery}
- D A61B 19/2203
 - • {Surgical robots}
- D A61B 2019/2207
 - • • {operating autonomously}
- D A61B 2019/2211
 - • • {for introducing or steering flexible instruments inserted into the body, e.g. catheters or endoscopes}
- D A61B 2019/2215
 - • • {specifically adapted for manipulations within body cavities, e.g. within abdominal or thoracic cavities}
- D A61B 2019/2219
 - • • {specifically adapted for manipulations within body lumens, e.g. within lumen of gut, spine, or blood vessels}
- D A61B 2019/2223
 - • • {Master-Slave robots}
- D A61B 2019/2226
 - • • {including a freely orientable platform, e.g. so called 'Stewart platforms'}
- D A61B 2019/223
 - • • {for telesurgery}
- D A61B 2019/2234
 - • • {Details of wrist mechanisms at distal ends of robotic arms}
- D A61B 2019/2238
 - • • • {Wrists with multiple vertebrae}
- D A61B 2019/2242
 - • {operated by drive cable mechanisms}
- D A61B 2019/2246
 - • • {Cable tensioning mechanisms for removing slack}
- D A61B 2019/2249
 - • {Micromanipulators}
- D A61B 2019/2253
 - • {Manipulators for magnetic surgery}
- D A61B 2019/2257
 - • • {Coil or magnet arrangements therefor}
- D A61B 2019/2261
 - • • • {arranged around the patient, e.g. in a gantry}
- D A61B 2019/2265
 - • • • {arranged only on one side of the patient, e.g. under a table}
- D A61B 2019/2269
 - • {Manual electric input means}
- D A61B 2019/2273
 - • • {Glove like input devices, e.g. "data gloves"}
- D A61B 2019/2276
 - • • {Joysticks}
- D A61B 2019/228
 - • • {Keyboards}
- D A61B 2019/2284
 - • • {Mouse}
- D A61B 2019/2288
 - • {Prevention or compensation of hand tremors}
- D A61B 2019/2292
 - • {with means providing feel, e.g. force or tactile feedback}
- D A61B 2019/2296
 - • {with motion or force scaling (A61B 2019/2288 takes precedence)}
- D A61B 19/24
 - {Devices for expanding tissue, e.g. skin tissue (implements for holding wounds open, surgical tractors A61B 17/02; implantable mammary prosthesis A61F 2/12; dilators A61M 29/00)}
- D A61B 19/26
 - {Supports as part of surgical instruments, e.g. articulated arms, headbands (A61B 19/22 takes precedence; holders for articles A61B 19/0256)}

- D A61B 2019/261 . . {connected to doctor's body, e.g. by a belt}
- D A61B 2019/262 . . {Headgear, e.g. helmet, spectacles}
- D A61B 2019/263 . . {with a counter-balancing mechanism}
- D A61B 2019/264 . . . {with a counterweight}
- D A61B 2019/265 . . {using a parallelogram linkage, e.g. pantograph}
- D A61B 2019/266 . . {with releasable brake mechanisms}
- D A61B 2019/267 . . {Accessory clamps}
- D A61B 2019/268 . . . {for clamping a support arm to a bed or other supports}
- D A61B 19/28 . {Supports for surgeons, e.g. chairs, hand supports (seats for the dentist or surgeon associated with dental or operating chairs A61G 15/00)}
- D A61B 19/30 . {Automatic limiting or abutting means, e.g. for safety}
- D A61B 2019/301 . . {torque limiting}
- D A61B 2019/302 . . {pressure limiting, e.g. hydrostatic}
- D A61B 2019/303 . . {Abutting means, stops, e.g. abutting on tissue or skin}
- D A61B 2019/304 . . . {abutting on parts of the device itself}
- D A61B 2019/305 {preventing further rotation}
- D A61B 2019/306 . . . {abutting on tissue or skin}
- D A61B 2019/307 . . {with a frangible part, e.g. by reduced diameter}
- D A61B 2019/308 . . {during shipment}
- D A61B 19/34 . {Cleaning devices specially adapted for surgical instruments (disinfecting A61L 2/00; cleaning in general B08B)}
- D A61B 2019/343 . . {for flexible tubular instruments, e.g. endoscopes}
- D A61B 2019/346 . . {Devices for testing the cleaning process, e.g. test soils}
- D A61B 19/36 . {Implements for cleaning or washing surgeon's hands or patient's skin (hand-held absorbent pads or swabs containing a cleaning liquid, e.g. in a rupturable reservoir, A61M 35/006)}
- D A61B 19/38 . {Apparatus for sterile operations, e.g. apparatus fixed to patient for providing an aseptic surgical environment}
- D A61B 2019/385 . . {using air flow}
- D A61B 19/40 . {Protection of tissue around surgical sites against effects of non-mechanical surgery, e.g. laser surgery (protection of eyes against laser radiation A61F 9/022)}
- D A61B 2019/4009 . . {Specification of type of protection measures}
- D A61B 2019/4018 . . . {Compensation}
- D A61B 2019/4027 . . . {Prevention of contact}
- D A61B 2019/4036 . . . {Shielding}
- D A61B 2019/4045 {by absorption}
- D A61B 2019/4054 {by reflection}
- D A61B 2019/4063 . . {against cooling or freezing}
- D A61B 2019/4072 . . {against ultrasound energy}
- D A61B 2019/4081 . . {against EM radiation, e.g. microwave}
- D A61B 2019/409 . . {against light, e.g. laser}
- D A61B 19/42 . {Splash shields for protection of the surgeon, e.g. splash guards connected to the apparatus (A41D 13/11 takes precedence)}
- D A61B 19/44 . {Identification means for patients or instruments, e.g. identification tags}
- D A61B 2019/442 . . {with bar code}

- D A61B 2019/444 . . {Colour-coded}
- D A61B 2019/446 . . {coded with symbols, e.g. dots, numbers, letters, words}
- D A61B 2019/448 . . {Detection or identification by electromagnetic means, e.g. transponders}
- D A61B 19/46 . {Measuring instruments not otherwise provided for (for implanting artificial joints A61F 2/4657)}
- D A61B 2019/461 . . {for measuring dimensions, e.g. length (A61B 2019/462 takes precedence)}
- D A61B 2019/462 . . {penetration depth}
- D A61B 2019/463 . . {for measuring volume}
- D A61B 2019/464 . . {for measuring force, pressure or mechanical tension}
- D A61B 2019/465 . . . {for measuring contact or contact pressure}
- D A61B 2019/466 . . . {for measuring torque}
- D A61B 2019/467 . . {for measuring angles}
- D A61B 2019/468 . . . {with a bubble level}
- D A61B 2019/469 . . . {using a plummet or weight}
- D A61B 2019/48 . {Accessories or related features not otherwise provided for}
- D A61B 2019/4805 . . {Prevention of accidental cutting or pricking (protective suturing devices A61B 17/0493, blunt suture needles A61B 2017/06085, blunt dissectors A61B 2017/320044)}
- D A61B 2019/481 . . . {of the patient or his organs}
- D A61B 2019/4815 . . {Counting the number of times an instrument is used}
- D A61B 2019/4821 . . {Counting number of instruments used; Instrument detectors}
- D A61B 2019/4826 . . . {automatically, e.g. by means of magnetic, optical or photoelectric detectors}
- D A61B 2019/4831 . . . {Instrument detectors with a removable part, e.g. working tip}
- D A61B 2019/4836 . . {Indication means}
- D A61B 2019/4842 . . . {for indicating correct assembly of components, e.g. of the surgical apparatus}
- D A61B 2019/4847 . . . {Indication of cracks or breakages}
- D A61B 2019/4852 . . . {for contamination or dirt}
- D A61B 2019/4857 . . . {for the position of a particular part of an instrument with respect to the rest of the instrument, e.g. position of the anvil of a stapling instrument}
- D A61B 2019/4863 {indicating loosening or shifting of parts of an instrument, signaling maladjustment of parts}
- D A61B 2019/4868 . . {Accessories designed for easy sterilising, i.e. re-usable}
- D A61B 2019/4873 . . {Preventing re-use (for prostheses A61F 2250/009)}
- D A61B 2019/4878 . . {Implantable devices for insertion in between organs or other soft tissues (plugging wall openings A61B 17/0057, retractors A61B 17/02, tissue expanders A61B 19/24)}
- D A61B 2019/4884 . . . {for preventing adhesion}
- D A61B 2019/4889 . . {Spatulas or spatula like extensions}
- D A61B 2019/4894 . . {Redundant systems, e.g. using two independent measuring systems and comparing the signals}
- D A61B 19/50 . {Computer-aided planning, simulation or modeling of a surgical operation}
- D A61B 2019/501 . . {Computer simulation of a surgical treatment}
- D A61B 2019/502 . . . {Modelling of surgical devices, implants or prosthesis}
- D A61B 2019/504 {for modeling the effect of the tool, e.g. the effect of an implanted prosthesis or for predicting the effect of ablation or burring}

- D A61B 2019/505 . . . {Modelling of the patient , e.g. for ligaments or bones}
- D A61B 2019/507 . . {with visualisation of a planned trajectory or a target region}
- D A61B 2019/508 . . {Computer aided selection or customisation of medical implant or cutting guide}
- D A61B 19/52 . {Image-producing devices or illumination devices not otherwise provided for, e.g. operation microscopes; Operation lamp handles}
- D A61B 19/5202 . . {Devices for illuminating a surgical field}
- D A61B 2019/5204 . . . {using chemi-luminescent materials}
- D A61B 2019/5206 . . . {using optical fibres}
- D A61B 2019/5208 . . . {Lamp handles}
- D A61B 2019/521 . . . {using white LEDs}
- D A61B 19/5212 . . {Image-producing devices, e.g. surgical cameras (A61B 19/5223, A61B 19/5225 take precedence)}
- D A61B 2019/5214 . . . {with images taken automatically}
- D A61B 2019/5217 . . . {using optical fibre}
- D A61B 2019/5219 . . . {Magnifying glass}
- D A61B 2019/5221 . . . {with a mirror}
- D A61B 19/5223 . . {Surgical microscopes}
- D A61B 19/5225 . . {Surgical systems with images on a monitor during operation}
- D A61B 2019/5227 . . . {with simultaneous use of two cameras}
- D A61B 2019/5229 . . . {Details of monitor hardware}
- D A61B 2019/5231 . . . {using light, e.g. by using optical scanners}
- D A61B 2019/5234 {Optical coherence tomography [OCT]}
- D A61B 2019/5236 . . . {NMR or MRI}
- D A61B 2019/5238 . . . {X-ray, e.g. fluoroscopy}
- D A61B 2019/524 {using computed tomography systems [CT]}
- D A61B 2019/5242 {with a rotating C-arm having a cone beam emitting source}
- D A61B 19/5244 . . . {Systems for tracking the position of an instrument during image guided surgery, e.g. surgical navigation systems}
- D A61B 2019/5246 {using a specific tracking technique}
- D A61B 2019/5248 {using an accelerometer or inertia sensor}
- D A61B 2019/5251 {Electromagnetic tracking systems}
- D A61B 2019/5253 {tracking an applied voltage gradient}
- D A61B 2019/5255 {Optical tracking systems}
- D A61B 2019/5257 {Details of tracking cameras}
- D A61B 2019/5259 {Mechanical position encoders therefor}
- D A61B 2019/5261 {using shape sensors, e.g. fiber shape sensors with Bragg gratings}
- D A61B 2019/5263 {Acoustic tracking systems, e.g. using ultrasound}
- D A61B 2019/5265 {Tracking by image or pattern recognition}
- D A61B 2019/5268 {using pointers, e.g. pointers having reference marks for determining coordinates of body points}
- D A61B 2019/527 {Divots for calibration}
- D A61B 2019/5272 {Reference field transducer attached to an instrument or patient}
- D A61B 2019/5274 {Interface software}
- D A61B 2019/5276 . . . {ultrasound}

- D A61B 2019/5278 {transmitter or receiver in catheter or minimal invasive instrument}
- D A61B 2019/528 {both receiver and transmitter being in the instrument or receiver being also transmitter}
- D A61B 2019/5282 {receiver only}
- D A61B 2019/5285 {transmitter only}
- D A61B 2019/5287 . . {Use of fiducial points}
- D A61B 2019/5289 . . {Correlation of different images or relation of image positions in respect to the body}
- D A61B 2019/5291 . . . {augmented reality, i.e. correlating a live optical image with another image}
- D A61B 2019/5293 . . . {using projection of images directly onto the body}
- D A61B 2019/5295 . . . {creating a 3D dataset from 2D images using position information}
- D A61B 2019/5297 . . . {changing the image on a display according to the operator's position}
- D A61B 19/54 . {Markers, e.g. radio-opaque or breast lesions markers (mechanical markers for eye-keratotomy A61F 9/0136; markers in surgical tampons or sponges A61F 13/44; markers on catheters A61M 25/0108)}
- D A61B 2019/5404 . . {for marking specified tissue}
- D A61B 2019/5408 . . . {Soft tissue, e.g. breast tissue}
- D A61B 2019/5412 . . . {Body cavities}
- D A61B 2019/5416 . . . {Bone tissue}
- D A61B 2019/542 . . {radioactive}
- D A61B 2019/5425 . . {ultrasonic}
- D A61B 2019/5429 . . . {active}
- D A61B 2019/5433 . . {liquid}
- D A61B 2019/5437 . . {visible (A61B 2019/446 takes precedence)}
- D A61B 2019/5441 . . . {photoluminescent}
- D A61B 2019/5445 . . . {Active visible markers, e.g. light emitting diodes (A61B 2019/5441 takes precedence)}
- D A61B 2019/545 . . . {with marking agent for marking skin or other tissue}
- D A61B 2019/5454 . . {magnetic, e.g. NMR or MRI}
- D A61B 2019/5458 . . . {emitting a signal}
- D A61B 2019/5462 . . {palpable}
- D A61B 2019/5466 . . {Radiopaque markers visible in an X-ray image}
- D A61B 2019/547 . . {electromagnetic other than visible, e.g. microwave}
- D A61B 2019/5475 . . . {active}
- D A61B 2019/5479 {infrared}
- D A61B 2019/5483 . . {Reference marker arrangements for use with image guided surgery}
- D A61B 2019/5487 . . {Applicators for implanting markers}
- D A61B 2019/5491 . . {having specific anchoring means to fixate the marker to the tissue, e.g. hooks}
- D A61B 2019/5495 . . {Multi-modality markers}
- D A61B 19/56 . {User interfaces for surgical systems}
- D A61B 2019/562 . . {indicating steps of a surgical procedure}
- D A61B 2019/564 . . {being adapted depending on the stage of the surgical procedure}
- D A61B 2019/566 . . {with a database of accessory information, e.g. including context sensitive help or scientific articles}
- D A61B 2019/568 . . {providing specific settings for specific users}

- N A61B 34/00 Computer-aided surgery; Manipulators or robots specially adapted for use in surgery**
- N A61B 34/10 · Computer-aided planning, simulation or modelling of surgical operations
 - N A61B 2034/101 · · {Computer-aided simulation of surgical operations}
 - N A61B 2034/102 · · · {Modelling of surgical devices, implants or prosthesis}
 - N A61B 2034/104 · · · · {Modelling the effect of the tool, e.g. the effect of an implanted prosthesis or for predicting the effect of ablation or burring}
 - N A61B 2034/105 · · · {Modelling of the patient, e.g. for ligaments or bones}
 - N A61B 2034/107 · · {Visualisation of planned trajectories or target regions}
 - N A61B 2034/108 · · {Computer aided selection or customisation of medical implants or cutting guides}
 - N A61B 34/20 · Surgical navigation systems; Devices for tracking or guiding surgical instruments, e.g. for frameless stereotaxis
 - N A61B 2034/2046 · · {Tracking techniques}
 - N A61B 2034/2048 · · · {using an accelerometer or inertia sensor}
 - N A61B 2034/2051 · · · {Electromagnetic tracking systems}
 - N A61B 2034/2053 · · · · {Tracking an applied voltage gradient}
 - N A61B 2034/2055 · · · {Optical tracking systems}
 - N A61B 2034/2057 · · · · {Details of tracking cameras}
 - N A61B 2034/2059 · · · {Mechanical position encoders}
 - N A61B 2034/2061 · · · {using shape-sensors, e.g. fiber shape sensors with Bragg gratings}
 - N A61B 2034/2063 · · · {Acoustic tracking systems, e.g. using ultrasound}
 - N A61B 2034/2065 · · · {Tracking using image or pattern recognition}
 - N A61B 2034/2068 · · {using pointers, e.g. pointers having reference marks for determining coordinates of body points}
 - N A61B 2034/207 · · · {Divots for calibration}
 - N A61B 2034/2072 · · {Reference field transducer attached to an instrument or patient}
 - N A61B 2034/2074 · · {Interface software}
 - N A61B 34/25 · {User interfaces for surgical systems}
 - N A61B 2034/252 · · {indicating steps of a surgical procedure}
 - N A61B 2034/254 · · {being adapted depending on the stage of the surgical procedure}
 - N A61B 2034/256 · · {having a database of accessory information, e.g. including context sensitive help or scientific articles}
 - N A61B 2034/258 · · {providing specific settings for specific users}
 - N A61B 34/30 · Surgical robots
 - N A61B 2034/301 · · {for introducing or steering flexible instruments inserted into the body, e.g. catheters or endoscopes}
 - N A61B 2034/302 · · {specifically adapted for manipulations within body cavities, e.g. within abdominal or thoracic cavities}
 - N A61B 2034/303 · · {specifically adapted for manipulations within body lumens, e.g. within lumen of gut, spine, or blood vessels}
 - N A61B 2034/304 · · {including a freely orientable platform, e.g. so called 'Stewart platforms'}
 - N A61B 2034/305 · · {Details of wrist mechanisms at distal ends of robotic arms}
 - N A61B 2034/306 · · · {Wrists with multiple vertebrae}
 - N A61B 34/32 · · operating autonomously
 - N A61B 34/35 · · for telesurgery

- N A61B 34/37 · · Master-slave robots ([A61B 34/35](#) takes precedence)
- N A61B 34/70 · {Manipulators specially adapted for use in surgery}
- N A61B 34/71 · · {Manipulators operated by drive cable mechanisms}
- N A61B 2034/715 · · · {Cable tensioning mechanisms for removing slack}
- N A61B 34/72 · · {Micromanipulators}
- N A61B 34/73 · · {Manipulators for magnetic surgery}
- N A61B 2034/731 · · · {Arrangement of the coils or magnets}
- N A61B 2034/732 · · · · {arranged around the patient, e.g. in a gantry}
- N A61B 2034/733 · · · · {arranged only on one side of the patient, e.g. under a table}
- N A61B 34/74 · · {Manipulators with manual electric input means}
- N A61B 2034/741 · · · {Glove like input devices, e.g. "data gloves"}
- N A61B 2034/742 · · · {Joysticks}
- N A61B 2034/743 · · · {Keyboards}
- N A61B 2034/744 · · · {Mouse}
- N A61B 34/75 · · {Manipulators having means for prevention or compensation of hand tremors}
- N A61B 34/76 · · {Manipulators having means for providing feel, e.g. force or tactile feedback}
- N A61B 34/77 · · {Manipulators with motion or force scaling}

Q A61B 42/00 *Surgical gloves; Finger-stalls specially adapted for surgery; Devices for handling or treatment thereof*

WARNING

Group [A61B 42/00](#) is impacted by reclassification into group [A61B 42/10](#).

Groups [A61B 42/00](#) and [A61B 42/10](#) should be considered in order to perform a complete search.

- N A61B 42/10 · Surgical gloves

WARNING

Group [A61B 42/10](#) is incomplete pending reclassification of documents from group [A61B 42/00](#).

Groups [A61B 42/00](#) and [A61B 42/10](#) should be considered in order to perform a complete search.

