

**ECLA****EUROPEAN CLASSIFICATION****B****PERFORMING OPERATIONS; TRANSPORTING****Notes**

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

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

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

2. The classifying characteristics of these subclasses are:

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

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

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

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

- [B01D](#) is the most general class as far as separation other than solids from solids is concerned.
- Apparatus for separating solids from solids are covered by [B03B](#) when the process concerned is regarded as the equivalent of "washing" in the sense of the mining art, even if such apparatus is a pneumatic one, especially pneumatic tables or jigs. Screens PER SE are not covered by this subclass but are classified in [B07B](#), even if they are being used in a wet process. All other apparatus for the separation of solids from solids according to dry methods are classified in [B07B](#).
- If the separation takes place as a result of the detection or measurement of some feature of the material or articles to be sorted it is classified in [B07C](#). It should also be noted that the separation of isotopes of the same chemical element is covered by [B01D59/00](#), whatever process or apparatus is employed.

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

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

## SUBSECTION: Separating; Mixing

### B01

## PHYSICAL OR CHEMICAL PROCESSES OR APPARATUS IN GENERAL (furnaces, kilns, ovens, retorts in general [F27](#))

- B01B** **BOILING; BOILING APPARATUS;** [N: EVAPORATION; EVAPORATION APPARATUS] [C0311]
- B01D** **SEPARATION** (separating solids from solids by wet methods B03B, B03D; by pneumatic jigs or tables B03B; by other dry methods B07; magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high-voltage electric fields B03C; centrifuges, vortex apparatus B04; presses per se for squeezing-out liquid from liquid-containing material [B30B9/02](#); treatment of water C02F, e.g. softening by ion-exchange [C02F1/42](#); [N: arrangements of air intake cleaners in gas turbine plants [F02C7/05](#)]; arrangements or mounting of filters in air-conditioning, air-humidification or ventilation [F24F13/28](#)) [C1009]
- B01F** **MIXING, e.g. DISSOLVING, EMULSIFYING, DISPERSING** ([N: miscellaneous implements for preparing food, e.g. machines for domestic use for mixing, egg-whisks, cream beaters [A47J43/00](#); mixing paints [B44D3/06](#); [N: apparatus specially adapted for mixing radioactively contaminated material [G21F9/00P](#)]) [C9807]
- B01J** **CHEMICAL OR PHYSICAL PROCESSES, e.g. CATALYSIS, COLLOID CHEMISTRY; THEIR RELEVANT APPARATUS** (processes or apparatus for specific applications, see the relevant places for these processes or apparatus, e.g. [F26B3/08](#))
- B01L** **CHEMICAL OR PHYSICAL LABORATORY APPARATUS FOR GENERAL USE** (apparatus for medical or pharmaceutical purposes A61; apparatus for industrial purposes or laboratory apparatus whose construction and performance are comparable to that of similar industrial apparatus, see the relevant classes for industrial apparatus, particularly subclasses of B01 and C12; separating or distilling apparatus B01D; mixing or stirring devices B01F; atomisers B05B; [N: vibrating devices, e.g. shaking tables,] sieves B07B; corks, bungs B65D; handling liquids in general B67; vacuum pumps F04; siphons [F04F10/00](#); taps, stop-cocks F16K; tubes, tube joints F16L; apparatus specially adapted for investigating or analysing materials G01, particularly G01N; electrical or optical apparatus, see the relevant classes in Sections G and H)
- B02** **CRUSHING, PULVERISING, OR DISINTEGRATING; PREPARATORY TREATMENT OF GRAIN FOR MILLING**
- B02B** **PREPARING GRAIN FOR MILLING; REFINING GRANULAR FRUIT TO COMMERCIAL PRODUCTS BY WORKING THE SURFACE** (making dough from cereals directly [A21C](#); preservation or sterilisation of cereals [A23B](#); cleaning fruit [A23N](#); preparation of malt [C12C](#))
- B02C** **CRUSHING, PULVERISING, OR DISINTEGRATING IN GENERAL; MILLING GRAIN** ([N: clod-crushers for soil-working machines [A01B17/00C](#); household tools and machines for pulverising foodstuffs, e.g. coffee and spice mills