- N A61B 42/20 · Finger-stalls specially adapted for surgery
- N A61B 42/30 · Devices for detecting perforations, leaks or tears
- N A61B 42/40 · Packages or dispensers
- N A61B 42/50 · Devices for putting-on or removing
- N A61B 42/60 · Devices for cleaning, washing, drying or powdering

N A61B 46/00 *Surgical drapes*

- N A61B 46/10 · specially adapted for instruments{, e.g. microscopes}
- N A61B 46/13 · · the drapes entering the patient's body
- N A61B 46/17 · · · closed at the distal end
- N A61B 46/20 · specially adapted for patients
- N A61B 2046/201 · · {for extremities, e.g. having collection pouch}
- N A61B 2046/205 · · {Adhesive drapes}
- N A61B 46/23 · · with means to retain or hold surgical implements
- N A61B 2046/234 · · · {with means for retaining a catheter}
- N A61B 2046/236 · · · {with means for collecting drain fluid, e.g. drain tubes}

- N A61B 46/27 · · tubular, e.g. for arms or legs ([A61B 46/13](#) takes precedence)
- N A61B 46/30 · {for surgery through the lower body openings, e.g. urology, gynaecology}
- N A61B 46/40 · {Drape material, e.g. laminates; Manufacture thereof}
- N A61B 50/00 **Containers, covers, furniture or holders specially adapted for surgical or diagnostic appliances or instruments, e.g. sterile covers (drapes specially adapted for instruments [A61B 46/10](#))****
- N A61B 2050/001 · {Temperature-modifying means}
- N A61B 2050/0014 · · {Cooling means}
- N A61B 2050/0016 · · {Heating means}
- N A61B 2050/0017 · · · {Chemical heating}
- N A61B 2050/0018 · · · {Electric heating}
- N A61B 2050/002 · {having adhesive means, e.g. an adhesive strip}
- N A61B 2050/005 · {with a lid or cover}
- N A61B 2050/0051 · · {closable by rotation}
- N A61B 2050/0052 · · · {of two concentric cylinders with corresponding lateral openings, about their common longitudinal axis}
- N A61B 2050/0053 · · · {of two concentric parallelepipeds about a common longitudinal axis}
- N A61B 2050/0054 · · · {about the central longitudinal axis perpendicular to the lid plane}
- N A61B 2050/0055 · · · {about a lateral axis perpendicular to the lid plane}
- N A61B 2050/0056 · · · {about a lateral axis in the lid plane}
- N A61B 2050/0057 · · · {about a transverse axis in the lid plane}
- N A61B 2050/0058 · · {closable by translation}
- N A61B 2050/0059 · · · {parallel to the lid plane}
- N A61B 2050/006 · · · {perpendicular to the lid plane, e.g. by a downward movement}
- N A61B 2050/0061 · · · · {the height of the lid being adjustable with respect to the casing sidewalls}
- N A61B 2050/0062 · · {closable by a combination of rotation and translation}
- N A61B 2050/0063 · · · {Bayonet coupling}
- N A61B 2050/0064 · · · {by screwing}
- N A61B 2050/0065 · · {Peelable cover}
- N A61B 2050/0066 · · {with additional sealing means, e.g. O-ring}
- N A61B 2050/0067 · · {Types of closures or fasteners}
- N A61B 2050/0068 · · · {Cooperating dimples}
- N A61B 2050/0069 · · · {Press-buttons}
- N A61B 2050/007 · · · {Locking clamps}
- N A61B 2050/0071 · · · {Draw-strings}
- N A61B 2050/0072 · · · {Plugs, e.g. rubber plugs}
- N A61B 2050/0073 · · · {Ties}
- N A61B 2050/0074 · · · {Toggle latches or clamps}
- N A61B 2050/0075 · · · {Swingable wire bails or handles}
- N A61B 2050/0076 · · · {having additional locking means}
- N A61B 2050/0078 · · · {having additional unlocking means}
- N A61B 2050/0079 · · · {Magnetic closures}
- N A61B 2050/008 · · · {Pegs inserted, e.g. forced, into openings}
- N A61B 2050/0081 · · · {Pins cooperating with slots of a slideable locking bar}
- N A61B 2050/0082 · · · {Rib-and-groove connection}

- N A61B 2050/0083 . . . {Snap connection}
- N A61B 2050/0084 . . . {Tabs inserted into slots}
- N A61B 2050/0085 . . . {Hook and loop}
- N A61B 2050/0086 . . . {closed by or under vacuum}
- N A61B 2050/0087 . . . {closed in two steps}
- N A61B 2050/0088 . . . {Zip}
- N A61B 2050/0089 . . {having permanent closure means}
- N A61B 2050/009 . . . {having additional means for temporarily preventing said permanent closure}
- N A61B 50/10 . Furniture specially adapted for surgical or diagnostic appliances or instruments
- N A61B 2050/105 . . {Cabinets}
- N A61B 50/13 . . Trolleys{, e.g. carts}
- N A61B 50/15 . . Mayo stands; Tables
- N A61B 2050/155 . . . {Mayo stands}
- N A61B 50/18 . . Cupboards; Drawers therefor
- N A61B 2050/185 . . . {Drawers}
- N A61B 50/20 . Holders specially adapted for surgical or diagnostic appliances or instruments (drapes with means to hold surgical instruments [A61B 46/23](#); for catheters [A61M 25/02](#))
- N A61B 2050/21 . . {Magnetic holders}
- N A61B 50/22 . . Racks
- Q A61B 50/24 . . Stands (Mayo stands [A61B 50/15](#))
- WARNING
Group [A61B 50/24](#) is impacted by reclassification into groups [A61B 50/26](#) and [A61B 50/28](#).
Groups [A61B 50/24](#), [A61B 50/26](#) and [A61B 50/28](#) should be considered in order to perform a complete search.
- N A61B 50/26 . . . floor-based
- WARNING
Group [A61B 50/26](#) is incomplete pending reclassification of documents from group [A61B 50/24](#).
Groups [A61B 50/24](#), [A61B 50/26](#) and [A61B 50/28](#) should be considered in order to perform a complete search.
- N A61B 50/28 . . . suspended from the ceiling
- WARNING
Group [A61B 50/28](#) is incomplete pending reclassification of documents from group [A61B 50/24](#).
Groups [A61B 50/24](#), [A61B 50/26](#) and [A61B 50/28](#) should be considered in order to perform a complete search.
- N A61B 50/30 . Containers specially adapted for packaging, protecting, dispensing, collecting or disposing of surgical or diagnostic appliances or instruments (for wound clamps [A61B 17/10](#); for ligaturing clips [A61B 17/122](#); packages or dispensers for surgical gloves or finger-stalls [A61B 42/40](#))
- N A61B 50/3001 . . {for sharps}
- N A61B 2050/3002 . . . {including foam blocks for retaining sharps}
- N A61B 2050/3004 . . {containing desiccant means, e.g. desiccant pouches}
- N A61B 2050/3005 . . {containing a preservative liquid, e.g. an antiseptic liquid}

- N A61B 2050/3006 • • {Nested casings}
- N A61B 2050/3007 • • {Stackable casings}
- N A61B 2050/3008 • • {having multiple compartments}
- N A61B 2050/3009 • • {having means for connecting similar adjacent containers}
- N A61B 2050/301 • • {carried on the medical practitioner's clothing or back}
- N A61B 2050/3011 • • {having carrying handles}
- N A61B 2050/3012 • • • {Wrist hangers}
- N A61B 2050/3013 • • {having means for automatically ejecting the stored article}
- N A61B 2050/3014 • • {waterproof}
- N A61B 2050/3015 • • {transparent}
- N A61B 50/31 • • Carrying cases or bags, e.g. doctors' bags
- N A61B 2050/311 • • • {Cases}
- N A61B 50/312 • • • {Doctors' or nurses' bags}
- N A61B 2050/314 • • {Flexible bags or pouches}
- N A61B 2050/316 • • • {double- or multiple-walled}
- N A61B 2050/318 • • • {Multi-pouches, e.g. strips of side-by-side pouches}
- N A61B 50/33 • • Trays
- N A61B 50/34 • • Baskets
- N A61B 50/36 • • for collecting or disposing of used articles
- N A61B 50/362 • • • {for sharps}
- N A61B 2050/364 • • • • {having additional means for destroying used sharps}
- N A61B 50/37 • • • for absorbent articles, e.g. bandages, garments, swabs or towels
- N A61B 2050/375 • • • • {for sponges}
- N A61B 50/39 • • • the containers containing antimicrobial, antiviral or disinfectant agents
- N A61B 90/00** **Instruments, implements or accessories specially adapted for surgery or diagnosis and not covered by any of the groups [A61B 1/00](#) - [A61B 50/00](#), e.g. for luxation treatment or for protecting wound edges (protective face masks [A41D 13/11](#); surgeon's or patient's gowns or dresses [A41D 13/12](#); devices for carrying-off, for treatment of, or for carrying-over, body liquids [A61M 1/00](#))**
- N A61B 90/02 • • {Devices for expanding tissue, e.g. skin tissue (implements for holding wounds open, surgical tractors [A61B 17/02](#); implantable mammary prosthesis [A61F 2/12](#); dilators [A61M 29/00](#))}
- N A61B 90/03 • • {Automatic limiting or abutting means, e.g. for safety}
- N A61B 2090/031 • • {torque limiting}
- N A61B 2090/032 • • {pressure limiting, e.g. hydrostatic}
- N A61B 2090/033 • • {Abutting means, stops, e.g. abutting on tissue or skin}
- N A61B 2090/034 • • • {abutting on parts of the device itself}
- N A61B 2090/035 • • • • {preventing further rotation}
- N A61B 2090/036 • • • {abutting on tissue or skin}
- N A61B 2090/037 • • {with a frangible part, e.g. by reduced diameter}
- N A61B 2090/038 • • {during shipment}
- N A61B 90/04 • • {Protection of tissue around surgical sites against effects of non-mechanical surgery, e.g. laser surgery (protection of eyes against laser radiation [A61F 9/022](#))}
- N A61B 2090/0409 • • {Specification of type of protection measures}

- N A61B 2090/0418 . . . {Compensation}
- N A61B 2090/0427 . . . {Prevention of contact}
- N A61B 2090/0436 . . . {Shielding}
- N A61B 2090/0445 {by absorption}
- N A61B 2090/0454 {by reflection}
- N A61B 2090/0463 . . {against cooling or freezing}
- N A61B 2090/0472 . . {against ultrasound energy}
- N A61B 2090/0481 . . {against EM radiation, e.g. microwave}
- N A61B 2090/049 . . {against light, e.g. laser}
- N A61B 90/05 . {Splash shields for protection of the surgeon, e.g. splash guards connected to the apparatus ([A41D 13/11](#) takes precedence)}
- N A61B 90/06 . {Measuring instruments not otherwise provided for}
- N A61B 2090/061 . . {for measuring dimensions, e.g. length}
- N A61B 2090/062 . . {penetration depth}
- N A61B 2090/063 . . {for measuring volume}
- N A61B 2090/064 . . {for measuring force, pressure or mechanical tension}
- N A61B 2090/065 . . . {for measuring contact or contact pressure}
- N A61B 2090/066 . . . {for measuring torque}
- N A61B 2090/067 . . {for measuring angles}
- N A61B 2090/068 . . . {with a bubble level}
- N A61B 2090/069 . . . {using a plummet or weight}
- N A61B 90/08 . {Accessories or related features not otherwise provided for}
- N A61B 2090/0801 . . {Prevention of accidental cutting or pricking}
- N A61B 2090/0802 1 . . . {of the patient or his organs}
- N A61B 2090/0803 . . {Counting the number of times an instrument is used}
- N A61B 2090/0804 . . {Counting number of instruments used; Instrument detectors}
- N A61B 2090/0805 . . . {automatically, e.g. by means of magnetic, optical or photoelectric detectors}
- N A61B 2090/0806 . . . {Instrument detectors with a removable part, e.g. working tip}
- N A61B 2090/0807 . . {Indication means}
- N A61B 2090/0808 . . . {for indicating correct assembly of components, e.g. of the surgical apparatus}
- N A61B 2090/0809 . . . {Indication of cracks or breakages}
- N A61B 2090/081 . . . {for contamination or dirt}
- N A61B 2090/0811 . . . {for the position of a particular part of an instrument with respect to the rest of the instrument, e.g. position of the anvil of a stapling instrument}
- N A61B 2090/0812 {indicating loosening or shifting of parts of an instrument, signaling maladjustment of parts}
- N A61B 2090/0813 . . {Accessories designed for easy sterilising, i.e. re-usable}
- N A61B 2090/0814 . . {Preventing re-use}
- N A61B 2090/0815 . . {Implantable devices for insertion in between organs or other soft tissues}
- N A61B 2090/0816 . . . {for preventing adhesion}
- N A61B 2090/0817 . . {Spatulas or spatula like extensions}
- N A61B 2090/0818 . . {Redundant systems, e.g. using two independent measuring systems and comparing the signals}
- N A61B 90/10 . for stereotaxic surgery, e.g. frame-based stereotaxis

- N A61B 2090/101 · · {for stereotaxic radiosurgery}
- N A61B 2090/103 · · {Cranial plugs for access to brain}
- N A61B 90/11 · · with guides for needles or instruments, e.g. arcuate slides or ball joints
- N A61B 90/13 · · · guided by light, e.g. laser pointers
- N A61B 90/14 · · Fixators for body parts, e.g. skull clamps; Constructional details of fixators, e.g. pins
- N A61B 90/16 · · · Bite blocks
- N A61B 90/17 · · · for soft tissue, e.g. breast-holding devices
- N A61B 90/18 · · · Retaining sheets, e.g. immobilising masks {made from a thermoplastic material}
- Q A61B 90/20 · Surgical microscopes characterised by non-optical aspects
- WARNING
Group [A61B 90/20](#) is impacted by reclassification into group [A61B 90/25](#). Groups [A61B 90/20](#) and [A61B 90/25](#) should be considered in order to perform a complete search.
- N A61B 90/25 · · Supports therefor
- WARNING
Group [A61B 90/25](#) is incomplete pending reclassification of documents from group [A61B 90/20](#). Groups [A61B 90/20](#) and [A61B 90/25](#) should be considered in order to perform a complete search.
- Q A61B 90/30 · Devices for illuminating a surgical field, the devices having an interrelation with other surgical devices or with a surgical procedure
- WARNING
Group [A61B 90/30](#) is impacted by reclassification into group [A61B 90/35](#). Groups [A61B 90/30](#) and [A61B 90/35](#) should be considered in order to perform a complete search.
- N A61B 2090/304 · · {using chemi-luminescent materials}
- N A61B 2090/306 · · {using optical fibres}
- N A61B 2090/308 · · {Lamp handles}
- N A61B 2090/309 · · {using white LEDs}
- N A61B 90/35 · · Supports therefor
- WARNING
Group [A61B 90/35](#) is incomplete pending reclassification of documents from group [A61B 90/30](#). Groups [A61B 90/30](#) and [A61B 90/35](#) should be considered in order to perform a complete search.
- N A61B 90/36 · {Image-producing devices or illumination devices not otherwise provided for}
- N A61B 90/361 · · {Image-producing devices, e.g. surgical cameras}
- N A61B 2090/3612 · · · {with images taken automatically}
- N A61B 2090/3614 · · · {using optical fibre}
- N A61B 2090/3616 · · · {Magnifying glass}
- N A61B 2090/3618 · · · {with a mirror}
- N A61B 2090/363 · · {Use of fiducial points}
- N A61B 2090/364 · · {Correlation of different images or relation of image positions in respect to the body}

- N A61B 2090/365 . . . {augmented reality, i.e. correlating a live optical image with another image}
- N A61B 2090/366 . . . {using projection of images directly onto the body}
- N A61B 2090/367 . . . {creating a 3D dataset from 2D images using position information}
- N A61B 2090/368 . . . {changing the image on a display according to the operator's position}
- N A61B 90/37 . . {Surgical systems with images on a monitor during operation}
- N A61B 2090/371 . . . {with simultaneous use of two cameras}
- N A61B 2090/372 . . . {Details of monitor hardware}
- N A61B 2090/373 . . . {using light, e.g. by using optical scanners}
- N A61B 2090/3735 {Optical coherence tomography [OCT]}
- N A61B 2090/374 . . . {NMR or MRI}
- N A61B 2090/376 . . . {using X-rays, e.g. fluoroscopy}
- N A61B 2090/3762 {using computed tomography systems [CT]}
- N A61B 2090/3764 {with a rotating C-arm having a cone beam emitting source}
- N A61B 2090/378 . . . {using ultrasound}
- N A61B 2090/3782 {transmitter or receiver in catheter or minimal invasive instrument}
- N A61B 2090/3784 {both receiver and transmitter being in the instrument or receiver being also transmitter}
- N A61B 2090/3786 {receiver only}
- N A61B 2090/3788 {transmitter only}
- N A61B 90/39 . . {Markers, e.g. radio-opaque or breast lesions markers}
- N A61B 2090/3904 . . {specially adapted for marking specified tissue}
- N A61B 2090/3908 . . . {Soft tissue, e.g. breast tissue}
- N A61B 2090/3912 . . . {Body cavities}
- N A61B 2090/3916 . . . {Bone tissue}
- N A61B 2090/392 . . {Radioactive markers}
- N A61B 2090/3925 . . {ultrasonic}
- N A61B 2090/3929 . . . {Active markers}
- N A61B 2090/3933 . . {Liquid markers}
- N A61B 2090/3937 . . {Visible markers}
- N A61B 2090/3941 . . . {Photoluminescent markers}
- N A61B 2090/3945 . . . {Active visible markers, e.g. light emitting diodes}
- N A61B 2090/395 . . . {with marking agent for marking skin or other tissue}
- N A61B 2090/3954 . . {magnetic, e.g. NMR or MRI}
- N A61B 2090/3958 . . . {emitting a signal}
- N A61B 2090/3962 . . {palpable}
- N A61B 2090/3966 . . {Radiopaque markers visible in an X-ray image}
- N A61B 2090/397 . . {electromagnetic other than visible, e.g. microwave}
- N A61B 2090/3975 . . . {active}
- N A61B 2090/3979 {infrared}
- N A61B 2090/3983 . . {Reference marker arrangements for use with image guided surgery}
- N A61B 2090/3987 . . {Applicators for implanting markers}
- N A61B 2090/3991 . . {having specific anchoring means to fixate the marker to the tissue, e.g. hooks}
- N A61B 2090/3995 . . {Multi-modality markers}

- N A61B 90/40 · Apparatus fixed or close to patients specially adapted for providing an aseptic surgical environment
- N A61B 2090/401 · · {using air flow}
- N A61B 90/50 · Supports for surgical instruments, e.g. articulated arms
- N A61B 2090/502 · · {Headgear, e.g. helmet, spectacles}
- N A61B 2090/5025 · · {with a counter-balancing mechanism}
- N A61B 2090/504 · · · {with a counterweight}
- N A61B 2090/506 · · {using a parallelogram linkage, e.g. pantograph}
- N A61B 2090/508 · · {with releasable brake mechanisms}
- N A61B 90/53 · · connected to the surgeon's body, e.g. by a belt
- N A61B 90/57 · · Accessory clamps
- N A61B 2090/571 · · · {for clamping a support arm to a bed or other supports}
- N A61B 90/60 · Supports for surgeons, e.g. chairs or hand supports (seats for dentists or surgeons associated with dental chairs or operating chairs [A61G 15/00](#))
- N A61B 90/70 · Cleaning devices specially adapted for surgical instruments
- N A61B 2090/701 · · {for flexible tubular instruments, e.g. endoscopes}
- N A61B 2090/702 · · {Devices for testing the cleaning process, e.g. test soils}
- N A61B 90/80 · Implements for cleaning or washing the skin of surgeons or patients
- N A61B 90/90 · Identification means for patients or instruments, e.g. tags
- N A61B 90/92 · · coded with colour
- N A61B 90/94 · · coded with symbols, e.g. text
- N A61B 90/96 · · · using barcodes
- N A61B 90/98 · · using electromagnetic means, e.g. transponders

Project: RP0296 (A61F)

- U A61F 2/00** **Filters implantable into blood vessels; Prostheses, i.e. artificial substitutes or replacements for parts of the body; Appliances for connecting them with the body; Devices providing patency to, or preventing collapsing of, tubular structures of the body, e.g. stents (as cosmetic articles, see the relevant subclasses, e.g. wigs, hair pieces, [A41G 3/00](#), [A41G 5/00](#), artificial nails [A45D 31/00](#); dental prostheses [A61C 13/00](#); materials for prostheses [A61L 27/00](#); artificial hearts [A61M 1/10](#); artificial kidneys [A61M 1/14](#))**

WARNING

Groups [A61F 2/07](#), [A61F 2/844](#) - [A61F 2/97](#) correspond to IPC2013.01

- U A61F 2/02 · Prostheses implantable into the body {(closure means for urethra or rectum or for artificial body openings therefor [A61F 2/0004](#))}
- U A61F 2/30 · · Joints
- U A61F 2/46 · · · Special tools or methods for implanting or extracting artificial joints, accessories, bone grafts or substitutes, or particular adaptations therefor
- A61F 2/4657 · · · · {Measuring instruments used for implanting artificial joints (for surgical instruments [A61B 19/46](#)[A61B 90/06](#))}

- A61F 9/00** Method or devices for treatment of the eyes; Devices for putting-in contact lenses; Devices to correct squinting; Apparatus to guide the blind; Protective devices for the eyes, carried on the body or in the hand (caps with means for protecting the eyes [A42B 1/06](#); visors for helmets [A42B 3/22](#); {retractors [A61B 17/02](#); manipulators specially adapted for use in surgery [A61B 19/22](#)[A61B 34/70](#)}; appliances to aid invalids to move about [A61H 3/00](#); {exercisers for the eyes [A61H 5/00](#)}; eye baths [A61H 35/02](#); sunglasses or goggles having the same features as spectacles [G02C](#))
- U A61F 13/00** Bandages or dressings (suspensory bandages [A61F 5/40](#); {contact-avoiding wound protectors [A61F 15/008](#); bandages or dressings with incorporated medicaments [A61L 15/44](#), [A61M 35/006](#); radioactive dressings [A61N 5/1029](#)}); Absorbent pads (chemical aspects of, or use of materials for, bandages, dressings or absorbent pads [A61L 15/00](#); {absorbent pads for tracheostomy [A61M 16/047](#)})
- U A61F 13/02** . Adhesive plasters or dressings ([A61F 13/06](#) to [A61F 13/15](#) take precedence; {for diagnosis, e.g. allergy test patches, [A61B 10/0035](#)}; surgical adhesives or cements [A61L 24/00](#); {for transdermal drug administration [A61M 35/00](#)})
- A61F 13/0269** . {Tapes for dressing attachment (for stoma bags [A61F 5/443](#); for nappies or sanitary towels [A61F 13/58](#); wound closure tapes [A61B 17/085](#); for surgical drapes [A61B 19/08](#)[A61B 46/00](#); attaching catheters [A61M 25/02](#)})

Project: RP0296 (A61G)

- U A61G 12/00** Accommodation for nursing, e.g. in hospitals, not covered by groups [A61G 1/00](#) to [A61G 11/00](#), e.g. trolleys for transport of medicaments or food {(service or tea-tables, trolleys or wagons [A47B 31/00](#)}); Prescription lists
- A61G 12/001** . {Trolleys for transport of medicaments, food, linen, nursing supplies (carts specially adapted for surgery or diagnosis [A61B 19/0248](#)[A61B 50/10](#); hand carts [B62B 3/00](#))}
- U A61G 13/00** Operating tables; Auxiliary appliances therefor (illumination of operating tables [F21L](#), [F21S](#) or [F21V](#) {adjustability of tables in general [A47B 9/00](#); tables for radiation diagnosis [A61B 6/04](#), drainage or irrigation pans, bags, or attachments [A61G 7/02](#), [A61G 7/0503](#)})
- M A61G 13/10** . Parts, details or accessories (surgical drape sheets [A61B 19/08](#)[A61B 46/00](#))
- A61G 13/101** . {Clamping means for connecting accessories to the operating table (supports as part of surgical instruments [A61B 19/26](#)[A61B 90/50](#))}
- A61G 13/108** . {Means providing sterile air at a surgical operation table or area (treatment rooms [A61G 10/00](#); instruments or implements for sterile operation [A61B 19/00](#)[A61B 90/00](#); sterilisation of air [A61L 9/00](#); purification of air in air-conditioning systems [F24F 3/16](#))}
- A61G 13/12** . Rests specially adapted therefor; Arrangements of patient-supporting surfaces {(rests for the surgeon [A61B 19/00](#)[A61B 90/60](#); restraining devices [A61F 5/37](#))}

Project: RP0296 (A61J)

- M A61J 1/00** Containers specially adapted for medical or pharmaceutical purposes (capsules or the like for oral use [A61J 3/07](#); ~~boxes for medical appliances; doctors' bags~~ [A61B 19/02](#); *specially adapted for surgical or diagnostic appliances or instruments* [A61B 50/00](#); {antithrombogenic treatment of articles for conditioning blood [A61L 33/00](#); devices for introducing media into or onto the body [A61M](#)}; containers for radioactive substances [G21F 5/00](#))

Project: RP0296 (A61L)

A61L 31/00 **Materials for other surgical articles, {e.g. stents, stent-grafts, shunts, surgical drapes, guide wires, materials for adhesion prevention, occluding devices, surgical gloves, tissue fixation devices (shape or structure of stent-grafts [A61F 2/07](#), of stents [A61F 2/82](#), of surgical gloves [A61B 19/04](#)[A61B 42/00](#), of surgical drapes [A61B 19/08](#)[A61B 46/00](#), of occluding devices [A61B 17/12022](#)}}**

NOTES

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

Project: RP0296 (A61M)

- U A61M 5/00** **Devices for bringing media into the body in a subcutaneous, intra-vascular or intramuscular way; Accessories therefor, e.g. filling or cleaning devices, arm-rests ({vaccination appliances for veterinary use [A61D 1/025](#)}; tube connectors, tube couplings, valves or branch units specially adapted for medical use [A61M 39/00](#); containers specially adapted for medical or pharmaceutical purposes [A61J 1/00](#); {combinations of vial and syringe for mixing or transferring their contents [A61J 1/20](#); holders for containers for collecting, storing or administering blood or medical fluids [A61J 1/16](#)})**
- A61M 5/002
- {Packages specially adapted therefor, e.g. for syringes or needles, kits for diabetics (needle protection, e.g. caps, [A61M 5/3202](#); for sharps [A61B 19/0262](#)[A61B 50/3001](#))}
- U A61M 5/14
- Infusion devices, e.g. infusing by gravity; Blood infusion; Accessories therefor (suction in pumping blood transfusion [A61M 1/02](#); {infusion containers [A61J 1/05](#)})
- U A61M 5/142
- • Pressure infusion, e.g. using pumps
- NOTE
- In this group, the following expression is used with the meaning indicated:
- "pressure infusion" includes powered injection working at a controlled rate
- A61M 2005/14288
- • {Infusion or injection simulation (simulation of surgery in general [A61B 19/50](#)[A61B 34/10](#); training for or simulation of use of injection or infusion devices [G09B 23/285](#); computer simulations for diagnosis or treatment in general [G06F 19/3437](#))}
- U A61M 5/162
- • Needle sets, i.e. connections by puncture between reservoir and tube; {Connections between reservoir and tube (in jet-action syringes [A61M 5/30](#); connectors for tubes having sealed ends and a needle for piercing them [A61M 39/14](#))}
- A61M 5/1626
- • • {Needle protectors therefor (in combination with syringes [A61M 5/3202](#); protectors for sharps [A61B 19/0262](#)[A61B 50/3001](#))}
- U A61M 5/178
- Syringes
- U A61M 5/31
- • Details

- U A61M 5/32
- · · Needles; Details of needles pertaining to their connection with syringe or hub (infusion needles [A61M 5/158](#)); Accessories for bringing the needle into, or holding the needle on, the body {([A61M 5/42](#), [A61M 5/46](#) take precedence; guide needles for catheters [A61M 25/065](#)); Devices for protection of needles {(apparatus specially adapted for cleaning or sterilising needles [A61M 5/001](#))}
- A61M 5/3202
- · · · {Devices for protection of the needle before use, e.g. caps ([A61M 5/50](#) takes precedence; for infusion spikes [A61M 5/1626](#); protectors for sharps [A61B 19/0262](#)[A61B 50/3001](#))}
- A61M 5/3205
- · · · {Apparatus for removing or disposing of used needles or syringes, e.g. containers; Means for protection against accidental injuries from used needles (for sharps [A61B 19/0288](#)[A61B 50/362](#); disintegrating apparatus in general [B02C](#), e.g. [B02C 19/0075](#), [B23H 9/001](#); disposal of medical waste in general [B09B 3/0075](#); receptacles for refuse disposal in general [B65F 1/00](#))}
- U A61M 25/00
- Catheters; Hollow probes (dilators [A61M 29/00](#); {peritoneal catheters [A61M 1/285](#); tracheal tubes [A61M 16/04](#); for drainage [A61M 27/00](#); for uterus, vagina or rectum [A61M 31/00](#)}; for measuring or testing [A61B](#); {materials for catheters [A61L 29/00](#))}**
- A61M 25/002
- {Packages specially adapted therefor (combined with means for introducing catheters, e.g. dispensers, [A61M 25/0113](#)); catheter kit packages (for surgical articles [A61B 19/026](#)[A61B 50/30](#))}

Project: RP0296 (A61N)

- U A61N 5/00
- Radiation therapy (ultrasound therapy [A61N 7/00](#); devices or apparatus applicable to both therapy and diagnosis [A61B 6/00](#))**
- U A61N 5/10
- X-ray therapy; Gamma-ray therapy; Particle-irradiation therapy ([A61N 5/01](#) takes precedence; {radiation diagnosis, e.g. combined with radiation therapy [A61B 6/00](#); irradiation devices in general [G21K 1/00](#); X-ray tubes, Lenard tubes [H01J 35/00](#); X-ray techniques, in particular circuits for feeding or controlling X-ray tubes, [H05G](#))}
- U A61N 5/1048
- · {Monitoring, verifying, controlling systems and methods}
- U A61N 5/1049
- · · {for verifying the position of the patient with respect to the radiation beam}
- A61N 2005/1051
- · · · {using an active marker (markers in general [A61B 19/54](#)[A61B 90/39](#))}

Project: RP0296 (B09B)

- U B09B 3/00
- Destroying solid waste or transforming solid waste {or contaminated solids} into something useful or harmless**
- B09B 3/0075
- {Disposal of medical waste (casings for used articles, e.g. sharps [A61B 19/0288](#)[A61B 50/362](#); sterilisation of refuse [A61L 11/00](#); disposal of used needles or syringes [A61M 5/3205](#); disintegrating medical waste [B02C 19/0075](#))}

Project: RP0296 (B25J)

B25J MANIPULATORS; CHAMBERS PROVIDED WITH MANIPULATION DEVICES ({manipulators specially adapted for use in surgery [A61B 19/22](#)[A61B 34/70](#); manipulators used in cleaning hollow articles [B08B 9/04](#)}; manipulators associated with rolling mills [B21B 39/20](#); manipulators associated with forging machines [B21J 13/10](#); {manipulators associated with picking-up and placing mechanisms [B23P 19/007](#)}; means for holding wheels or parts thereof [B60B 30/00](#); {vehicles with ground-engaging propulsion means, e.g. walking members [B62D 57/02](#), [B62D 57/032](#); devices for picking-up and depositing articles or materials between conveyers [B65G 47/90](#), [B65G 47/91](#); manipulators with gripping or holding means for transferring packages [B65H 67/065](#)}; cranes [B66C](#); {manipulators used in the protection or supervision of pipe-line installations [F17D 5/00](#); walking equipment adapted for nuclear steam-generators [F22B 37/006](#)}; manipulators specially adapted for, or associated with, nuclear reactors [G21C](#); {apparatus used for handling wafers during manufacture or treatment of semiconductor [H01L 21/68](#)})

NOTE

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

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

WARNING

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

B25J 9/18	covered by	B25J 9/16	
B25J 9/22	" "	B25J 9/1656 ,	G05B 19/42

Project: RP0296 (B65D)

B65D 83/00 Containers or packages with special means for dispensing contents (dispensing means incorporated in removable or non-permanently secured container closures [B65D 47/00](#); for shops, stores, offices, bars, or the like [A47F 1/04](#); showcases or cabinets with dispensing arrangements [A47F 3/02](#); {for surgical articles [A61B 19/026](#)[A61B 50/30](#)}; magazines for screws or nuts in combination with spanners, wrenches or screwdrivers [B25B 23/06](#); nail dispensers [B25C 3/00](#); for use in connection with the handling of sheets, webs, or filamentary material [B65H](#); coin deliverers [G07D 1/00](#); {coin-freed apparatus for dispensing discrete articles [G07F 11/00](#)})

B65D 85/00 Containers, packaging elements or packages specially adapted for particular articles or materials ([B65D 71/00](#), [B65D 83/00](#) take precedence; hand implements, travelling equipment [A45C](#); cosmetic or toilet equipment [A45D](#); {for surgical instruments or appliances [A61B 19/026](#)[A61B 50/30](#)}; containers specially adapted for medical or pharmaceutical purposes [A61J 1/00](#); paint cans [B44D 3/12](#); oil cans [F16N 3/04](#); containers for carrying smallarms [F41C 33/06](#); packaging of ammunition or explosive charges [F42B 39/00](#); containers for record carriers, specially adapted for co-operation with the recording or reproducing apparatus [G11B 23/00](#))

NOTE

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

Project: RP0296 (B65F)

B65F **GATHERING OR REMOVAL OF DOMESTIC OR LIKE REFUSE (disinfecting refuse [A61L](#); refuse disintegrators [B02C](#); sorting refuse [B03B](#); [B07B](#); handcarts for transporting refuse receptacles [B62B](#); sack holders [B65B 67/00](#); converting refuse into fertilisers [C05F](#); converting refuse into solid fuels [C10L](#); sewers, cesspools [E03F](#); arrangements in buildings for the disposal of refuse [E04F 17/10](#); refuse-consuming furnaces [F23G](#); {for surgical articles [A61B 19/0287](#) [A61B 50/36](#)})**

Project: RP0296 (G06K)

- U G06K 19/00** **Record carriers for use with machines and with at least a part designed to carry digital markings (record carriers adapted for controlling specific machines, see the appropriate subclass for the machine, e.g. [B23Q](#), [D03C](#), [G10F](#), [H04L](#); form printing [B41](#); file cards [B42F 19/00](#); record carriers in general [G11](#))**
- U G06K 19/06 · characterised by the kind of the digital marking, e.g. shape, nature, code
- U G06K 19/067 · · Record carriers with conductive marks, printed circuits or semiconductor circuit elements, e.g. credit or identity cards {also with resonating or responding marks without active components}
- U G06K 19/07 · · · with integrated circuit chips
- U G06K 19/077 · · · · Constructional details, e.g. mounting of circuits in the carrier
- U G06K 19/07749 · · · · · {the record carrier being capable of non-contact communication, e.g. constructional details of the antenna of a non-contact smart card}
- U G06K 19/07758 · · · · · · {arrangements for adhering the record carrier to further objects or living beings, functioning as an identification tag}
- G06K 19/07762 · · · · · · · {the adhering arrangement making the record carrier wearable, e.g. having the form of a ring, watch, glove or bracelet (record carriers for insertion in the human body for medical purposes [A61B 19/00](#) [A61B 90/00](#); record carriers adapted for attachment to animals [A01K 11/00](#))}

Project: RP0296 (G07C)

M G07C **TIME OR ATTENDANCE REGISTERS; REGISTERING OR INDICATING THE WORKING OF MACHINES; GENERATING RANDOM NUMBERS; VOTING OR LOTTERY APPARATUS; ARRANGEMENTS, SYSTEMS OR APPARATUS FOR CHECKING NOT PROVIDED FOR ELSEWHERE ([finger printing](#) [A61B 5/103](#); [identification of persons](#) [A61B 5/117](#); indicating or recording apparatus for measuring in general, analogous apparatus but in which the input is not a variable to be measured, e.g. a hand operation, [G01D](#); clocks, clock mechanisms [G04B](#), [G04C](#); time-interval measuring [G04F](#); counting mechanisms per se [G06M](#))**

Project: RP0297 (H01M)

- U H01M 8/00** **Fuel cells; Manufacture thereof**
- NOTE
Fuel cells are electrochemical generators wherein the reactants are supplied from outside
- U H01M 8/002 · {Shape, form of a fuel cell}
- U H01M 8/006 · · {Flat}
- M H01M 8/008 · {~~Destruction~~ [Disposal](#) or recycling of fuel cells}
- M H01M 8/02 · Details ([electrodes H01M 4/86 - H01M 4/98](#))

- M H01M 8/0202 . . . ~~Collectors~~; ~~{Collectors~~~~Separators~~, ~~separators~~, ~~interconnectors~~, e.g. bipolar separators}; ~~Interconnectors~~
- M H01M 8/0204 . . . {Non-porous and characterised by the material}
- M H01M 8/0206 {Metals or alloys}
- M H01M 8/0208 {Alloys}
- M H01M 8/021 {Alloys based on iron}
- M H01M 8/0213 {Gas-tight~~impermeable~~ carbon-containing ~~material~~}~~materials~~
- M H01M 8/0215 {Glass ~~or ceramic materials~~}; ~~Ceramic materials~~
- M H01M 8/0217 {Complexed~~Complex~~ oxides, optionally doped, of the type ~~M1MeO3~~~~AMO₃~~, ~~M1A~~ being an alkaline earth metal or rare earth metal; ~~Me and M~~ being a metal, e.g. perovskites}
- U H01M 8/0219 {Chromium complex oxides}
- M H01M 8/0221 {Polymers ~~or organic~~~~Organic~~ resins}; ~~Organic polymers~~
- M H01M 8/0223 {Composites}
- M H01M 8/0226 {in the form of mixtures}
- M H01M 8/0228 {in the form of layered ~~products~~, ~~e.g. coatings~~}~~or coated products~~
- M H01M 8/023 . . . {Porous and characterised by the material}
- M H01M 8/0232 {Metals or alloys}
- M H01M 8/0234 {Carbonaceous material}
- M H01M 8/0236 {Glass~~, ceramics or cermets~~}; ~~Ceramics~~; ~~Cermets~~
- M H01M 8/0239 {Polymers ~~or organic~~~~Organic~~ resins}; ~~Organic polymers~~
- M H01M 8/0241 {Composites}
- M H01M 8/0243 {in the form of mixtures}
- M H01M 8/0245 {in the form of layered ~~products~~, ~~e.g. coatings~~}~~or coated products~~
- M H01M 8/0247 . . . {Porous ~~or non-porous and~~ characterised by the form (characterised by a channel configuration [H01M 8/0258](#))}
- M H01M 8/025 {Semicylindrical~~}semicylindrical~~
- M H01M 8/0252 {Tubular~~}tubular~~
- M H01M 8/0254 {Corrugated~~corrugated~~ or ~~undulate-shaped~~}~~undulated~~
- M H01M 8/0256 {Vias, i.e. ~~connector~~~~connectors~~ passing through the separator material}
- C H01M 8/0258 . . . {Porous ~~or non-porous and~~ characterised by ~~a channel configuration~~~~the configuration of channels~~, ~~i.e.e.g.~~ by the flow field} ~~of the reactant or coolant~~

WARNING

Group H01M 8/0258 is incomplete pending reclassification of documents from group H01M 8/0267 and impacted by reclassification into H01M 8/2483.

Groups H01M 8/0258, H01M 8/0267 and H01M 8/2483 should be considered in order to perform a complete search.

- E H01M 8/026 {Grooves ~~characteristics~~ characterised by grooves, e.g. their pitch, or depth}

WARNING

Groups H01M 8/026-H01M 8/0265 are incomplete pending reclassification of documents from group H01M 8/0267.

Group H01M 8/0267 should be considered when searching any group of the range H01M 8/026-H01M 8/0265 in order to perform a complete search.

- E H01M 8/0263 {Meander~~having meandering~~ or serpentine ~~path~~}~~paths~~

- E H01M 8/0265 ~~{Variable section of the~~ reactant ~~channel}~~ or coolant channels having varying cross sections
- C H01M 8/0267 ~~{Heating having heating or cooling facilities in the separators means, collectors e.g. heaters or interconnectors}~~ coolant flow channels
- WARNING**
Group H01M 8/0267 is impacted by reclassification into groups H01M 8/0258 - H01M 8/0265 and H01M 8/2483.
Groups H01M 8/0267 should be considered when searching any group in the range H01M 8/0258 - H01M 8/0265 or group H01M 8/2483.
- U H01M 8/0269 {Separators, collectors or interconnectors including a printed circuit board}
- E H01M 8/0271 ~~{of surrounding~~ Sealing or supporting means around electrodes, matrices, ~~membranes or fuel cell elements with sealing or supporting material}~~ membranes
- WARNING**
Group H01M 8/0271 is incomplete pending reclassification of documents from group H01M 8/0297.
Group H01M 8/0297 and H01M 8/0271 should be considered in order to perform a complete search.
- E H01M 8/0273 ~~{with sealing or supporting means in the form of a frame; Frame materials; Way of attaching to frames}~~
- WARNING**
Group H01M 8/0273 is incomplete pending reclassification of documents from group H01M 8/0276.
Group H01M 8/0276 and H01M 8/0273 should be considered in order to perform a complete search.
- C H01M 8/0276 ~~{Seals~~ Sealing means characterised by their form; ~~(H01M 8/0273 takes precedence)~~
- WARNING**
Group H01M 8/0276 is impacted by reclassification into group H01M 8/0273.
Groups H01M 8/0276 and H01M 8/0273 should be considered in order to perform a complete search.
- U H01M 8/0278 {O-rings}
- M H01M 8/028 ~~{Seals~~ Sealing means characterised by their ~~composition}~~ material
- M H01M 8/0282 {Inorganic material}
- M H01M 8/0284 {Organic resins ~~or polymers}~~; Organic polymers
- M H01M 8/0286 ~~{Process of seal formation}~~ Processes for forming seals
- E H01M 8/0289 ~~{of membranes or electrolyte~~ Means for holding ~~means}~~ the electrolyte (solid polymer electrolytes H01M 8/1018)
- D H01M 8/0291 {Matrices; Diaphragms; Membranes}
- M H01M 8/0293 ~~+~~ {Matrices for immobilising electrolyte solutions}
- M H01M 8/0295 ~~+~~ {Matrices for immobilising electrolyte melts}
- C H01M 8/0297 ~~{of Arrangements for joining electrodes, reservoir layers, heat exchange units or bipolar separators to each other}~~; ~~(H01M 8/0271 takes precedence)~~
- WARNING**
Group H01M 8/0297 is impacted by reclassification into groups H01M 8/0271.