[A47J42/00](#); pharmaceutical mortars [A61J3/02](#); mechanical processing of refuse and garbage [B03B9/06](#); dressing mould materials by grinding [B22C5/04](#); obtaining metallic powder by crushing, grinding or milling [B22F9/04](#); [N: recovery of plastics by desintegration [B29B17/00](#); crushing raw materials in starch making [C08B30/02](#); shredding devices for sugar beet and sugar cane [C13C1/00](#); beaters for papermaking [D21D1/02](#); crushing devices specially for transport in mines [E21F13/00B](#); slag crushing devices [F23J1/00](#); fuel milling devices in combustion apparatus [F23K1/00](#); household devices for crushing coal [F24B15/02](#); ice desintegrating devices [F25C5/02](#))]  
[C2011.10]

**B03** **SEPARATION OF SOLID MATERIALS USING LIQUIDS OR USING PNEUMATIC TABLES OR JIGS; MAGNETIC OR ELECTROSTATIC SEPARATION OF SOLID MATERIALS FROM SOLID MATERIALS OR FLUIDS; SEPARATION BY HIGH-VOLTAGE ELECTRIC FIELDS** (separating isotopes [B01D59/00](#); crushing or disintegrating [B02C](#); centrifuges or vortex apparatus for carrying out physical processes [B04](#))

**B03B** **SEPARATING SOLID MATERIALS USING LIQUIDS OR USING PNEUMATIC TABLES OR JIGS** (removing fluids from solids [B01D](#); magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high voltage electric fields [B03C](#); flotation differential sedimentation [B03D](#); separating by dry methods [B07](#); screening or sifting [B07B](#); by picking [B07C](#); separating peculiar to particular materials and provided for in other single classes, see the relevant classes) [[C9602](#)]

**B03C** **MAGNETIC OR ELECTROSTATIC SEPARATION OF SOLID MATERIALS FROM SOLID MATERIALS OR FLUIDS; SEPARATION BY HIGH-VOLTAGE ELECTRIC FIELDS** (filters making use of electricity or magnetism [B01D35/06](#); separating isotopes [B01D59/00](#); combinations of magnetic or electrostatic separation with separation of solids by other means [B03B](#), [B07B](#); separating sheets from piles [B65H3/00](#); magnets or magnet coils per se [H01F](#)) [[C9409](#)]

**B03D** **FLOTATION; DIFFERENTIAL SEDIMENTATION** (sedimentation in general [B01D 21/00](#); in combination with other separation of solids [B03B](#); sink-float separation [B03B5/28](#); detergents, soaps [C11D](#)) [[C9603](#)]

**B04** **CENTRIFUGAL APPARATUS OR MACHINES FOR CARRYING-OUT PHYSICAL OR CHEMICAL PROCESSES** (using centrifugal force for the separation of particles from liquids or gases, in general [B01D](#), e.g. [B01D21/26](#), [B01D43/00](#), [B01D45/12](#))

**B04B**

**CENTRIFUGES** (high-speed drum mills [B02C19/11](#); domestic spin driers [D06F](#); analysing, measuring or monitoring physical or chemical properties of samples during centrifuging, see the relevant subclasses for these procedures, e.g. [G01N](#))

**B04C**

**APPARATUS USING FREE VORTEX FLOW, e.g. CYCLONES** ([N: centrifugal separation of water from steam [B01D45/12](#);] jet mills [B02C19/06](#); [N: wind sifters [B07B7/00](#);] cyclonic type combustion apparatus [F23](#); [N: vortex burners for cyclone-type combustion apparatus [F23D1/02](#); cyclonic type combustion apparatus for gas turbines [F23R3/00](#)]) [[C9411](#)]