Groups H01M 8/0297 and H01M 8/0271 should be considered in order to perform a complete search.

- M H01M 8/04
- Auxiliary arrangements ~~or processes~~, e.g. for control of pressure, ~~or~~ for circulation of fluids
- NOTE**
In this group, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its subgroups should be classified in each of those subgroups.
- M H01M 8/04007
- ~~{Arrangements or means or processes~~ related to heat exchange ~~or temperature measurements (methods for controlling fuel cells or fuel cell systems H01M 8/04298)}~~
- M H01M 8/04014
- ~~Heat exchange using gaseous fluids; {by a gaseous fluid or~~ Heat exchange by combustion of reactants, ~~e.g. bigascooling}~~
- U H01M 8/04022
- • • {Heating by combustion}
- M H01M 8/04029
- • • ~~{by a liquid fluid}~~ Heat exchange using liquids
- U H01M 8/04037
- • • {Electrical heating}
- M H01M 8/04044
- • • ~~{Coolant purification}~~ Purification of heat exchange media
- U H01M 8/04067
- • • {Heat exchange or temperature measuring elements, thermal insulation, e.g. heat pipes, heat pumps, fins}
- M H01M 8/04074
- • • • {Heat exchange unit structures specially adapted for fuel cell (~~heat exchanger F28, heat exchangers for fuel cells F28D 2021/0043~~ heat exchanger for fuel cells F28D 2021/0043)}
- M H01M 8/04082
- ~~{Arrangements or means forfor control of~~ reactant regulation. ~~E.g~~ parameters, e.g. pressure or concentration}
- M H01M 8/04089
- • • {of gaseous reactants}
- U H01M 8/04104
- • • • {Regulation of differential pressures}
- M H01M 8/04111
- • • • ~~{Using using~~ a compressor turbine assembly}
- M H01M 8/04119
- • • • ~~{with simultaneous supply or evacuation of electrolyte; } Humidifying or dehumidifying}~~
- U H01M 8/04156
- • • • • {with product water removal}
- U H01M 8/04179
- • • • • • {by purging or increasing flow or pressure of reactants}
- M H01M 8/04186
- • • • {of liquid ~~charged~~ or electrolyte-charged reactants}
- U H01M 8/04194
- • • • • {Concentration measuring cells}
- N H01M 8/04197
- • • • {Preventing means for fuel crossover}
- U H01M 8/04201
- • • • {Reactant storage and supply, e.g. means for feeding, pipes}
- U H01M 8/04216
- • • • • {characterised by the choice for a specific material, e.g. carbon, hydride, absorbent}
- C H01M 8/04223
- • • ~~{Arrangements or means particularly~~ during start-up or shut-down; ~~Depolarisation or activation treatment~~, e.g. purging; ~~Short~~ Means for short-circuiting ~~means for~~ defective fuel cells}

WARNING

Group H01M 8/04223 is impacted by reclassification into groups groups H01M 8/04225-H01M 8/04228 and H01M 8/043-H01M 8/04303. Groups H01M 8/04223 should be considered when searching any group of the ranges H01M 8/04225 - H01M 8/04228 and H01M 8/043-H01M 8/04303 in order to perform a complete search.

- N H01M 8/04225 . . . during start-up
WARNING
 Groups [H01M 8/04225-H01M 8/04228](#) are incomplete pending reclassification of documents from group [H01M 8/04223](#).
 Group [H01M 8/04223](#) should be considered when searching any group of the range [H01M 8/04225-H01M 8/04228](#) in order to perform a complete search.
- N H01M 8/04228 . . . during shut-down
- M H01M 8/04231 . . . {Purging of the reactants}
- M H01M 8/04238 . . . {Depolarisation}
- M H01M 8/04246 . . . {Short circuiting means for defective fuel cells (detection of defective fuel cells [H01M 8/04664](#), methods for shunting fuel cells [H01M 8/04955](#))}
- M H01M 8/04253 . . . {Means for solving freezing problems}
- D H01M 8/04261 . . . {Preventing means for fuel crossover}
- M H01M 8/04268 . . . {Heating of fuel cells during the start-up of the fuel cells}
- M H01M 8/04276 . . . {Arrangements or means related to for managing the management of the electrolyte stream, e.g. heat exchange (~~H01M 8/04119 takes precedence; Treatment of electrolyte residue H01M 8/0693~~)}
- U H01M 8/04283 . . . {Supply means of electrolyte to or in matrix-fuel cells}
- M H01M 8/04291 . . . {~~Electrolyte- or Arrangements for managing~~ water-management of in solid electrolyte ~~cells~~ *fuel cell systems* ([H01M 8/04119](#) takes precedence)}
- M H01M 8/04298 . . . {~~Methods Processes~~ for controlling fuel cells or fuel cell systems (~~means for control H01M 8/04007 to H01M 8/04291~~)}
- N H01M 8/043 . . . applied during specific periods
WARNING
 Groups [H01M 8/043 - H01M 8/04303](#) are incomplete pending reclassification of documents from group [H01M 8/04223](#).
 Group [H01M 8/04223](#) should be considered any group of the range [H01M 8/043-H01M 8/04303](#) in order to perform a complete search.
- N H01M 8/04302 applied during start-up
- N H01M 8/04303 applied during shut-down
- M H01M 8/04305 . . . {~~Modelling~~ *Modeling*, demonstration models of fuel cells, e.g. for training purposes}
- M H01M 8/04313 . . . *characterised by the detection or assessment of variables*; {characterised by ~~variables to be detected~~ *the detection* or ~~calculated~~; *assessment of failure or abnormal functionality of the system*} *function*
- M H01M 8/0432 {Temperature ~~including ambient temperature~~; *Ambient temperature*
- U H01M 8/04373 {of auxiliary devices, e.g. reformers, compressors, burners}
- M H01M 8/0438 {Pressure ~~or flow including ambient pressure~~; *Ambient pressure; Flow*
- U H01M 8/04432 {Pressure differences, e.g. between anode and cathode}
- M H01M 8/0444 {~~Concentrations or densities~~ *Concentration; Density* ([H01M 8/04492](#) takes precedence)}
- U H01M 8/04485 {of the coolant}
- M H01M 8/04492 {Humidity, ~~moisture or water content including ambient humidity~~; *Ambient humidity; Water content*
- U H01M 8/04529 {of the electrolyte}
- M H01M 8/04537 {Electric variables}
- U H01M 8/04634 {Other electric variables, e.g. resistance or impedance}

- U H01M 8/04656 {of auxiliary devices, e.g. batteries, capacitors}
- M H01M 8/04664 {Failure or abnormal **functionality**}; **function**
- U H01M 8/04686 {of auxiliary devices, e.g. batteries, capacitors}
- M H01M 8/04694 {characterised by variables to be **regulated**}; **controlled**
- M H01M 8/04701 {Temperature}
- U H01M 8/04738 {of auxiliary devices, e.g. reformer, compressor, burner}
- M H01M 8/04746 {Pressure ~~or flow~~}; **Flow**
- U H01M 8/04783 {Pressure differences, e.g. between anode and cathode}
- M H01M 8/04791 {Concentrations or densities}; **Concentration; Density (H01M 8/04828 takes precedence)**
- U H01M 8/0482 {of the electrolyte}
- M H01M 8/04828 {Humidity, ~~moisture or water content~~}; **Water content**
- U H01M 8/0485 {of the electrolyte}
- M H01M 8/04858 {Electric variables}
- U H01M 8/04925 {Power, energy, capacity or load}
- U H01M 8/04947 {of auxiliary devices, e.g. batteries, capacitors}
- N H01M 8/04949 {other electric variables, e.g. resistance or impedance}
- N H01M 8/04951 {of the individual fuel cell}
- N H01M 8/04952 {of fuel cell stacks}
- N H01M 8/04953 {of auxiliary devices, e.g. batteries, capacitors}
- M H01M 8/04955 ~~→~~ {Turning on/off, shunting **Shut-off or shut-down** of fuel cells ~~or fuel cell system components (arrangements or means during start-up or shut-down H01M 8/04223)~~}
- D H01M 8/04962 {Other electric variables e.g. resistance or impedance}
- D H01M 8/0497 {of the individual fuel cell}
- D H01M 8/04977 {of fuel cell stacks}
- D H01M 8/04985 {of auxiliary devices, e.g. batteries, capacitors}
- M H01M 8/04992 {characterised by the implementation of **the control method by mathematical or computational algorithm algorithms**, e.g. **control-feedback loop mechanisms control loops**, fuzzy logic, neural networks; **or** artificial intelligence}
- M H01M 8/06 Combination of fuel **cell cells** with means for production of reactants or for treatment of residues (**regenerative fuel cells H01M 8/18**)
- M H01M 8/0606 {Producing **with means for production of** gaseous reactants}
- M H01M 8/0612 {from carbon-~~containing~~ material}
- U H01M 8/0625 {in a modular combined reactor/fuel cell structure}
- M H01M 8/0631 {Reactor construction specially adapted for combination reactor/fuel cell (**Hydrogen hydrogen C01B 3/00; reactors for physicochemical processes B01J 19/00; reactors for physicochemical processes B01J 19/00**)}
- M H01M 8/0637 {Direct internal reforming at the anode of the fuel cell}
- U H01M 8/0643 {Gasification of solid fuel}
- M H01M 8/065 {by dissolution of metals or alloys ~~or by dehydrating metallic substance~~}; **by dehydrating metallic substances**
- M H01M 8/0656 {by electrochemical means (**H01M 8/065** takes precedence)}
- M H01M 8/0662 {Treatment of gaseous reactants or gaseous residues, e.g. cleaning (**humidifying or dehumidifying of gaseous reactants H01M 8/04119**)}

- M H01M 8/0668 . . . {Removal of carbon monoxide or carbon dioxide}
 - U H01M 8/0693 . . {Treatment of the electrolyte residue, e.g. reconcentrating}
 - U H01M 8/08 . . Fuel cells with aqueous electrolytes
 - M H01M 8/083 . . {Alkaline fuel cells}
 - M H01M 8/086 . . {Phosphoric acid fuel cells [PAFC]}
 - U H01M 8/10 . . Fuel cells with solid electrolytes
 - D H01M 8/1002 . . {with anode and cathode gas-diffusion electrodes or electrode layers, e.g. using gaseous or vaporised reactants (H01M 8/12 takes precedence)}
 - M H01M 8/1004 . . . {characterised by ~~the electrode/electrolyte combination~~ **membrane-electrode assemblies [MEA]** (H01M 8/12 takes precedence)}
 - M H01M 8/1006 {~~Undulated~~ **Corrugated**, ~~corrugated~~, curved or wave-shaped **membrane-electrode-assemblies [MEA]**}
 - N H01M 8/1007 . . with both reactants being gaseous or vaporised (H01M 8/12 takes precedence)
 - M H01M 8/1009 . . {with one of the reactants being liquid, solid or liquid-charged (H01M 8/12 takes precedence)}
 - M H01M 8/1011 . . . {Direct **alcohol fuel cells [DAFC]**, e.g. **direct** methanol fuel cells [DMFC]}
 - M H01M 8/1013 {Other direct alcohol fuel cells [DAFC] (**DMFCs H01M 8/1011**)}
 - M H01M 8/1016 . . {characterised by the electrolyte material (H01M 8/12 takes precedence)}
 - M H01M 8/1018 . . . {Polymeric electrolyte **material**} **materials**
 - M H01M 8/102 {characterised by the chemical structure of the main chain of the ion-conducting polymer (~~membrane support H01M 8/1058; semi-permeable membrane composition B01D 71/00; ion-exchange membrane C08J 5/22~~)}
- NOTE**
- ~~Multiple classification is done when~~ **When classifying in this group, structures having two or more heteroatoms from belonging to the groups O, P, N, S ; or Si are present must be completely identified by classification in all relevant subgroups.**
- M H01M 8/1023 {having only carbon, e.g. ~~Nafion; vinylsulfonic acid;~~ polyarylenes, polystyrenes; **or** polybutadiene-~~styrene~~} **styrenes**
 - M H01M 8/1025 {having only carbon and oxygen, e.g. polyethers, sulfonated- polyetheretherketones [**sS**-PEEK], sulfonated- polysaccharides, sulfonated- celluloses; **or** sulfonated- polyesters}
 - M H01M 8/1027 {having carbon, oxygen and other atoms, e.g. sulfonated- polyethersulfones [**sS**-PES]; ~~sulfonated-polyphenyl-quinoxaline [s-PPQ]}~~
 - M H01M 8/103 {having nitrogen, e.g. sulfonated- polybenzimidazoles [**sS**-PBI], polybenzimidazoles with phosphoric acid, sulfonated- polyamides [**sS**-PA]; **or** sulfonated polyphosphazenes [**sS**-PPh]}
 - M H01M 8/1032 {having sulfur, e.g. sulfonated- ~~polyphosphazene~~ **polyethersulfones [sS-PPhPES]}**}
 - M H01M 8/1034 {having ~~phosphorous~~ **phosphorus**, e.g. sulfonated ~~polyphosphazene~~ **polyphosphazenes [sS-PPh]}**}
 - M H01M 8/1037 {having silicon, e.g. sulfonated crosslinked ~~polydimethylsiloxane~~ **polydimethylsiloxanes**}
 - M H01M 8/1039 {~~being halogenated;~~ e.g. ~~Nafion;~~ sulfonated polyvinylidene ~~fluoride~~} **fluorides**

- M H01M 8/1041 {Polymer electrolyte composites, mixtures or blends ~~other than copolymers or grafted polymers~~}
- M H01M 8/1044 {Mixtures of polymers ~~with, of which~~ at least one ~~polymer being~~ is ionically conductive}
- M H01M 8/1046 {Mixtures of ~~at least one~~ polymer and ~~additives~~ ~~at least one additive~~}
- M H01M 8/1048 {Ion ~~conductive-conducting~~ additives, e.g. ~~polybenzimidazole with phosphoric acid~~, ion-conducting particles, heteropolyacids ~~or~~, metal phosphate} ~~or polybenzimidazole with phosphoric acid~~}
- M H01M 8/1051 {Non-~~ion-conductive-conducting~~ additives, e.g. ~~stabilizers~~ ~~stabilisers~~, SiO₂; ~~or~~ ZrO₂}
- M H01M 8/1053 {~~Layers consisting~~ of ~~layers of~~ polymers with at least one layer being ionically conductive}
- U H01M 8/1055 {Inorganic layers on the polymer electrolytes, e.g. inorganic coatings}
- M H01M 8/1058 {~~characterized~~ ~~characterised~~ by a porous support having no ~~ionic conductive~~ ~~ion-conducting~~ properties ~~(membrane immobilizing electrolyte solutions or melts H01M-8/0293, H01M-8/0295)}~~}
- M H01M 8/106 {~~Chemical~~ ~~characterised by the chemical~~ composition of the porous support}
- M H01M 8/1062 {~~Physical~~ ~~characterised by the physical~~ properties of the porous support, e.g. ~~its~~ porosity; ~~or~~ thickness}
- M H01M 8/1065 {~~characterized~~ ~~characterised~~ by ~~their~~ ~~the~~ form, e.g. perforated; ~~undulated or wave-shaped~~ ~~(semi-permeable membranes characterised by their form B01D-69/00)}~~}
- M H01M 8/1067 {~~characterized~~ ~~characterised~~ by their physical properties, e.g. porosity, ionic conductivity; ~~or~~ thickness}
- M H01M 8/1069 {~~characterized~~ ~~characterised~~ by the manufacturing processes ~~(semi-permeable membrane manufacturing processes B01D-67/00; manufacture of ion-exchange membrane C08J-5/22)}~~}
- M H01M 8/1072 {~~Chemical~~ ~~by chemical~~ reactions, e.g. in-situ polymerisation; ~~or~~ in-situ crosslinking}
- U H01M 8/1079 {Inducing porosity into non porous precursors membranes, e.g. leaching, pore stretching}
- M H01M 8/1081 {~~Starting~~ ~~starting~~ from ~~polymer~~ solutions, dispersions; ~~or~~ slurries ~~other than monomer solutions, dispersions, slurries~~ ~~exclusively of polymers~~}
- U H01M 8/1083 {Starting from polymer melts other than monomer melts}
- M H01M 8/1086 {After-treatment of the membrane other than ~~by~~ polymerisation}
- M H01M 8/1088 {~~chemical~~ ~~Chemical~~ modification, e.g. sulfonation}
- U H01M 2008/1095 . . {Fuel cells with polymeric electrolytes}
- M H01M 8/1097 . . {Fuel cells applied on a support, e.g. miniature fuel ~~cell~~ ~~cells~~ deposited on a silica ~~support~~ ~~supports~~}
- U H01M 8/12 operating at high temperature, e.g. with stabilised ZrO₂ electrolyte
- D H01M 8/1206 . . . {with the anode and the cathode in the form of gas diffusion electrodes}
- M H01M 8/1213 {~~characterised by the electrodes, the~~ electrode/electrolyte combination or the supporting material}
- M H01M 8/122 {~~Undulated~~ ~~Corrugated~~, ~~corrugated~~, curved or wave-shaped ~~membrane electrode assemblies~~ {MEA}}
- M H01M 8/1226 {~~Supporting layer characteristics~~ ~~characterised by the supporting layer~~}
- N H01M 8/1231 with both reactants being gaseous or vaporised
- M H01M 8/1233 . . . {with one of the reactants being ~~liquid~~, solid or liquid} ~~charged~~

- M H01M 8/124 . . . {characterised by the process of manufacturing or by the material of the electrolyte}
- M H01M 8/1246 {the electrolyte consisting of oxides ~~(solid oxides ion conductive electrolyte H01M 2300/0074)}~~}
- M H01M 8/1253 {the electrolyte containing zirconium oxide ~~(solid electrolyte based on zirconium oxide H01M 2300/0077)}~~}
- M H01M 8/126 {the electrolyte containing cerium oxide}
- M H01M 2008/128 . . . {Fuel cells with solid halide electrolytes *(solid halide electrolyte H01M 2300/008)*}
- M H01M 8/1286 . . . {Fuel cells applied on a support, e.g. miniature fuel cells deposited on a silica ~~support~~ *supports*}
- U H01M 8/14 . Fuel cells with fused electrolytes
- U H01M 8/16 . Biochemical fuel cells, i.e. cells in which micro-organisms function as catalysts
- U H01M 8/22 . Fuel cells in which the fuel is based on materials comprising carbon or oxygen or hydrogen and other elements; Fuel cells in which the fuel is based on materials comprising only elements other than carbon, oxygen or hydrogen
- C H01M 8/24 . Grouping of fuel cells ~~into batteries~~, e.g. *stacking of fuel cells*

WARNING

Group H01M 8/24 is impacted by reclassification into group H01M 8/2404. Groups H01M 8/24 and H01M 8/2404 should be considered in order to perform a complete search.

- N H01M 8/2404 . . Processes or apparatus for grouping fuel cells

WARNING

Group H01M 8/2404 is incomplete pending reclassification of documents from groups [H01M 8/24](#), [H01M 8/241](#), [H01M 8/242](#), [H01M 8/2425](#), [H01M 8/243](#), [H01M 8/2435](#), [H01M 8/244](#), [H01M 8/245](#) and [H01M 8/246](#). All groups listed in this warning should be considered when searching [H01M 8/2404](#) to perform a complete search.