**B05**

**SPRAYING OR ATOMISING IN GENERAL; APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL** (domestic cleaning [A47L](#); cleaning in general by methods essentially involving the use or presence of liquid [B08B3/00](#); sand-blasting [B24C](#); coating of articles during shaping of substances in a plastic state [B29C39/10](#), [B29C39/18](#), [B29C41/20](#), [B29C41/30](#), [B29C43/18](#), [B29C43/28](#), [B29C45/14](#), [B29C47/02](#); for further classification of forming layered products, see [B32B](#); printing, copying [B41](#); conveying articles or workpieces through baths of liquid [B65G](#), e.g. [B65G49/02](#); handling webs or filaments in general [B65H](#); surface treatment of glass by coating [C03C17/00](#), [C03C25/10](#); coating or impregnation of mortars, concrete, stone or ceramics [C04B41/45](#); paints, varnishes, lacquers [C09D](#); enamelling of metals, applying a vitreous layer to metals, chemical cleaning or de-greasing of metallic objects [C23](#); electroplating [C25D](#); treating of textile materials by liquids, gases or vapours [D06B](#); laundering [D06F](#); treating roads [E01C](#); apparatus or processes for the preparation or treatment of photosensitive materials [G03](#); apparatus or processes, restricted to a purpose fully provided for in a single other class, see the relevant class covering the purpose) [[C9909](#)]

**Note**

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

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

**B05B**

**SPRAYING APPARATUS; ATOMISING APPARATUS; NOZZLES** ([N: sprayers or atomisers specially adapted for therapeutic purposes [A61M11/00](#); spray-mixers with nozzles [B01F5/20](#); processes for applying liquids or other fluent materials to surfaces by spraying [B05D](#); [N: nozzles specially adapted for injection moulding of plastics or substances in a plastic state [B29C45/16B](#), [B29C45/20](#); nozzles specially adapted for windscreen washers [B60S1/52](#)]; means for pumping fluids [F04](#); valves, e.g. water-taps, [F16K](#)) [[C9801](#)]

- B05C**                    **APPARATUS FOR APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL** (spraying apparatus, atomising apparatus, nozzles [B05B](#); plant for applying liquids or other fluent materials to objects by electrostatic spraying [B05B5/08](#); processes for applying liquids or other fluent materials to surfaces [B05D](#); [N: coating of foodstuffs [A23P1/08B12](#), [A23P1/08B14](#), of shaped or preshaped ceramic articles [B28B11/04](#)]) [[C0311](#)]
- B05D**                    **PROCESSES FOR APPLYING LIQUIDS OR OTHER FLUENT MATERIALS TO SURFACES, IN GENERAL** (apparatus for applying liquids or other fluent materials to surfaces [B05B](#), [B05C](#); [N: coating of foodstuffs [A23P1/08B12](#), [A23P1/08B14](#)])
- B06**                     **GENERATING OR TRANSMITTING MECHANICAL VIBRATIONS IN GENERAL**
- B06B**                    **METHODS OR APPARATUS FOR GENERATING OR TRANSMITTING MECHANICAL VIBRATIONS OF INFRASONIC, SONIC, OR ULTRASONIC FREQUENCY, [N: e.g.] FOR PERFORMING MECHANICAL WORK IN GENERAL** (for particular applications, see the relevant subclasses, e.g. [B07B1/40](#), [B23Q17/12](#), [B24B31/06](#); measurement of mechanical vibrations [G01H](#); in direction finding, locating, distance or velocity measuring [G01S](#); [N: generating seismic energy [G01V1/02](#)]; control of mechanical vibrations in general [G05D](#); sound-producing devices, e.g. bells, sirens, whistles [G10K](#), [N: e.g. methods or devices for transmitting, conducting, or directing sound in general [G10K11/00](#)]; generation of electrical oscillations [H03B](#); electromechanical resonators in general [H03H](#); electromechanical transducers [N: for communication techniques, e.g. microphones, speakers] [H04R](#))
- B07**                     **SEPARATING SOLIDS FROM SOLIDS; SORTING** (separation in general [B01D](#); wet separating processes, sorting by processes using fluent material in the same way as liquid [B03](#); using liquids [B03B](#), [D](#); sorting by magnetic or electrostatic separation of solid materials from solid materials or fluids, separation by high voltage electric fields [B03C](#); centrifuges or vortex apparatus for carrying out physical processes [B04](#); sorting peculiar to particular materials or articles and provided for in other classes, see the relevant classes) [[C9602](#)]
- B07B**                    **SEPERATING SOLIDS FROM SOLIDS BY SIEVING, SCREENING, OR SIFTING OR BY USING GAS CURRENTS; OTHER SEPARATING BY DRY METHODS APPLICABLE TO BULK MATERIAL, e.g. LOOSE ARTICLES FIT TO BE HANDLED LIKE BULK MATERIAL** (combinations of dry separating apparatus with wet separating apparatus [B03B](#); hand sorting, postal sorting, sorting by switching or other devices actuated in response to detection or measurement of some feature of articles or samples of material [B07C](#))