- F H01M 8/2405 *(Frozen)* . . {comprising spaced diffusion electrodes or electrode layers with interposed electrolyte layer or electrolyte compartment}

WARNING

Group H01M 8/2405 is no longer used for the classification of documents as of February 1, 2016. The content of this group is being reclassified into groups [H01M 8/2457](#) and [H01M 8/2459](#). Group H01M 8/2405 should be considered when searching group [H01M 8/2457](#) or [H01M 8/2459](#) in order to perform a complete search.

- C H01M 8/241 . . . {with solid or matrix-supported ~~electrolyte~~ *electrolytes*}

WARNING

Group H01M 8/241 is impacted by reclassification into groups [H01M 8/2404](#) and [H01M 8/2418](#). Groups [H01M 8/241](#) should be considered when searching group [H01M 8/2404](#) or group [H01M 8/2418](#) in order to perform a complete search.

- F H01M 8/2415 *(Frozen)* {External manifolded battery stock ~~(H01M 8/2425, H01M 8/244 take precedence)}~~}

WARNING

Group H01M 8/2415 is no longer used for the classification of documents as of February 1, 2016. The content of this group is being reclassified into groups [H01M 8/2484](#) and [H01M 8/2485](#).

Groups H01M 8/2415 should be considered when searching group H01M 8/2484 or H01M 8/2485 in order to perform a complete search.

- N H01M 8/2418
- • • Grouping by arranging unit cells in a plane ([H01M 8/2425](#), [H01M 8/244](#) take precedence)
- WARNING
Group [H01M 8/2418](#) is incomplete pending reclassification of documents from group [H01M 8/241](#).
Group [H01M 8/241](#) and [H01M 8/2418](#) should be considered in order to perform a complete search.
- C H01M 8/242
- • • ~~{~~comprising framed electrodes or intermediary frame-like gaskets ([H01M 8/2425](#), [H01M 8/244](#) take precedence)~~}~~
- WARNING
Group [H01M 8/242](#) is incomplete pending reclassification of documents from groups [H01M 8/245](#) and [H01M 8/246](#), and impacted by reclassification into groups [H01M 8/2404](#).
Group [H01M 8/242](#), [H01M 8/2404](#), [H01M 8/245](#), and [H01M 8/246](#) should be considered in order to perform a complete search.
- C H01M 8/2425
- • • ~~{~~High-temperature cells with solid ~~electrolyte~~electrolytes~~}~~
- WARNING
Group [H01M 8/2425](#) is incomplete pending reclassification of documents from group [H01M 8/245](#) and [H01M 8/246](#), and impacted by reclassification into groups [H01M 8/2428](#), [H01M 8/2432](#) and [H01M 8/2404](#).
Groups [H01M 8/2425](#), [H01M 8/2428](#), [H01M 8/2432](#), [H01M 8/2404](#), [H01M 8/245](#) and [H01M 8/246](#) should be considered in order to perform a complete search.
- N H01M 8/2428
- • • • Grouping by arranging unit cells on a surface of any form, e.g. planar or tubular
- WARNING
Group [H01M 8/2428](#) is incomplete pending reclassification of documents from groups [H01M 8/2425](#), [H01M 8/245](#) and [H01M 8/246](#).
Groups [H01M 8/2425](#), [H01M 8/245](#) [H01M 8/246](#), and [H01M 8/2428](#) should be considered in order to perform a complete search.
- C H01M 8/243
- • • • ~~{~~Grouping of unit cells of tubular or cylindrical configuration~~}~~
- WARNING
Group [H01M 8/243](#) is impacted by reclassification into group [H01M 8/2404](#).
Groups [H01M 8/243](#) and [H01M 8/2404](#) should be considered in order to perform a complete search.
- N H01M 8/2432
- • • • Grouping of unit cells of planar configuration
- WARNING
Group [H01M 8/2432](#) is incomplete pending reclassification of documents from groups [H01M 8/2425](#), [H01M 8/245](#) and [H01M 8/246](#).
Groups [H01M 8/2425](#), [H01M 8/245](#), [H01M 8/246](#) and [H01M 8/2432](#) should be considered in order to perform a complete search.
- C H01M 8/2435
- • • • ~~{~~with monolithic core structure, e.g. honeycombs~~}~~
- WARNING
Group [H01M 8/2435](#) is impacted by reclassification into group [H01M 8/2404](#).

Groups H01M 8/2435 and H01M 8/2404 should be considered in order to perform a complete search.

- C H01M 8/244
- • • *{with matrix-supported molten electrolyte}*
- WARNING**
*Group H01M 8/244 is/are impacted by reclassification into group H01M 8/2404.
Groups H01M 8/244 and H01M 8/2404 should be considered in order to perform a complete search.*
- F H01M 8/2445
(Frozen)
- • • *{comprising spaced diffusion electrodes or electrode layers with interposed electrolyte compartment with possible electrolyte supply or circulation}*
- WARNING**
*Group H01M 8/2445 is no longer used for the classification of documents as of February 1, 2016. The content of this group is being reclassified into groups H01M 8/2457 and H01M 8/2459.
Groups H01M 8/2445 should be considered when searching group H01M 8/2457 or H01M 8/2459 in order to perform a complete search.*
- F H01M 8/245
(Frozen)
- • • *{comprising framed electrodes or intermediary frame-like gaskets}*
- WARNING**
*Group H01M 8/245 is no longer used for the classification of documents as of February 1, 2016. The content of this group is being reclassified into groups H01M 8/2404, H01M 8/2428, H01M 8/2432, H01M 8/242 and H01M 8/2425.
Groups H01M 8/245 should be considered when searching any of the listed groups of this warning in order to perform a complete search.*
- M H01M 8/2455
- • *{with liquid, solid or electrolyte-charged reactants}*
- N H01M 8/2457
- • *with both reactants being gaseous or vaporised*
- WARNING**
*Group H01M 8/2457 is incomplete pending reclassification of documents from groups H01M 8/2405 and H01M 8/2445.
Groups H01M 8/2405, H01M 8/2445 and H01M 8/2457 should be considered in order to perform a complete search.*
- N H01M 8/2459
- • *{Comprising electrode layers with interposed electrolyte compartment with possible electrolyte supply or circulation}*
- WARNING**
*Group H01M 8/2459 is/are incomplete pending reclassification of documents from groups H01M 8/2405 and H01M 8/2445.
Groups H01M 8/2405, H01M 8/2445 and H01M 8/2459 should be considered in order to perform a complete search.*
- F H01M 8/246
(Frozen)
- • • *{having liquid, solid or electrolyte-charged reactants with framed electrodes or intermediary frame-like gaskets}*
- WARNING**
*Group H01M 8/246 is no longer used for the classification of documents as of February 1, 2016. The content of this group is being reclassified into groups H01M 8/2404, H01M 8/2428, H01M 8/2432, H01M 8/242 and H01M 8/2425.
Groups H01M 8/246 should be considered when searching any of the listed groups of this warning in order to perform a complete search.*

- C H01M 8/2465
- • {Details of *groupings of fuel cell stacks*}cells
- WARNING**
Group H01M 8/2465 is impacted by reclassification into group H01M 8/2483. Groups H01M 8/2465 and H01M 8/2483 should be considered in order to perform a complete search.
- M H01M 8/247
- • • {Arrangements for tightening a stack, for accommodation of a stack in a tank, *or* for assembling different tanks}
- M H01M 8/2475
- • • {Enclosures, casings or containers of fuel *cells*}cell stacks
- M H01M 8/248
- • • {*Compression means*Means for compression of the fuel cell *stack*}stacks
- N H01M 8/2483
- • • characterised by internal manifolds
- WARNING**
Group H01M 8/2483 is incomplete pending reclassification of documents from groups H01M 8/0258 and H01M 8/2465. Groups H01M 8/0258, H01M 8/2465 and H01M 8/2483 should be considered in order to perform a complete search.
- N H01M 8/2484
- • • characterised by external manifolds
- WARNING**
Group H01M 8/2484 is incomplete pending reclassification of documents from groups H01M 8/2415 and H01M 8/2485. Groups H01M 8/2415, H01M 8/2485 and H01M 8/2484 should be considered in order to perform a complete search.
- C H01M 8/2485
- • • {*Arrangements for sealing external manifolds*; {Arrangements for *sealing or* mounting external manifolds around a stack; *Manifold structure and material*}
- WARNING**
Group H01M 8/2485 is incomplete pending reclassification of documents from group H01M 8/2415 and impacted by reclassification into group H01M 8/2484. Groups H01M 8/2415, H01M 8/2485 and H01M 8/2484 should be considered in order to perform a complete search.
- M H01M 8/249
- • {comprising *a plurality*two or more *groupings* of *stacks*fuel cells, e.g. modular *assembly*}assemblies
- M H01M 8/2495
- • • {of fuel cells of different *type*}types

Project: RP0301 (F02D)

- U F02D 41/00 **Electrical control of supply of combustible mixture or its constituents (F02D 43/00 takes precedence)**
- U F02D 41/0025
- {Controlling engines characterised by use of non-liquid fuels, pluralities of fuels, or non-fuel substances added to the combustible mixtures}
- F02D 41/0047
- • {Controlling exhaust gas recirculation [EGR] (temperature control with cooler in recirculation circuit F02M 25/0738F02M 26/33)}
- F02D 41/006
- • • {using internal EGR (control of valve overlap for internal EGR F02D 13/0261; arrangements for internal EGR F02M 25/0752F02M 26/01)}
- F02D 41/0065
- • • {Specific aspects of external EGR control (constructional details of EGR system F02M 25/07F02M 26/00)}
- F02D 41/0072
- • • • {Estimating, calculating or determining the EGR rate, amount or flow (sensors in EGR systems F02M 25/0753F02M 26/45)}
- F02D 41/0077
- • • {Control of the EGR valve or actuator, e.g. duty cycle, closed loop control of position (EGR valve position sensor F02M 25/0756F02M 26/48)}

Project: RP0301 (F02M)

- U F02M 23/00 Apparatus for adding secondary air to fuel-air mixture**
- U F02M 23/14 · characterised by adding hot {secondary} air
- 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)**
- M F02M 25/06 · adding lubricant ~~vapours or exhaust gases~~ vapour
- D F02M 25/07 · · adding exhaust gases; {Exhaust-gas recirculation [EGR]}
- D F02M 25/0701 · · · {Handling or preventing deposits, corrosion or wear caused by impurities, e.g. means or measures for preventing sticking of EGR valves (F02M 25/0718 and F02M 25/074 take precedence)}
- D F02M 25/0702 · · · {Detecting, diagnosing or alerting an abnormal function of the EGR system}
- D F02M 25/0703 · · · {having means for connecting parts of the EGR system to each other or to another engine part}
- D F02M 25/0704 · · · {EGR systems specially adapted for supercharged engines}
- D F02M 25/0705 · · · · {for a single mechanically or electrically driven intake charge compressor}
- D F02M 25/0706 · · · · {for a single turbocharger}
- D F02M 25/0707 · · · · · {High pressure loops, i.e. wherein recirculated exhaust gas is taken out from the exhaust system upstream of the turbine and reintroduced into the intake system downstream of the compressor}
- D F02M 25/0709 · · · · · {Low pressure loops, i.e. wherein recirculated exhaust gas is taken out from the exhaust downstream of the turbocharger turbine and reintroduced into the intake system upstream of the compressor}
- D F02M 25/071 · · · · · {Mixed pressure loops, i.e. wherein recirculated exhaust gas is either taken out upstream of the turbine and reintroduced upstream of the compressor, or is taken out downstream of the turbine and reintroduced downstream of the compressor}
- D F02M 25/0711 · · · · · {for engines having multiple intake charge compressors or exhaust gas turbines, e.g. a turbocharger combined with an additional compressor}
- D F02M 25/0712 · · · · · {Constructional details of the exhaust gas circulation [EGR] combined with a supercharger system; Structural combinations of a supercharger with elements of the EGR system; Arrangement of the EGR and supercharger system with respect to the engine}
- D F02M 25/0713 · · · · · {having means to increase the pressure difference between the exhaust and intake system, e.g. an intake air or backpressure throttle, a venturi, a variable geometry turbine or a check valve using pressure pulsations}
- D F02M 25/0714 · · · {Manufacturing or assembling of EGR systems; Special materials or coatings therefor; Design details not provided for in groups F02M 25/0703 or F02M 25/0734}
- D F02M 25/0715 · · · {Details or layout of the EGR duct, e.g. arrangement in relation to engine parts or by having a cleaner, a cooler, an impeller or mixer in the recirculation duct}
- D F02M 25/0717 · · · · {Connections of the EGR duct to the exhaust system}
- D F02M 25/0718 · · · · · {EGR in combination with means to clean engine-out exhaust gases (the means being installed in the recirculation duct F02M 25/074)}
- D F02M 25/0719 · · · · · {an EGR valve being located at or near the connection portion}
- D F02M 25/072 · · · · · {Connections of the EGR duct to the intake system}
- D F02M 25/0721 · · · · · {Heat shielding or protection means}

- D F02M 25/0722 {Means for improving the mixing of air and recirculated exhaust gases, e.g. multiple openings to the intake system; Venturis}
- D F02M 25/0723 {Feeding recirculated exhaust gases into the intake runner in close proximity to the intake valve or directly into the combustion chamber}
- D F02M 25/0724 {an EGR valve being located at or near the connection portion}
- D F02M 25/0726 {Coolers in the recirculation duct}
- D F02M 25/0727 {Layout or concepts, e.g. flow charts}
- D F02M 25/0728 {with coolers having a bypass}
- D F02M 25/0729 {characterised by details of the bypass valve}
- D F02M 25/073 {with air cooled heat exchangers}
- D F02M 25/0731 {with liquid cooled heat exchangers}
- D F02M 25/0732 {with a plurality of coolers}
- D F02M 25/0734 {Constructional details of the cooler, e.g. pipes, plates, ribs, insulation or materials}
- D F02M 25/0735 {the cooler being combined with another device e.g. valve, heater, compressor, filter, or being arranged on a special engine location}
- D F02M 25/0736 {Air cooled heat exchangers (layout or concepts thereof F02M 25/073)}
- D F02M 25/0737 {Liquid cooled heat exchangers (layout or concepts thereof F02M 25/0731)}
- D F02M 25/0738 {Temperature control}
- D F02M 25/0739 {Compressors or the like in the recirculation duct}
- D F02M 25/074 {Means installed in the EGR duct to clean or treat the recirculated gases, e.g. by catalyst, condensate trap, particulate filter, heater or by electric means}
- D F02M 25/0742 {Means for adding another fluid to the recirculation duct; Reformers}
- D F02M 25/0743 {Temporary storage of recirculated exhaust gas (F02M 25/0752 takes precedence)}
- D F02M 25/0744 {Two or more EGR valves disposed in parallel}
- D F02M 25/0745 {Two or more EGR valves disposed in series}
- D F02M 25/0746 {Timing means in the recirculation duct, e.g. Rotex chargers, cyclically operating valves, regenerators; Means to handle pressure pulsations}
- D F02M 25/0747 {Special arrangements of the recirculation duct on the engine, e.g. cylinder head, liner, piston, spark plug, in the manifolds, or with a specially adapted combustion chamber}
- D F02M 25/0748 {EGR specially adapted for multicylinder engines or engines having multiple EGR passages}
- D F02M 25/0749 {EGR specially adapted for engines where exhaust from one cylinder or a cylinder group is directed to the intake of the engine}
- D F02M 25/0751 {a main EGR passage being split-up into multiple passages}
- D F02M 25/0752 {Internal exhaust gas recirculation, i.e. the residual exhaust gases are trapped in the cylinder or pushed back from the intake or the exhaust manifold into the combustion chamber without the use of additional pipes}
- D F02M 25/0753 {Sensors in or related to EGR systems}
- D F02M 25/0754 {for temperature, pressure or flow rate}
- D F02M 25/0755 {for characterising a multi-component gas, e.g. for the composition, density or viscosity of the gas}
- D F02M 25/0756 {EGR valve position sensors (details on the sensor installation in the valve housing F02M 25/0794)}

- D F02M 2025/0757 . . . {Arrangements; Control features; Details}
- D F02M 2025/0759 {EGR valve being controlled by vacuum or overpressure}
- D F02M 2025/076 {Intake vacuum or overpressure modulating valve}
- D F02M 2025/0761 {EGR valve controlled by air measuring device}
- D F02M 2025/0762 {EGR valve controlled by a temperature signal or an air/fuel ratio (λ) signal}
- D F02M 2025/0763 {EGR valve controlled by an engine speed signal}
- D F02M 2025/0764 {EGR valve controlled by inertia, e.g. having a pendulum controlling the EGR valve}
- D F02M 2025/0765 {EGR specially adapted for intake systems having two or more fuel injectors per cylinder}
- D F02M 2025/0767 {EGR specially adapted for engines having two or more spark plugs per cylinder}
- D F02M 2025/0768 {EGR specially adapted for engines having a combustion chamber divided by the piston at TDC into two or more sub-chambers}
- D F02M 2025/0769 {EGR combined with means to change air/fuel ratio, ignition timing, charge swirl in the cylinder}
- D F02M 25/077 {Details of EGR valves}
- D F02M 25/0771 {related to the EGR valve actuator or actuation systems}
- D F02M 25/0772 {the EGR valve being positioned by an electric actuator, e.g. a solenoid-type actuator}
- D F02M 25/0773 {the actuator being a rotary actuator, e.g. stepper motor}
- D F02M 25/0774 {the EGR valve being positioned by vacuum}
- D F02M 25/0776 {having pressure modulation valves controlling the vacuum}
- D F02M 25/0777 {using electronic means, e.g. electromagnetic valves}
- D F02M 25/0778 {Constructional details of the pneumatic actuator or mounting thereof}
- D F02M 25/0779 {the EGR valve being positioned by positive pressure; Check valves therefor}
- D F02M 25/078 {the EGR valve being controlled by changing the air intake pressure}
- D F02M 25/0781 {the EGR valve being controlled by exhaust pressure}
- D F02M 25/0782 {the EGR valve being controlled by changing the exhaust back pressure}
- D F02M 25/0784 {the EGR valve being controlled by fuel pressure}
- D F02M 25/0785 {the EGR valve being directly controlled by the operator (F02M 25/0786 takes precedence)}
- D F02M 25/0786 {an intake air throttle and EGR valve being operated together}
- D F02M 25/0787 {Constructional details of the EGR valve output members, e.g. type of valve, closing members or housings}
- D F02M 25/0788 {Lift valves, e.g. poppet valves}
- D F02M 25/0789 {Details of the pintle, spindle, springs, bearings, or the connection or sealing towards the actuator}
- D F02M 25/079 {Details of the valve closing member, the valve seat or the flow passages}
- D F02M 25/0792 {having two or more valve closing members}
- D F02M 25/0793 {Flap valves, rotary valves or other sliding valves; Resilient valves}
- D F02M 25/0794 {Details related to the EGR valve housing}
- D F02M 25/0795 {with means for heating or cooling the EGR valve}

- D F02M 25/0796 {Multi-way valves (F02M 25/0729 takes precedence)}
- D F02M 25/0797 {Shielding or protection, means or methods therefor, e.g. to prevent damage or corrosion}
- D F02M 25/0798 {the EGR valve being combined with another device, e.g. with an intake valve or a compressor (F02M 25/0786 and F02M 25/0729 take precedence)}
- U F02M 25/08 . adding fuel vapours drawn from engine fuel reservoir {(electrical control of purge system [F02D 41/003](#))}
- U F02M 25/14 . adding anti-knock agents, not provided for in subgroups [F02M 25/022](#) to [F02M 25/10](#)

- N 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***
- N F02M 2026/001 . {Arrangements; Control features; Details}
- N F02M 2026/002 . . {EGR valve being controlled by vacuum or overpressure}
- N F02M 2026/0025 . . . {Intake vacuum or overpressure modulating valve}
- N F02M 2026/003 . . {EGR valve controlled by air measuring device}
- N F02M 2026/004 . . {EGR valve controlled by a temperature signal or an air/fuel ratio (λ) signal}
- N F02M 2026/005 . . {EGR valve controlled by an engine speed signal}
- N F02M 2026/0055 . . {EGR valve controlled by inertia, e.g. having a pendulum controlling the EGR valve}
- N F02M 2026/006 . . {EGR specially adapted for intake systems having two or more fuel injectors per cylinder}
- N F02M 2026/007 . . {EGR specially adapted for engines having two or more spark plugs per cylinder}
- N F02M 2026/008 . . {EGR specially adapted for engines having a combustion chamber divided by the piston at TDC into two or more sub-chambers}
- N F02M 2026/009 . . {EGR combined with means to change air/fuel ratio, ignition timing, charge swirl in the cylinder}
- N F02M 26/01 . *Internal exhaust gas recirculation, i.e. wherein the residual exhaust gases are trapped in the cylinder or pushed back from the intake or the exhaust manifold into the combustion chamber without the use of additional passages*
- N F02M 26/02 . *EGR systems specially adapted for supercharged engines*
- N F02M 26/03 . . *with a single mechanically or electrically driven intake charge compressor*
- N F02M 26/04 . . *with a single turbocharger*
- N F02M 26/05 . . . *High pressure loops, i.e. wherein recirculated exhaust gas is taken out from the exhaust system upstream of the turbine and reintroduced into the intake system downstream of the compressor*
- N F02M 26/06 . . . *Low pressure loops, i.e. wherein recirculated exhaust gas is taken out from the exhaust downstream of the turbocharger turbine and reintroduced into the intake system upstream of the compressor*
- N F02M 26/07 . . . *Mixed pressure loops, i.e. wherein recirculated exhaust gas is either taken out upstream of the turbine and reintroduced upstream of the compressor, or is taken out downstream of the turbine and reintroduced downstream of the compressor*
- N F02M 26/08 . . *for engines having two or more intake charge compressors or exhaust gas turbines, e.g. a turbocharger combined with an additional compressor*

- N F02M 26/09
 - • *Constructional details, e.g. structural combinations of EGR systems and supercharger systems; Arrangement of the EGR and supercharger systems with respect to the engine*
- N F02M 26/10
 - • • *having means to increase the pressure difference between the exhaust and intake system, e.g. venturis, variable geometry turbines, check valves using pressure pulsations or throttles in the air intake or exhaust system*
- N F02M 26/11
 - *Manufacture or assembly of EGR systems; Materials or coatings specially adapted for EGR systems*
- N F02M 26/12
 - *characterised by means for attaching parts of an EGR system to each other or to engine parts*
- N F02M 26/13
 - *Arrangement or layout of EGR passages, e.g. in relation to specific engine parts or for incorporation of accessories*
- N F02M 26/14
 - • *in relation to the exhaust system*
- N F02M 26/15
 - • • *in relation to engine exhaust purifying apparatus*
- N F02M 26/16
 - • • *with EGR valves located at or near the connection to the exhaust system*
- N F02M 26/17
 - • *in relation to the intake system*
- N F02M 26/18
 - • • *Thermal insulation or heat protection*
- N F02M 26/19
 - • • *Means for improving the mixing of air and recirculated exhaust gases, e.g. venturis or multiple openings to the intake system*
- N F02M 26/20
 - • • *Feeding recirculated exhaust gases directly into the combustion chambers or into the intake runners*
- N F02M 26/21
 - • • *with EGR valves located at or near the connection to the intake system*
- N F02M 26/22
 - • *with coolers in the recirculation passage*
- N F02M 26/23
 - • • *Layout, e.g. schematics*
- N F02M 26/24
 - • • • *with two or more coolers*
- N F02M 26/25
 - • • • *with coolers having bypasses*
- N F02M 26/26
 - • • • • *characterised by details of the bypass valve*
- N F02M 26/27
 - • • • *with air-cooled heat exchangers*
- N F02M 26/28
 - • • • *with liquid-cooled heat exchangers*
- N F02M 26/29
 - • • *Constructional details of the coolers, e.g. pipes, plates, ribs, insulation or materials*
- N F02M 26/30
 - • • • *Connections of coolers to other devices, e. g. to valves, heaters, compressors or filters; Coolers characterised by their location on the engine*
- N F02M 26/31
 - • • • *Air-cooled heat exchangers*
- N F02M 26/32
 - • • • *Liquid-cooled heat exchangers*
- N F02M 26/33
 - • • *controlling the temperature of the recirculated gases*
- N F02M 26/34
 - • *with compressors, turbines or the like in the recirculation passage*
- N F02M 26/35
 - • *with means for cleaning or treating the recirculated gases, e.g. catalysts, condensate traps, particle filters or heaters*
- N F02M 26/36
 - • *with means for adding fluids other than exhaust gas to the recirculation passage; with reformers*
- N F02M 26/37
 - • *with temporary storage of recirculated exhaust gas (internal exhaust gas recirculation [F02M 26/01](#))*
- N F02M 26/38
 - • *with two or more EGR valves disposed in parallel*
- N F02M 26/39
 - • *with two or more EGR valves disposed in series*
- N F02M 26/40
 - • *with timing means in the recirculation passage, e.g. cyclically operating valves or regenerators; with arrangements involving pressure pulsations*

- N F02M 26/41
- • characterised by the arrangement of the recirculation passage in relation to the engine, e.g. to cylinder heads, liners, spark plugs or manifolds; characterised by the arrangement of the recirculation passage in relation to specially adapted combustion chambers
- N F02M 26/42
- • having two or more EGR passages; EGR systems specially adapted for engines having two or more cylinders
- N F02M 26/43
- • • in which exhaust from only one cylinder or only a group of cylinders is directed to the intake of the engine
- N F02M 26/44
- • • in which a main EGR passage is branched into multiple passages
- N F02M 26/45
- Sensors specially adapted for EGR systems
- N F02M 26/46
- • for determining the characteristics of gases, e.g. composition
- N F02M 26/47
- • • the characteristics being temperatures, pressures or flow rates
- N F02M 26/48
- • EGR valve position sensors (details of the sensor installation in the valve housing [F02M 26/72](#))
- N F02M 26/49
- Detecting, diagnosing or indicating an abnormal function of the EGR system
- N 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)
- N F02M 26/51
- EGR valves combined with other devices, e.g. with intake valves or compressors (combined with intake air throttles [F02M 26/64](#))
- Q F02M 26/52
- Systems for actuating EGR valves
- WARNING
Group [F02M 26/52](#) is impacted by reclassification into groups [F02M 26/53](#)-[F02M 26/64](#).
Groups [F02M 26/52](#) and [F02M 26/53](#)- [F02M 26/64](#) should be considered in order to perform a complete search.
- N F02M 26/53
- • using electric actuators, e.g. solenoids
- WARNING
Group [F02M 26/53](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/53](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N F02M 26/54
- • • Rotary actuators, e.g. step motors
- WARNING
Group [F02M 26/54](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/54](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N F02M 26/55
- • using vacuum actuators
- WARNING
Group [F02M 26/55](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/55](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N F02M 26/56
- • • having pressure modulation valves
- WARNING
Group [F02M 26/56](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).

Groups [F02M 26/56](#) and [F02M 26/52](#) should be considered in order to perform a complete search.

- N [F02M 26/57](#) • • • using electronic means, e.g. electromagnetic valves
WARNING
Group [F02M 26/57](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/57](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N [F02M 26/58](#) • • • Constructional details of the actuator; Mounting thereof
WARNING
Group [F02M 26/58](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/58](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N [F02M 26/59](#) • • using positive pressure actuators; Check valves therefor
WARNING
Group [F02M 26/59](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/59](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N [F02M 26/60](#) • • • in response to air intake pressure
WARNING
Group [F02M 26/60](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/60](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N [F02M 26/61](#) • • • in response to exhaust pressure
WARNING
Group [F02M 26/61](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/61](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N [F02M 26/615](#) • • • {the exhaust back pressure}
WARNING
Group [F02M 26/615](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/615](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N [F02M 26/62](#) • • • in response to fuel pressure
WARNING
Group [F02M 26/62](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/62](#) and [F02M 26/52](#) should be considered in order to perform a complete search.

- N F02M 26/63
- • the EGR valve being directly controlled by an operator ([F02M 26/64](#) takes precedence)
- WARNING
Group [F02M 26/63](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/63](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N F02M 26/64
- • the EGR valve being operated together with an intake air throttle
- WARNING
Group [F02M 26/64](#) is incomplete pending reclassification of documents from group [F02M 26/52](#).
Groups [F02M 26/64](#) and [F02M 26/52](#) should be considered in order to perform a complete search.
- N F02M 26/65
- Constructional details of EGR valves
- N F02M 26/66
- • Lift valves, e.g. poppet valves
- N F02M 26/67
- • • Pintles; Spindles; Springs; Bearings; Sealings; Connections to actuators
- N F02M 26/68
- • • Closing members; Valve seats; Flow passages
- N F02M 26/69
- • • having two or more valve-closing members
- N F02M 26/70
- • Flap valves; Rotary valves; Sliding valves; Resilient valves
- N F02M 26/71
- • Multi-way valves
- N F02M 26/72
- • Housings
- N F02M 26/73
- • • with means for heating or cooling the EGR valve
- N F02M 26/74
- • Protection from damage, e.g. shielding means
- U 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](#))**
- U F02M 31/02
- for heating {([F02M 31/005](#) takes precedence)}
- U 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](#))
- U F02M 31/06
- • • by hot gases, e.g. by mixing cold and hot air
- F02M 31/08
- • • • the gases being exhaust gases {(adding exhaust gases to the air intake passage [F02M 25/07](#)[F02M 26/00](#))}

Project: RP0302 (B60J)

- B60J 1/00**
- Windows; Windscreens; Accessories therefor ([B60J 10/00](#) takes precedence; air curtains instead of windows [B60J 9/04](#); {sealing strips for windshields [B60J 10/02](#)[B60J 10/70](#); sealing sash guides for sliding window panes [B60J 10/04](#)[B60J 10/74](#); glass partitions inside vehicles to protect occupants against personal attack [B60R 21/12](#))}**
- U B60J 1/004
- {Mounting of windows}
- B60J 1/006
- • {characterised by fixation means such as clips, adhesive, etc. (incorporated in seal [B60J 10/02](#)[B60J 10/70](#))}
- U B60J 1/20
- Accessories, e.g. wind deflectors, blinds (antiglare provisions [B60J 3/00](#); wind deflectors associated with roof openings [B60J 7/22](#); removable external protective coverings for windows or windscreens [B60J 11/08](#); {aerodynamical spoiler for vehicles [B62D 35/00](#)}; heating arrangements specially adapted for transparent or reflecting areas [H05B 3/84](#))

	B60J 1/2002	<ul style="list-style-type: none"> • • {Wind deflectors specially adapted for preventing soiling, e.g. for side windows (integral with sealing arrangements B60J 10/025 <u>B60J 10/72</u>)}
M	B60J 10/00	Sealing arrangements {sealing arrangements for other vehicle parts B60R 13/06}; sealings in general F16J 15/00}
D	B60J 10/0002	<ul style="list-style-type: none"> • {characterised by the material}
D	B60J 10/0005	<ul style="list-style-type: none"> • • {consisting of a plurality of plastic materials having different physical or chemical properties (B60J 10/0008 takes precedence)}
D	B60J 10/0008	<ul style="list-style-type: none"> • • {provided with a low-friction material on the surface}
D	B60J 10/0011	<ul style="list-style-type: none"> • • {provided with reinforcements or inserts}
D	B60J 10/0014	<ul style="list-style-type: none"> • {characterised by the shape}
D	B60J 10/0017	<ul style="list-style-type: none"> • • {having corner parts or bends}
D	B60J 10/002	<ul style="list-style-type: none"> • • {having variable cross-sections in the longitudinal direction}
D	B60J 10/0022	<ul style="list-style-type: none"> • • {consisting of two or more parts assembled along their longitudinal direction (B60J 10/0017 takes precedence)}
D	B60J 10/0025	<ul style="list-style-type: none"> • • • {Modular sealing arrangements, i.e. arrangements built up from a large number of joined modules}
D	B60J 10/0028	<ul style="list-style-type: none"> • • • • {with joined end members, e.g. abutting ends}
D	B60J 10/0031	<ul style="list-style-type: none"> • • {having tubular parts}
D	B60J 10/0034	<ul style="list-style-type: none"> • • • {with vent holes}
D	B60J 10/0037	<ul style="list-style-type: none"> • • • {being inflatable or deflatable}
D	B60J 10/004	<ul style="list-style-type: none"> • • • {having projections within tubular parts, e.g. ribs}
D	B60J 10/0042	<ul style="list-style-type: none"> • • • {having more than one tubular sealing cavity, e.g. separate tubular sealing parts or partitioning walls within tubular sealing part}
D	B60J 10/0045	<ul style="list-style-type: none"> • • {having water drainage means}
D	B60J 10/0048	<ul style="list-style-type: none"> • • {characterised by the surface shape}
D	B60J 10/0051	<ul style="list-style-type: none"> • • • {provided with decorations}
D	B60J 10/0054	<ul style="list-style-type: none"> • • {having projections, grooves or channels in the longitudinal direction}
D	B60J 10/0057	<ul style="list-style-type: none"> • • • {for enclosing or housing cables or other functional devices}
D	B60J 10/006	<ul style="list-style-type: none"> • • • {for facilitating pre-defined deformation of sealing parts, e.g. to enhance proper folding}
D	B60J 10/0062	<ul style="list-style-type: none"> • {characterised by the fastening means (arrangements of fasteners and clips for inner vehicle liners B60R 13/0206); Assembling sealing arrangements with vehicle parts}
D	B60J 10/0065	<ul style="list-style-type: none"> • • {with integral "U"-shaped retainers}
D	B60J 10/0068	<ul style="list-style-type: none"> • • • {characterised by the configuration of the retaining lips}
D	B60J 10/0071	<ul style="list-style-type: none"> • • {with adhesives}
D	B60J 10/0074	<ul style="list-style-type: none"> • • • {with premoulded adhesive tapes, e.g. double-sided tapes}
D	B60J 10/0077	<ul style="list-style-type: none"> • • • {with formless adhesives, e.g. hot melt}
D	B60J 10/008	<ul style="list-style-type: none"> • • {with separately inserted fastening means (B60J 10/0085 takes precedence)}
D	B60J 10/0082	<ul style="list-style-type: none"> • • • {comprising beads}
D	B60J 10/0085	<ul style="list-style-type: none"> • • {with magnets}
D	B60J 10/0088	<ul style="list-style-type: none"> • • {Assembling sealing arrangements with vehicle parts}
D	B60J 10/0091	<ul style="list-style-type: none"> • {characterised by the way of contact between two or more cooperating sealing arrangements}
D	B60J 10/0094	<ul style="list-style-type: none"> • {characterised by means for prevention of noise, e.g. window rattling or vibration}
D	B60J 10/0097	<ul style="list-style-type: none"> • {characterised by defrosting arrangements, e.g. the heating of sealing}

- D B60J 10/02 • for windows or windscreens ~~{(B60J 10/0002 to B60J 10/0091 take precedence)}~~
- D B60J 10/025 • • {with integral wind deflecting means for preventing soiling}
- D B60J 10/04 • • for sliding window panes, e.g. sash guides
- D B60J 10/041 • • • {for sealing the lower part of the panes provided at the waist of the vehicle door}
- D B60J 10/042 • • • {for the window sash, e.g. glass run channels}
- D B60J 10/043 • • • • {preventing outward displacement of window at high speed}
- D B60J 10/044 • • • • {on corner pieces, e.g. on mirror supports or quarter windows}
- D B60J 10/045 • • • • {with arrangements to reduce air resistance due to glazing not being flush with sash guide}
- D B60J 10/046 • • • {for sashless windows}
- D B60J 10/047 • • • • {preventing outward displacement of window at high speed}
- D B60J 10/048 • • • • {the sealing arrangement being between the edges of adjacent glazings}
- D B60J 10/049 • • • • • {mounted on the pillar}
- D B60J 10/06 • • • for flush-glass windows ~~{i.e. flush with body or window frame (B60J 10/041 takes precedence)}~~
- D B60J 10/08 • for doors, ~~{lids or bonnets (B60J 10/0002 to B60J 10/0091 take precedence)}~~
- D B60J 10/081 • • {arranged on body side}
- D B60J 10/083 • • • {with additional seals on body side}
- D B60J 10/085 • • {arranged on door side}
- D B60J 10/086 • • • {with additional seals on door side}
- D B60J 10/088 • • • {mounted on, or integral with, the glass-run sealing}
- D B60J 10/10 • for non-fixed roofs, ~~{e.g. foldable roofs, removable hard-tops and tarpaulins (B60J 10/0002 to B60J 10/0091 take precedence)}~~
- D B60J 10/12 • for movable panels in roofs ~~{(B60J 10/0002 to B60J 10/0091 take precedence)}~~
- N B60J 10/15 • *characterised by the material*
- N B60J 10/16 • • *consisting of two or more plastic materials having different physical or chemical properties (B60J 10/17 takes precedence)*
- N B60J 10/17 • • *provided with a low-friction material on the surface*
- N B60J 10/18 • • *provided with reinforcements or inserts*
- N B60J 10/20 • *characterised by the shape*
- N B60J 10/21 • • *having corner parts or bends*
- N B60J 10/22 • • *having varying cross-section in the longitudinal direction*
- N B60J 10/23 • • *assembled from two or more parts (B60J 10/21 takes precedence)*
- N B60J 10/233 • • • {Modular sealing arrangements, i.e. arrangements built up from a large number of joined modules}
- N B60J 10/2335 • • • • {with joint end members, e.g. abutting ends}
- N B60J 10/235 • • • *the parts being joined along their longitudinal direction*
- N B60J 10/24 • • *having tubular parts*
- N B60J 10/242 • • • *with vent holes*
- N B60J 10/244 • • • *inflatable or deflatable*
- N B60J 10/246 • • • *having projections, e.g. ribs, within the tubular parts*
- N B60J 10/248 • • • *having two or more tubular cavities, e.g. formed by partition walls*
- N B60J 10/25 • • *characterised by water drainage means*
- N B60J 10/26 • • *characterised by the surface shape*

- N B60J 10/265 • • • *the surface being primarily decorative*
- N B60J 10/27 • • *having projections, grooves or channels in the longitudinal direction (for separately inserted fastening means, e.g. beads or strips, [B60J 10/36](#))*
- N B60J 10/273 • • • *for enclosing or housing devices for purposes other than sealing, e.g. cables*
- N B60J 10/277 • • • *for facilitating specific deformation of sealing parts, e.g. for ensuring proper folding*
- N B60J 10/30 • *characterised by the fastening means*
- N B60J 10/32 • • *using integral U-shaped retainers*
- N B60J 10/33 • • • *characterised by the configuration of the retaining lips*
- N B60J 10/34 • • *using adhesives*
- N B60J 10/345 • • • *{with formless adhesives, e.g. hot melt}*
- N B60J 10/35 • • • *using adhesive tapes, e.g. double-sided tapes*
- N B60J 10/36 • • *using separately inserted fastening means, e.g. using clips, beads or strips*
- N B60J 10/365 • • • *{comprising beads}*
- N B60J 10/38 • • *using magnetic means*
- N B60J 10/40 • *characterised by contact between two or more cooperating sealing arrangements*
- N B60J 10/45 • *{Assembling sealing arrangements with vehicle parts}*
- N B60J 10/50 • *characterised by means for prevention or reduction of noise, e.g. of rattling or vibration of windows*
- N B60J 10/60 • *characterised by defrosting arrangements*
- N B60J 10/70 • *specially adapted for windows or windscreens*
- N B60J 10/72 • • *with integral wind-deflecting means, e.g. for preventing soiling*
- N B60J 10/74 • • *for sliding window panes, e.g. sash guides*
- N B60J 10/75 • • • *for sealing the lower part of the panes*
- N B60J 10/76 • • • *for window sashes; for glass run channels*
- N B60J 10/763 • • • • *for preventing outward displacement of windows when at high speed*
- N B60J 10/767 • • • • *for reducing air resistance due to the panes not being flush with the sash guide or glass run channel*
- N B60J 10/77 • • • *for sashless windows, i.e. for frameless windows forming a seal directly with the vehicle body*
- N B60J 10/773 • • • • *for preventing outward displacement of windows when at high speed*
- N B60J 10/777 • • • • *the sealing arrangement being between the edges of adjacent panes*
- N B60J 10/7775 • • • • • *{mounted on the pillar}*
- N B60J 10/78 • • • *adjacent to corner pieces, mirror supports or quarter windows*
- N B60J 10/79 • • • *for flush-glass windows, i.e. for windows flush with the vehicle body or the window frame*
- N B60J 10/80 • *specially adapted for opening panels, e.g. doors (for non-fixed roofs [B60J 10/90](#))*
- N B60J 10/82 • • *for movable panels in roofs*
- N B60J 10/84 • • *arranged on the vehicle body*
- N B60J 10/85 • • • *{with additional seals on the body side}*
- N B60J 10/86 • • *arranged on the opening panel*
- N B60J 10/87 • • • *{with additional seals on the panel side}*
- N B60J 10/88 • • • *mounted on, or integral with, the glass-run seals*

N B60J 10/90 · specially adapted for non-fixed roofs, e.g. foldable roofs or removable hard-tops

Project: RP0302 (B60R)

U B60R 13/00 **Elements for body-finishing, identifying, or decorating; Arrangements or adaptations for advertising purposes**

B60R 13/07 · Water drainage or guide means not integral with roof structure ([B60R 13/06](#), {~~B60J 10/0045~~ [B60J 10/25](#)} take precedence; {integral with roof structure [B62D 25/07](#); drainage openings having movable or removable closures [B62D 25/24](#)})

Project: RP0302 (B62D)

M B62D **MOTOR VEHICLES; TRAILERS (steering, or guiding on a desired track, of agricultural machines or implements [A01B 69/00](#); wheels, castors, axles, increasing wheel adhesion [B60B](#); vehicle tyres, tyre inflation or tyre changing [B60C](#); connections between vehicles of a train or the like [B60D](#); vehicles for use on rail and road, amphibious or convertible vehicles [B60F](#); suspension arrangements [B60G](#); heating, cooling, ventilating or other air treating devices [B60H](#); windows, windscreens, non-fixed roofs, doors or similar devices, protective coverings for vehicles not in use [B60J](#); propulsion plant arrangements, auxiliary drives, transmissions, controls, instrumentation or dashboards [B60K](#); electric equipment or propulsion of electrically-propelled vehicles [B60L](#); power supply for electrically-propelled vehicles [B60M](#); passenger accommodation not otherwise provided for [B60N](#); adaptations for load transportation or to carry special loads or objects [B60P](#); arrangement of signalling or lighting devices, the mounting or supporting thereof or circuits therefor, for vehicles in general [B60Q](#); vehicles, vehicle fittings or vehicle parts not otherwise provided for [B60R](#); servicing, cleaning, repairing, supporting, lifting, or manoeuvring, not otherwise provided for, [B60S](#); brake arrangements, brake control systems or parts thereof [B60T](#); air-cushion vehicles [B60V](#); motor-cycles, accessories therefor [B62J](#), [B62K](#); testing of vehicles [G01M](#))**

NOTE

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

- "vehicles" include motor vehicles and trailers;
- "trailers" include forecars or sidecars.