**B07C** **POSTAL SORTING; SORTING INDIVIDUAL ARTICLES, OR BULK MATERIAL FIT TO BE SORTED PIECE-MEAL, e.g. BY PICKING**  
(specially adapted for a specific purpose covered by another class, see the relevant place, e.g. [A43D33/06](#), [B23Q7/12](#))

**B08** **CLEANING**

**B08B** **CLEANING IN GENERAL; PREVENTION OF FOULING IN GENERAL**  
(brushes [A46](#); devices for domestic or like cleaning [A47L](#); [N: cleaning golf-clubs or golf accessories [A63B57/00W](#); cleaning grips of bats on rackets [A63B59/00C](#)]; separation of particles from liquids or gases [B01D](#); separation of solids [B03](#), [B07](#); spraying or applying liquids or other fluent materials to surfaces in general [B05](#); cleaning devices for conveyers [B65G45/10](#); concurrent cleaning, filling and closing of bottles [B67C7/00](#); inhibiting corrosion or incrustation in general [C23](#); cleaning streets, permanent ways, beaches or land [E01H](#); parts, details or accessories of swimming or splash baths or pools, specially adapted for cleaning [E04H4/16](#); preventing or removing electrostatic charges [H05F](#)) [[C9503](#)]

**B09** **DISPOSAL OF SOLID WASTE; RECLAMATION OF CONTAMINATED SOIL** (treatment of waste water, sewage or sludge [C02F](#); treating radioactively contaminated solids [G21F9/28](#))

**B09B** **DISPOSAL OF SOLID WASTE**

**B09C** **RECLAMATION OF CONTAMINATED SOIL** (gatherers for removing stone or the like from the soil [A01B43/00](#); sterilising soil by steam [A01G11/00](#); processes for making harmful chemical substances harmless or less harmful by effecting chemical change in the substance [A62D3/00](#); separation in general [B01D](#); cleaning beaches [E01H12/00](#); removing undesirable matter, e.g. rubbish, from the land [E01H15/00](#)) [[C0803](#)]

## **SUBSECTION: Shaping**

**B21** **MECHANICAL METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING METAL** (casting, powder metallurgy [B22](#); shearing [B23D](#); working of metal by the action of a high concentration of electric current [B23H](#); soldering, welding, flame-cutting [B23K](#); other working of metal [B23P](#); punching sheet material in general [B26E](#); processes for changing of physical properties of metals [C21D](#), [C22F](#); electroforming [C25D1/00](#)) [[C9409](#)]

**Notes**

[C9409]

1. This class does not cover:- combinations of operations covered by different subclasses of class [B21](#), which are covered by subclass [B23P](#);- combinations of operations covered by any particular subclass of class [B21](#) with operations covered by other classes, e.g. with operations involving removal of material, which are also covered by subclass [B23P](#), except that if the operations covered by the other classes are subsidiary to the operations properly covered by a single subclass of [B21](#) the combination is classified in that subclass.
2. Processes of a kind covered by this class but applied to non-metallic materials are classified in this class if they are applicable to metal and cannot be classified fully in another class.