WARNING

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

B62D 25/13	covered by	B60J 1/20 ,	B60R 13/07
B62D 25/22	covered by	B60R 3/00	
B62D 65/08	covered by	B60J 10/0088	B60J 10/45

U B62D 65/00 **Designing, manufacturing, e.g. assembling, facilitating disassembly, or structurally modifying motor vehicles or trailers, not otherwise provided for**

U B62D 65/02 · Joining sub-units or components to, or positioning sub-units or components with respect to, body shell or other sub-units or components

B62D 65/06 · the sub-units or components being doors, windows, openable roofs, lids, bonnets, or weather strips or seals therefor {(assembling sealing arrangements with vehicle parts, e.g. doors, windows ~~B60J 10/0088~~ [B60J 10/45](#))}

Project: RP0302 (E06B)

- U E06B 7/00 **Special arrangements or measures in connection with doors or windows** (**{arrangements against burglary at the edges of the wings [E06B 5/113](#) ; screening or similar protective devices [E06B 9/00](#)**)
- U E06B 7/16 · Sealing arrangements on wings or parts co-operating with the wings (**{specially adapted for fireproof or similar closures [E06B 5/164](#); } [E06B 7/098](#) takes precedence; {fixed sealing joints [E04B 1/68](#); Devices for fitting sealing strips [E04F 21/00](#)})**)
- U E06B 7/22 · · by means of elastic edgings, e.g. elastic rubber tubes; by means of resilient edgings, e.g. felt or plush strips, resilient metal strips (**[E06B 7/18](#) takes precedence**)
- U E06B 7/23 · · · Plastic, sponge rubber, or like strips or tubes
- E06B 7/2318 · · · · {by applying over- or under-pressure, e.g. inflatable (gasproof doors or windows [E06B 5/12](#); for vehicles ~~[B60J 10/0037](#)~~ [B60J 10/244](#))}

Project: RP0302 (F16J)

- U F16J 15/00 **Sealings**
- F16J 15/46 · with packing ring expanded or pressed into place by fluid pressure, e.g. inflatable packings (connection of valves to inflatable elastic bodies [B60C 29/00](#); {for sealing arrangements in vehicles ~~[B60J 10/0037](#)~~ [B60J 10/244](#); for sealing arrangements of openings in buildings [E06B 7/2318](#)}; for tube connections [F16L](#))

Project: RP0305 (E01C)

- U E01C 1/00 **Design or layout of roads, e.g. for noise abatement, for gas absorption** (**design or layout of sports grounds [A63C 19/00](#); design or layout of airfields [B64F](#), {of helicopter landing stages [E01F 3/00](#)}**)
- E01C 1/007 · {Design or auxiliary structures for compelling drivers to slow down or to proceed with caution, e.g. tortuous carriageway; Arrangements for discouraging high-speed or non-resident traffic (decelerating or arresting surfacings [E01C 9/007](#); road surface configuring or surface arrangements for enforcing reduced speed or required caution, e.g. speed-control humps ~~[E01F 9/047](#)~~ [E01F 9/529](#))}
- U E01C 9/00 **Special pavings (specially adapted for playgrounds or sports grounds [E01C 13/00](#), for footpaths, sidewalks or cycle tracks [E01C 15/00](#)); Pavings for special parts of roads or airfields (pavement lights [E01C 17/00](#); manhole or like covers or frames [E02D 29/14](#))**
- E01C 9/007 · {Vehicle decelerating or arresting surfacings or surface arrangements, e.g. arrester beds (road surface configuration or surface arrangements for enforcing reduced speed, e.g. speed-control humps ~~[E01F 9/047](#)~~ [E01F 9/529](#)); Escape roads, e.g. for steep descents, for sharp bends}
- U E01C 11/00 **Details of pavings** (**{[E01C 1/005](#), [E01C 5/003](#), [E01C 5/005](#), [E01C 7/145](#), [E01C 7/185](#), [E01C 7/325](#) take precedence}**)
- M E01C 11/22 · Gutters; *Kerbs (kerbs specially adapted for alerting road users [E01F 9/535](#))* {; {Surface drainage of streets, roads or like traffic areas (for sports grounds [E01C 13/00](#))}; ~~Kerbs {or like edging members (for sports grounds [E01C 13/00](#))}~~
- E01C 11/221 · · {Kerbs or like edging members, e.g. flush kerbs, shoulder retaining means (specially adapted for guiding or warning traffic or for display purposes ~~[E01F 9/053](#)~~ [E01F 9/535](#)); Joint members, connecting or load-transfer means specially for kerbs}

- E01C 11/222 . . . {Raised kerbs, e.g. for sidewalks ([E01C 11/223](#), [E01F 9/0533](#)[E01F 9/535](#), [E01F 9/0536](#)[E01F 9/547](#) take precedence; preformed sidewalk paving with integral kerb [E01C 15/00](#); specially for traffic islands [E01F 1/00](#)); Integrated or portable means for facilitating ascent or descent}
- M E01C 17/00 **Pavements**[Pavement](#) lights, i.e. translucent constructions forming part of the surface (blocks specially designed for marking roads [E01F 9/04](#)[E01F 9/524](#))
- U E01C 23/00 **Auxiliary devices or arrangements for constructing, repairing, reconditioning, or taking-up road or like surfaces (apparatus for reconditioning of salvaged non-hydraulic compositions {for- in plant recycling of salvaged bituminous mixtures} [E01C 19/10](#))**
- M E01C 23/16 . Devices for marking-out, applying, or forming traffic or like markings on finished paving ([E01C 23/14](#) takes precedence; inserting or forming in not-yet-hardened paving [E01C 23/02](#), in recesses formed in fully-set paving [E01C 23/09](#); marking-out playing courts or playgrounds [A63C 19/06](#); applying liquids or other fluent materials to surfaces in general [B05](#); road surface markings per se [E01F 9/04](#)[E01F 9/50](#)); Protecting fresh markings-~~{(indicating fresh markings [E01F 9/0128](#))}~~

Project: RP0305 (E01F)

- E01F 1/00 **Construction of {station or like} platforms or refuge islands {or like islands in traffic areas, e.g. intersection or filling-station islands} (general arrangement {of filling stations [B60S 5/02](#),} of railway platforms {[B61B 1/02](#), of traffic-channelling island at intersections [E01C 1/02](#) }){; Kerbs specially adapted for islands in traffic areas (specially adapted for guiding, marking or signalling [E01F 9/0533](#)[E01F 9/535](#), for illumination [E01F 9/0536](#)[E01F 9/547](#); lane separators diverting traffic past safety zones [E01F 9/087](#)[E01F 9/588](#))}**
- U E01F 7/00 **Devices affording protection against snow, sand drifts, side-wind effects, snowslides, avalanches or falling rocks (permanently installed heating or blowing devices for roads [E01C 11/26](#)); Anti-dazzle arrangements {; Sight-screens for roads, e.g. to mask accident site ([E01F 8/00](#) takes precedence)}**
- M E01F 7/06 . ~~Anti-dazzle arrangements ([E01F 8/00](#) takes precedence){; Anti-dazzle arrangements ([E01F 8/00](#) takes precedence){~~ Securing anti-dazzle means to crash-barriers (securing signs or supports therefor to crash-barriers [E01F 9/03](#)[E01F 9/669](#))}
- C E01F 9/00 **Arrangement of road signs or traffic signals ~~(signals, signalling systems G08; signs, attachment thereof to supports G09F)~~; Arrangements for enforcing caution, e.g. speed bumps (for obstructing or restricting traffic [E01F 13/00](#))**
- WARNING**
Group [E01F 9/00](#) is impacted by reclassification into group [E01F 13/00](#). Groups [E01F 9/00](#) and [E01F 13/00](#) should be considered in order to perform a complete search.
- D E01F 9/002 . {Use of light guides, e.g. fibre optic devices (in lighting devices or systems [F21S 10/005](#); indicating arrangements with optic fibres [G09F 9/305](#))}
- D E01F 9/005 . {Marking means constituting or comprising active or passive components adapted to interact with vehicle-borne or remote receivers or transmitters for purposes other than light reflection, light guiding or photoluminescence, e.g. forming radar reflectors, incorporating radio transmitters ([E01F 11/00](#) takes precedence; control of position or course of vehicles [G05D 1/02](#))}

- D E01F 9/007
 - {Marking means with components adapted to auto-react to adverse atmospheric conditions, e.g. to signal icy road, to self-illuminate in fog; Marking or traffic control means with specific heating or drying arrangements}
- D E01F 9/011
 - Upright bodies, e.g. marker posts or bollards; Supports for road signs, {e.g. posts, frames, gantries}{(E01F 9/045, E01F 9/0533, E01F 13/02 take precedence;)} posts or poles in general E04H 12/00; means for attaching signs to a supporting structure in general G09F 7/18)
- D E01F 9/0111
 - {Traffic guidance, warning or control posts, bollards, e.g. delineator posts, milestones (barrier bollards E01F 13/00; buffer bollards E01F 15/003; boundary markers in general G01C 15/04)}
- D E01F 9/0112
 - • {Special features of delineator posts, e.g. with parts cantilevered toward the roadway or fixed vertically on a tilted surface (E01F 9/03, E01F 9/053, E01F 9/08 take precedence)}
- D E01F 9/0113
 - • {Gantries or semi-gantries; Foundation means specially adapted therefor}
- D E01F 9/0114
 - • {Holders for traffic poles (E01F 9/0112, E01F 9/0113, E01F 9/0118, E01F 9/013 take precedence)}
- D E01F 9/0115
 - • • {Glued to surface, e.g. road}
- D E01F 9/0116
 - • • {Removably fixed, e.g. by screws or bolts}
- D E01F 9/0117
 - • • {Subsoil fixings, e.g. foundations for holders or posts}
- D E01F 9/0118
 - • {designed or adapted to rotatably, swingably or adjustably carry the sign or signal (E01F 9/019 takes precedence; means for adjustably, rotatably or swingably attaching signs to a supporting structure in general G09F 7/20; G09F 7/22)}
- D E01F 9/012
 - • Free-standing, e.g. traffic cones, foldable or inflatable devices; {Portable supports (for barriers E01F 13/02); Portable traffic signs or signals (specially adapted for fitting to raised kerbs E01F 9/0533, to portable barriers E01F 13/02, to crash barriers E01F 9/03; normal vehicle equipment portable emergency signal devices to be placed on way B60Q 7/00; portable traffic signalling devices, i.e. hand signals G08B 5/006)}
- D E01F 9/0122
 - • • {in the form of a three-dimensional body, other than of the relatively thin-panel type, or designed to assume such form, e.g. cones, devices expandable or erectable to form a geometric body; Inflatable structures}
- D E01F 9/0124
 - • • {Portable base members (post holders to be placed on the ground in general E04H 12/2238)}
- D E01F 9/0126
 - • • {mounted on vehicles, e.g. for rapid change of station, as signal fitting of service vehicle (vehicle aspects B60P, B62D); Warning vehicles designed to move along with traveling road-maintenance, e.g. remotely controlled (mobile impact cushioning arrangements E01F 15/14)}
- D E01F 9/0128
 - • • {specially adapted for indicating freshly applied road surface markings, e.g. for straddling wet paint lines}
- D E01F 9/013
 - • intended to be readily removable, e.g. for insertion into road-stud sockets (E01F 9/012 takes precedence); {Base members specially adapted therefor (E01F 9/018, E01F 13/026 take precedence)}
- D E01F 9/014
 - • Storing, transporting, placing or retrieving portable devices, {e.g. road cones emplacing vehicles (vehicle aspects B60P, B62D; applying permanent markers, e.g. buttons E01C 23/18)}
- D E01F 9/015
 - • with reflectors, e.g. with means for keeping clean, {e.g. for delineator posts; Substituting reflecting means by unsoiled ones}
- D E01F 9/016
 - • illuminated, {e.g. with provisions for wiring-up, lights for illuminated signs} (for obstructing or restricting traffic E01F 13/00; {lighting, e.g. for sheets F21; illuminated signs in general G09F 13/00})

- D E01F 9/0165
 - . . . {Illuminated or wired-up posts, bollards, pillars or like upstanding bodies or structures for traffic guidance, warning or control (E01F 9/065 takes precedence)}
- D E01F 9/017
 - . . self-righting after deflection or displacement {(E01F 9/012, E01F 9/045, E01F 9/076 take precedence)}
- D E01F 9/0175
 - . . . {Traffic guidance, warning or control posts, bollards, pillars or like upstanding bodies or structures}
- D E01F 9/018
 - . . specially adapted for breaking, disengaging, collapsing or permanent deformation upon deflection or displacement, e.g. upon vehicle impact; {replaceable couplings (E01F 9/0118, E01F 9/012, E01F 9/014, E01F 9/016, E01F 9/017 take precedence)}
- D E01F 9/0182
 - . . . {by shearing or tearing, e.g. having weakened zones}
- D E01F 9/0184
 - . . . {by connection of the "slide-shoe" type}
- D E01F 9/0186
 - . . . {by connection of the "male-female" type, e.g. spring-loaded (E01F 9/0182, E01F 9/0188 take precedence)}
- D E01F 9/0188
 - . . . {Friction coupled}
- D E01F 9/019
 - . . extensible, collapsible or pivotable {-, e.g. telescopic,}(E01F 9/017, E01F 9/018 take precedence){; retractable or otherwise movable to an underground position (E01F 9/093, E01F 13/046, E01F 13/085 take precedence; retractable traffic islands E01F 1/00)}
- D E01F 9/03
 - . . Arrangements for fastening signs or signals to safety barriers or the like {(securing anti-dazzle means E01F 7/06)}
- D E01F 9/04
 - . Road surface markings; Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated (for redirecting vehicles E01F 15/00)
- D E01F 9/041
 - . {Selection of materials for road surface marking, e.g. wheel-grip improving additives, reflecting particles (specially adapted for kerbs E01F 9/053, for playing grounds A63C 19/06; reflecting or signal paints C09D 5/004); Methods of forming, installing or applying markings in, on or to paving (E01F 9/047, E01F 9/053, E01F 9/06 take precedence; devices therefor E01C)}
- D E01F 9/042
 - . . . {Preformed markings, e.g. materials for sheets or signs, methods of bonding same to road surface (traffic line tapes E01F 9/083)}
- D E01F 9/044
 - . . . {Reflecting elements specially adapted for incorporation in or application to road surface marking materials, sheets or tapes (reflectors for individual road surface markers E01F 9/06)}
- D E01F 9/045
 - . {Upright or projecting signs or signals permanently installed directly on or in the roadway and designed to be depressed by rolling or other loads and then to return to normal position, e.g. collapsible or rockable stop signs, flexible vehicle-striking members for audible warning (E01F 9/07, E01F 13/10 take precedence)}
- D E01F 9/047
 - . . specially adapted for audible or vibrational signalling, e.g. rumble strips {across a lane}, or for enforcing reduced speed, e.g. speed bumps {(E01F 9/045, E01F 9/053, E01F 13/10 take precedence)}
- D E01F 9/053
 - . Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated
- D E01F 9/0533
 - . . . {Raised kerbs, e.g. reflective facings, traffic-actuated cleaning means for kerb reflectors; Signs or display means specially for association therewith, e.g. for indicating street names (E01F 9/0536 takes precedence)}
- D E01F 9/0536
 - . . . {Illuminated kerbs; Kerbs with illuminated signs or displays (illuminated traffic lines E01F 9/085)}

- D E01F 9/06
 - • Traffic studs; Marking blocks (like individual road surface markers, e.g. buttons, flaps (E01F 9/083 takes precedence); Methods of forming or installing same in or on the road surface (devices therefor E01C); Protecting same during road maintenance work; Reflectors specially for individual road surface markers; Illuminated low-built traffic guiding, warning or controlling bodies, e.g. of mushroom or dome type}
- D E01F 9/065
 - • • {illuminated; Illuminated low-built road traffic guiding, warning or controlling bodies, e.g. of mushroom or dome type (illuminated bollards E01F 9/0165)}
- D E01F 9/07
 - • • having deflectable or displaceable parts, with or without return to original position, e.g. flexible flaps
- D E01F 9/073
 - • • • {designed to descend or deform under load essentially vertically downwards into the road or a housing, with or without concurrent rotational movement, while biased to raised position}
- D E01F 9/076
 - • • • {Self-righting, upright flexible or rockable markers, e.g. resilient flaps bending over (depressible road surface signs or flexible vehicle-striking members for audible warning E01F 9/045)}
- D E01F 9/08
 - • Traffic lines, {e.g. edge lines (flush kerbs or edge strips specially adapted for traffic guidance E01F 9/053); Methods of forming, installing or applying same in, on or to the road (devices therefor E01C 23/16); Traffic lane separators}
- D E01F 9/081
 - • • {formed in situ, e.g. painted on or cast into the road, made by sculpturing the surface (E01F 9/085, E01F 9/087 take precedence; materials therefor E01F 9/041)}
- D E01F 9/083
 - • • {consisting of preformed elements, e.g. tapes, block-type elements specially designed or arranged to make up a traffic line (E01F 9/085, E01F 9/087, E01F 9/093 take precedence; studs, blocks or like markers per se E01F 9/06)}
- D E01F 9/085
 - • • {Illuminated traffic lines (E01F 9/093 takes precedence)}
- D E01F 9/087
 - • • Lane delineators for physically separating traffic lanes and discouraging but not preventing crossing {,e.g. low barriers for channelling traffic (E01F 9/093 takes precedence; insurmountable lane-separating barriers E01F 15/006, E01F 15/02)}
- D E01F 9/093
 - • • movable for repeated use at different locations {,e.g. shiftable lines, line location transferable by selective illumination, retractable lane delineating posts (E01F 15/006 takes precedence; retractable posts E01F 9/019)}
- N E01F 9/20
 - Use of light guides, e.g. fibre-optic devices
- N E01F 9/30
 - Arrangements interacting with transmitters or receivers otherwise than by visible means, e.g. using radar reflectors or radio transmitters ([E01F 11/00](#) takes precedence)
- N E01F 9/40
 - Arrangements responsive to adverse atmospheric conditions, e.g. to signal icy roads or to automatically illuminate in fog; Arrangements characterised by heating or drying means
- N E01F 9/50
 - Road surface markings; Kerbs or road edgings, specially adapted for alerting road users (for redirecting vehicles [E01F 15/00](#))
- Q E01F 9/506
 - • characterised by the road surface marking material, e.g. comprising additives for improving friction or reflectivity; Methods of forming, installing or applying markings in, on or to road surfaces