<b>B21B</b>	<b>ROLLING OF METAL</b> (auxiliary operations used in connection with metal-working operations covered in <a href="#">B21</a> , see <a href="#">B21C</a> ; bending by rolling <a href="#">B21D</a> ; manufacture of particular objects, e.g. screws, wheels, rings, barrels, balls, by rolling <a href="#">B21H</a> ; pressure welding by means of a rolling mill <a href="#">B23K20/04</a> )
<b>B21C</b>	<b>MANUFACTURE OF METAL SHEETS, WIRE, RODS, TUBES OR PROFILES, OTHERWISE THAN BY ROLLING; AUXILIARY OPERATIONS USED IN CONNECTION WITH METAL-WORKING WITHOUT ESSENTIALLY REMOVING MATERIAL</b>
<b>B21D</b>	<b>WORKING OR PROCESSING OF SHEET METAL OR METAL TUBES, RODS OR PROFILES WITHOUT ESSENTIALLY REMOVING MATERIAL; PUNCHING</b> (operations of the kind involved in the manufacture of such products <a href="#">B21B</a> , <a href="#">B21C</a> ; working or processing of wire <a href="#">B21F</a> ; cutting or severing devices or machines in general <a href="#">B26</a> ; presses in general <a href="#">B30B</a> ) <a href="#">[C9412]</a>
<b>B21F</b>	<b>WORKING AND PROCESSING OF WIRE</b> ( <a href="#">[N: reducing diameter by]</a> rolling of metal <a href="#">B21B</a> ; by drawing, auxiliary operations used in connection with metal working without essentially removing material <a href="#">B21C</a> )
<b>B21G</b>	<b>MAKING NEEDLES, PINS OR NAILS</b>
<b>B21H</b>	<b>MAKING PARTICULAR METAL OBJECTS BY ROLLING, e.g. SCREWS, WHEELS, RINGS, BARRELS, BALLS</b> (essentially from sheet metal <a href="#">B21D</a> )
<b>B21J</b>	<b>FORGING; HAMMERING; PRESSING; RIVETING; FORGE FURNACES</b> (rolling of metal <a href="#">B21B</a> ; making particular products by forging or pressing <a href="#">B21K</a> ; cladding or plating <a href="#">B23K</a> ; finishing surfaces by hammering <a href="#">B23P9/04</a> ; compacting surfaces by blasting with particulate material <a href="#">B24C1/10</a> ; general features of presses, presses for



consolidating scrap B30B; furnace in general F27) [C9611]

- B21K**                    **MAKING FORGED OR PRESSED PRODUCTS**, e.g. HORSE-SHOES, RIVETS, BOLTS, WHEELS (making particular articles by working sheet metal without essentially removing material B21D; processing wire B21F; making pins, needles or nails B21G; making particular articles by rolling B21H; forging machines, pressing machines, hammering machines, in general B21J; making chain B21L; plating B23K)
- B21L**                    **MAKING CHAINS** (making chains or chain links by casting [B22D25/02](#); chains in general F16G) [C0904]
- B22**                     **CASTING; POWDER METALLURGY**
- B22C**                    **FOUNDRI MOULDING** (moulding refractory materials in general B28B)
- B22D**                    **CASTING OF METALS; CASTING OF OTHER SUBSTANCES BY THE SAME PROCESSES OR DEVICES** (shaping of plastics or substances in a plastic state B29C; metallurgical processing, selection of substances to be added to metal C21, C22).
- B22F**                    **WORKING METALLIC POWDER; MANUFACTURE OF ARTICLES FROM METALLIC POWDER; MAKING METALLIC POWDER** (processes or devices for granulating materials in general [B01J2/00](#); making ceramics by compacting or sintering C04B, e.g. [C04B35/64](#); for the production of metals as such, see class C22; reduction or decomposition of metal compounds in general C22B; making alloys by powder metallurgy C22C; electrolytic production of metal powder [C25C5/00](#)) [C9409]
- B23**                     **MACHINE TOOLS; METAL-WORKING NOT OTHERWISE PROVIDED FOR** (punching, perforating, making articles by processing sheet metal, tubes, or profiles [B21D](#); wire-working [B21E](#); making pins, needles, or nails [B21G](#); making chains [B21L](#); grinding [B24](#))