WARNING
Group [E01F 9/506](#) is impacted by reclassification into group [E01F 9/518](#). Groups [E01F 9/506](#) and [E01F 9/506](#) should be considered in order to perform a complete search.
- N E01F 9/512
 - • • Preformed road surface markings, e.g. of sheet material; Methods of applying preformed markings

- Q E01F 9/518
- • • formed in situ, e.g. by painting, by casting into the road surface or by deforming the road surface
- WARNING
Group [E01F 9/518](#) is incomplete pending reclassification of documents from group [E01F 9/506](#) and impacted by reclassification into group [E01F 9/576](#). Groups [E01F 9/518](#), [E01F 9/576](#) and [E01F 9/506](#) should be considered in order to perform a complete search.
- N E01F 9/524
- • • Reflecting elements specially adapted for incorporation in or application to road surface markings
- N E01F 9/529
- • specially adapted for signaling by sound or vibrations, e.g. rumble strips; specially adapted for enforcing reduced speed, e.g. speed bumps
- N E01F 9/535
- • Kerbs or road edgings specially adapted for alerting road users
- N E01F 9/541
- • • Kerbs
- N E01F 9/547
- • • illuminated
- N E01F 9/553
- • Low discrete bodies, e.g. marking blocks, studs or flexible vehicle-striking members
- N E01F 9/559
- • • illuminated
- N E01F 9/565
- • • having deflectable or displaceable parts
- N E01F 9/571
- • • • displaceable vertically under load, e.g. in combination with rotation
- N E01F 9/573
- • • • {Self-righting, upright flexible or rockable markers, e.g. resilient flaps bending over (depressible road surface signs or flexible vehicle-striking members for audible warning [E01F 9/602](#))}
- N E01F 9/576
- • Traffic lines
- WARNING
Group [E01F 9/576](#) is incomplete pending reclassification of documents from group [E01F 9/518](#). Groups [E01F 9/576](#) and [E01F 9/518](#) should be considered in order to perform a complete search.
- N E01F 9/578
- • • {consisting of preformed elements, e.g. tapes, block-type elements specially designed or arranged to make up a traffic line ([E01F 9/582](#), [E01F 9/588](#), [E01F 9/594](#) take precedence; studs, blocks or like markers per se [E01F 9/553](#))}
- N E01F 9/582
- • • illuminated
- N E01F 9/588
- • • Lane delineators for physically separating traffic lanes and discouraging but not preventing crossing
- N E01F 9/594
- • • movable for reuse at different locations
- Q E01F 9/60
- Upright bodies, e.g. marker posts or bollards; Supports for road signs
- WARNING
Group [E01F 9/60](#) is impacted by reclassification into groups [E01F 9/604](#), [E01F 9/623](#), and [E01F 9/658](#). Groups [E01F 9/60](#), [E01F 9/604](#), [E01F 9/623](#), and [E01F 9/658](#) should be considered in order to perform a complete search.
- N E01F 9/602
- • {Upright or projecting signs or signals permanently installed directly on or in the roadway and designed to be depressed by rolling or other loads and then to return to normal position, e.g. collapsible or rockable stop signs, flexible vehicle-striking members for audible warning ([E01F 9/565](#), [E01F 13/10](#) take precedence)}

- N E01F 9/604
- • specially adapted for particular signaling purposes, e.g. for indicating curves, road works or pedestrian crossings
- WARNING
Group [E01F 9/604](#) is incomplete pending reclassification of documents from group [E01F 9/60](#).
Groups [E01F 9/604](#) and [E01F 9/60](#) should be considered in order to perform a complete search.
- N E01F 9/608
- • • for guiding, warning or controlling traffic, e.g. delineator posts or milestones
- N E01F 9/61
- • • {Special features of delineator posts, e.g. with parts cantilevered toward the roadway or fixed vertically on a tilted surface ([E01F 9/669](#), [E01F 9/535](#), [E01F 9/576](#) take precedence)}
- N E01F 9/612
- • • for indicating freshly applied road surface markings, e.g. straddling lines
- N E01F 9/615
- • • illuminated
- N E01F 9/617
- • • {Illuminated or wired-up posts, bollards, pillars or like upstanding bodies or structures for traffic guidance, warning or control ([E01F 9/559](#) takes precedence)}
- N E01F 9/619
- • • with reflectors; with means for keeping reflectors clean
- N E01F 9/623
- • characterised by form or by structural features, e.g. for enabling displacement or deflection
- WARNING
Group [E01F 9/623](#) is incomplete pending reclassification of documents from group [E01F 9/60](#).
Groups [E01F 9/623](#) and [E01F 9/60](#) should be considered in order to perform a complete search.
- N E01F 9/627
- • • self-righting after deflection or displacement
- N E01F 9/629
- • • {Traffic guidance, warning or control posts, bollards, pillars or like upstanding bodies or structures}
- N E01F 9/631
- • • specially adapted for breaking, disengaging, collapsing or permanently deforming when deflected or displaced, e.g. by vehicle impact
- N E01F 9/635
- • • • by shearing or tearing, e.g. having weakened zones
- N E01F 9/638
- • • • by connection of stud-and-socket type, e.g. spring-loaded
- N E01F 9/642
- • • • friction-coupled
- N E01F 9/644
- • • • {by connection of the "slide-shoe" type}
- N E01F 9/646
- • • extensible, collapsible or pivotable ([E01F 9/627](#), [E01F 9/631](#) take precedence)
- N E01F 9/65
- • • with rotatable, swingable or adjustable signs or signals ([E01F 9/646](#) takes precedence)
- Q E01F 9/654
- • • in the form of three-dimensional bodies, e.g. cones; capable of assuming three-dimensional form, e.g. by inflation or erection to form a geometric body
- WARNING
Group [E01F 9/654](#) is impacted by reclassification into group [E01F 9/688](#).
Groups [E01F 9/654](#) and [E01F 9/688](#) should be considered in order to perform a complete search.
- N E01F 9/658
- • characterised by means for fixing
- WARNING
Group [E01F 9/658](#) is incomplete pending reclassification of documents from group [E01F 9/60](#).

Groups [E01F 9/658](#) and [E01F 9/60](#) should be considered in order to perform a complete search.

- N [E01F 9/662](#) . . . mounted on vehicles, e.g. service vehicles; Warning vehicles travelling along with road-maintenance, e.g. remotely controlled
- N [E01F 9/669](#) . . . for fastening to safety barriers or the like
- N [E01F 9/673](#) . . . for holding sign posts or the like
- N [E01F 9/675](#) {Glued to surface, e.g. road}
- N [E01F 9/677](#) the sign posts being removable without tools, e.g. of stud-and-socket type
- N [E01F 9/681](#) the sign posts being fastened by removable means, e.g. screws or bolts
- N [E01F 9/685](#) Subsoil means, e.g. foundations
- Q [E01F 9/688](#) . . Free-standing bodies

WARNING

Group [E01F 9/688](#) is impacted by reclassification into group [E01F 9/654](#). Groups [E01F 9/688](#) and [E01F 9/654](#) should be considered in order to perform a complete search.

- N [E01F 9/692](#) . . . Portable base members therefor
- N [E01F 9/696](#) . . Overhead structures, e.g. gantries; Foundation means specially adapted therefor
- N [E01F 9/70](#) . . Storing, transporting, placing or retrieving portable devices

E [E01F 13/00](#) Arrangements for obstructing or restricting traffic, e.g. gates, barricades (for railway crossings [B61L](#)); {Preventing passage of vehicles of selected category or dimensions ([E01F 13/12](#), [E01F 13/126](#) take precedence)}

WARNING

Group [E01F 13/00](#) is incomplete pending reclassification of documents from group [E01F 9/00](#). Groups [E01F 13/00](#) and [E01F 9/00](#) should be considered in order to perform a complete search.

- [E01F 13/02](#) . free-standing; -{portable, e.g. for guarding open manholes ([E01F 9/012](#)[E01F 9/688](#) takes precedence); Portable signs or signals specially adapted for fitting to portable barriers}
- U [E01F 13/024](#) . . {Removable barriers with permanently installed base members, e.g. to provide occasional passage ([E01F 13/028](#), [E01F 15/12](#) take precedence)}
- [E01F 13/026](#) . . . {Detachable barrier bollards or parking posts (portable signs co-operating with permanent base [E01F 9/013](#)[E01F 9/677](#))}
- U [E01F 13/04](#) . movable to allow or prevent passage {([E01F 13/12](#), [E01F 15/12](#) take precedence; removing part of barrier for occasional passage [E01F 13/024](#); gates for allowing passage through fences [E06B 11/02](#))}
- [E01F 13/044](#) . . {the barrier being formed by obstructing members situated on, flush with, or below the traffic surface, e.g. with inflatable members on the surface ([E01F 13/08](#), [E01F 13/10](#) take precedence; retractable speed humps [E01F 9/047](#)[E01F 9/529](#))}
- [E01F 13/046](#) . . . {the obstructing members moving up in a translatory motion, e.g. telescopic barrier posts (for lane control [E01F 9/093](#)[E01F 9/594](#))}

M [E01F 15/00](#) Safety arrangements for slowing, redirecting or stopping errant vehicles, e.g. guard posts or bollards; Arrangements for reducing damage to roadside structures due to vehicular impact (arrangements for fastening signs or signals to safety barriers or the like [E01F 9/03](#)[E01F 9/669](#); for forcibly arresting vehicles [E01F 13/00](#); {guard barriers on road-bridges [E01D 19/103](#); fences in general [E04H 17/00](#))}

- E01F 15/006
- {Lane control by movable lane separating barriers, e.g. shiftable barriers, retractable kerbs ([E01F 15/12](#) takes precedence; by crossable lane separators [E01F 9/093](#)[E01F 9/594](#)); Apparatus or barriers specially adapted therefor, e.g. wheeled barriers (wall-type modules [E01F 15/08](#))}
- M E01F 15/02
- Continuous barriers extending along roads or between traffic lanes (crossable-lane separators ~~{[E01F 9/087](#)}~~[E01F 9/588](#))
- U E01F 15/04
- • essentially made of longitudinal beams or rigid strips {supported above ground at spaced points ([E01F 15/10](#), [E01F 15/12](#) take precedence)}
- E01F 15/0461
- • • {Supports, e.g. posts (roadside posts in general [E01F 9/011](#)[E01F 9/60](#))}

Project: RP0305 (E04H)

- E04H 6/00
- Buildings for parking cars, rolling stock, aircraft, vessels or like vehicles, e.g. garages (tents for use as garages [E04H 15/00](#); bicycle stands [B62H](#); storing of vessels on land [B63C 15/00](#); construction of ground-supported surfaces [E01C](#); marking of parking areas on the ground [E01F 9/00](#)[E01F 9/50](#); building construction in general [E04B 1/00](#))**
- M E04H 12/00
- Towers; Masts; *or* poles; Chimney- stacks; Water-towers; Methods of erecting such structures (cooling-towers [E04H 5/12](#); ~~devices for erecting masts or poles~~ [B66F](#); *supports for road signs* [E01F 9/60](#); foundation piles [E02D 5/22](#); foundations for masts, poles; *or* chimneys [E02D 27/42](#); structural elongated members in general [E04C 3/00](#); fixed climbing irons [E06C 9/04](#); derricks for oil drilling [E21B 15/00](#))**
- E04H 12/18
- movable or with movable sections, e.g. rotatable, telescopic ({flexible slalom gate poles [A63C 19/062](#); flexible road sign supports [E01F 9/017](#)[E01F 9/627](#)}; rotary buildings [E04B 1/346](#))
- E04H 12/22
- Sockets or holders for poles or posts {{for sports articles, e.g. floor sockets [A63B 71/023](#); for road signs [E01F 9/011](#)[E01F 9/673](#); foundations for poles, masts or chimneys [E02D 27/42](#)}
- E04H 12/2253
- • {Mounting poles or posts to the holder ([E04H 12/2284](#) takes precedence; break-away mountings [E01F 9/018](#)[E01F 9/631](#))}

Project: RP0312 (H02J)

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

1. This subclass ~~covers~~*covers*:
 - ac or dc mains or distribution networks;
 - circuit arrangements for battery supplies, including charging or control thereof, or ~~co-ordinated~~*coordinated* supply from two or more sources of any kind;
 - *circuit arrangements or* systems for ~~supplying~~*wireless supply* or ~~distributing~~*distribution of* electric power ~~by electromagnetic waves~~.
2. This subclass ~~does not cover~~*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.

WARNING

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

[H02J 7/10](#) covered by [H02J 7/0072](#)

C H02J 5/00 **Circuit arrangements for transfer of electric power between ac networks and dc networks ([H02J 3/36](#) takes precedence)**

WARNING

Group [H02J 5/00](#) is impacted by reclassification into groups [H02J 50/00](#) – [H02J 50/90](#).
Groups [H02J 5/00](#) and [H02J 50/00](#) – [H02J 50/90](#) should be considered in order to perform a complete search.

C H02J 5/005 • {with inductive power transfer (for charging [H02J 7/025](#))}

WARNING

Group [H02J 5/005](#) is impacted by reclassification into groups [H02J 50/00](#) – [H02J 50/90](#).
Groups [H02J 5/005](#) and [H02J 50/00](#) – [H02J 50/90](#) should be considered in order to perform a complete search.

U H02J 7/00 **Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries**

C H02J 7/02 • for charging batteries from ac mains by converters

WARNING

Group [H02J 7/02](#) is impacted by reclassification into groups [H02J 50/00](#) – [H02J 50/90](#).
Groups [H02J 7/02](#) and [H02J 50/00](#) – [H02J 50/90](#) should be considered in order to perform a complete search.

U H02J 7/022 • • {characterised by the type of converter}

C H02J 7/025 • • • {using non-contact coupling, e.g. inductive, capacitive}

WARNING

Group [H02J 7/025](#) is impacted by reclassification into groups [H02J 50/00](#) – [H02J 50/90](#).
Groups [H02J 7/025](#) and [H02J 50/00](#) – [H02J 50/90](#) should be considered in order to perform a complete search.

F H02J 17/00 **Systems for supplying or distributing electric power by electromagnetic waves**
(Frozen)

WARNING

Group [H02J 17/00](#) is no longer used for the classification of documents as of February 1, 2016. The content of this group is being reclassified into groups [H02J 50/00](#) – [H02J 50/90](#).
Groups [H02J 17/00](#) and [H02J 50/00](#) – [H02J 50/90](#) should be considered in order to perform a complete search.

N H02J 50/00 **Circuit arrangements or systems for wireless supply or distribution of electric power**

NOTES

1. In this main group, the specific types of wireless technology used for the power transmission are covered in groups [H02J 50/05-H02J 50/30](#), while aspects relevant to the circuit arrangements or systems thereof are covered in groups [H02J 50/40-H02J 50/90](#).

2. In this main group, multi-aspect classification is applied, so that subject matter characterised by aspects covered by more than one of its groups should be classified in each of those groups.

WARNING

Groups [H02J 50/00](#) – [H02J 50/90](#) are incomplete pending reclassification of documents from groups [H02J 5/00](#), [H02J 5/005](#), [H02J 7/02](#) and [H02J 17/00](#). Groups [H02J 5/00](#), [H02J 5/005](#), [H02J 7/02](#) and [H02J 17/00](#) and [H02J 50/00](#) – [H02J 50/90](#) should be considered in order to perform a complete search.

- N H02J 50/05 · using capacitive coupling
- N H02J 50/10 · using inductive coupling
- N H02J 50/12 · · of the resonant type
- N H02J 50/15 · using ultrasonic waves
- N H02J 50/20 · using microwaves or radio frequency waves
- N H02J 50/23 · · characterised by the type of transmitting antennas, e.g. directional array antennas or Yagi antennas
- N H02J 50/27 · · characterised by the type of receiving antennas, e.g. rectennas
- N H02J 50/30 · using light, e.g. lasers
- N H02J 50/40 · using two or more transmitting or receiving devices ([H02J 50/50](#) takes precedence)
- N H02J 50/50 · using additional energy repeaters between transmitting devices and receiving devices
- N H02J 50/60 · responsive to the presence of foreign objects, e.g. detection of living beings
- N H02J 50/70 · involving the reduction of electric, magnetic or electromagnetic leakage fields
- N H02J 50/80 · involving the exchange of data, concerning supply or distribution of electric power, between transmitting devices and receiving devices
- N H02J 50/90 · involving detection or optimisation of position, e.g. alignment

Project: N/A (A61B)

A61B 17/00
 - **A61B 19/00**
A61B 90/00

Surgery

- U A61B 17/84 · · · · Fasteners therefor {or fasteners being internal fixation devices}
- A61B 17/86 · · · · {Threaded wires}, pins or screws; {Nuts therefor ([A61B 17/72](#), [A61B 17/74](#), [A61F 2/4455](#) take precedence)}

WARNING

Subgroups Groups [A61B 17/861](#), [A61B 17/865](#), [A61B 17/8665](#), [A61B 17/869](#) and [A61B 17/8695](#) are **not complete** incomplete pending a reorganisation. See also reclassification of documents from groups [A61B 17/68](#), [A61B 17/86](#), [A61B 17/8605](#) and [A61B 50/30](#). Groups [A61B 17/68](#), [A61B 17/86](#), [A61B 17/8605](#) and [A61B 19/026](#) [A61B 50/30](#) should be considered in order to perform a complete search.

Project: N/A (B05D)

B05D 2500/00

Indexation scheme for the composition of layers

NOTE

L05D5/**/****L05D5**/**** codes may be combined with one or more codes of the series [B05D 2400/00](#) with a + sign. Example : [B05D 2503/00](#) + [B05D 2420/01](#) + [B05D 2420/02](#)

Project: N/A (B29C)

B29C 43/00

Compression moulding, i.e. applying external pressure to flow the moulding material; Apparatus therefor (by liberation of internal stresses [B29C 61/006](#)) ; shaping or impregnating by compression composites comprising reinforcements other than fibres of short length [B29C 70/12](#) **]**; presses in general [B30B](#))

Project: N/A (B31D)

B31D 5/00

Multiple-step processes for making three-dimensional articles-**{**; Making three-dimensional articles**}**

NOTE

Making drinking straws is classified in group [B31D 5/00](#), e.g. [B31D 5/0095](#)

Project: N/A (C06B)

C06B 47/00

Compositions in which the components are separately stored until the moment of burning or explosion, e.g. "Sprenge!"-type explosives; Suspensions of solid component in a normally non-explosive liquid phase, including a thickened aqueous phase **{This group also covers emulsion type explosives in which a solid component is not compulsory}**

NOTE

{This group also covers emulsion type explosives in which a solid component is not compulsory}

Project: N/A (E06B)

U E06B 11/00

Means for allowing passage through fences, barriers or the like, e.g. stiles (general features of doors [E06B 1/00](#) to [E06B 9/00](#); {cattle grids [A01K 3/002](#); features peculiar to electrified wire fencing [A01K 3/005](#)})

E06B 11/08

• Turnstiles; **-**{Gates for control of entry or exit of persons, e.g. in supermarkets} (control gates on vehicles [B60N 5/00](#); ~~{bank protection devices [E05G 5/00](#) }~~; *{bank protection devices [E05G 5/00](#) }*; with registering means [G07C 9/02](#); {coin-freed facilities for turnstiles [G07F 17/14](#)})

Project: N/A (F02W)

F02W 2746/00

Indexing scheme associated with former IdT class [<ref-scheme="idt">46F](#)

Project: N/A (F41C)

F41C

SMALLARMS, e.g. PISTOLS, RIFLES (functional features or details common to both smallarms and ordnance, mountings therefor [F41A](#); projecting missiles without use of explosive or combustible propellant charge [F41B](#)); ACCESSORIES THEREFOR

NOTE

Attention is drawn to the definitions in Note (2) following the title of class **F** ~~41~~[F41](#).

Project: N/A (H02K)

U H02K 11/00

Structural association of dynamo-electric machines with electric components or with devices for shielding, monitoring or protection (casings, enclosures or supports [H02K 5/00](#))

U H02K 11/02

- for suppression of electromagnetic interference

U H02K 11/022

- · {Shields}

H02K 11/024
(Frozen)

- · · {Suppressors}

WARNING

Group [H02K 11/024](#) is no longer used for the classification of documents as of ~~January of~~ *January* 1, 2016. The content of this group is being reclassified into groups [H02K 11/026](#) and [H02K 11/028](#).

Groups [H02K 11/024](#), [H02K 11/026](#), and [H02K 11/028](#) should be considered in order to perform a complete search.