**Notes**  
[C0204]

1. This class covers: - operations not provided for in any other class; - combinations of operations covered by different subclasses of classes [B21](#) to [B24](#), which combinations are covered by subclass [B23P](#), with the exception of subsidiary operations performed in conjunction with main operations covered by a single subclass; - features, specific to machine tools, which relate to a requirement or

problem of a nature which is not peculiar to a particular kind of machine tool, e.g. feeding work, which are covered by subclass [B23Q](#), although the realisation of these features may differ according to the kind of machine tool concerned. The said subclass covers such features, in general, even if the feature or a specific function, in any particular case, is to some extent peculiar to, or is claimed only for, machine tools designed for one particular operation; only in exceptional cases are such features classified in the subclass for the machine tool concerned. Certain features of this general nature are, however, referred to subclasses relating to particular metal-working operations, especially [B23B](#), in which case the subclass in question are not restricted, in respect of those features, to the kind of machine tool with which they are primarily concerned.

2. In this class, the following terms or expressions are used with the meanings indicated:- "metal-working" covers the working of other materials unless the context requires otherwise;- "kind of operations" and similar expressions relate to such metal-working operations as boring, drilling, milling and grinding;- "kind of machine" means a machine designed for a particular kind of metal-working operation (e.g. a lathe);- "form of machine" means a machine of a particular kind adapted or arranged for a particular way of working or for particular work, e.g. face-plate lathe, tailstock lathe, turret lathe;- "different machines" covers different forms of machines for performing the same type of metal-working operation, e.g. vertical and horizontal boring machines.
3. If details, components, or accessories have no essential feature specific to machine tools, the more general class, e.g. [F16](#), takes precedence.

<b>B23B</b>	<b>TURNING; BORING (arrangements for copying or controlling B23Q)</b>
<b>B23C</b>	<b>MILLING (broaching B23D; broach-milling in making gears B23F; arrangement for copying or controlling B23Q)</b>
<b>B23D</b>	<b>PLANING; SLOTTING; SHEARING; BROACHING; SAWING; FILING; SCRAPING; LIKE OPERATIONS FOR WORKING METAL BY REMOVING MATERIAL, NOT OTHERWISE PROVIDED FOR (making toothed gears or the like B23F; cutting metal by applying heat locally B23K; arrangements for copying or controlling B23Q)</b>
<b>B23F</b>	<b>MAKING GEARS OR TOOTHED RACKS (by stamping B21D; by rolling B21H; by forging or pressing B21K; by casting B22; arrangements for copying or controlling B23Q; machines or devices for grinding or polishing, in general B24B)</b>
<b>B23G</b>	<b>THREAD CUTTING; WORKING OF SCREWS, BOLT HEADS, OR NUTS, IN CONJUNCTION THEREWITH (making helical grooves by turning <a href="#">B23B5/48</a>, by milling <a href="#">B23C3/32</a>, by forging, pressing, or hammering <a href="#">B21K1/56</a>, by grinding <a href="#">B24B19/02</a>; arrangements for copying or controlling B23Q; thread-forming by corrugating tubes <a href="#">B21D15/04</a>, by rolling <a href="#">B21H3/02</a>)</b>

- B23H** **WORKING OF METAL BY THE ACTION OF A HIGH CONCENTRATION OF ELECTRIC CURRENT ON A WORKPIECE USING AN ELECTRODE WHICH TAKES THE PLACE OF A TOOL; SUCH WORKING COMBINED WITH OTHER FORMS OF WORKING OF METAL** (processes for the electrolytic or electrophoretic production of coatings, electroforming, or apparatus therefor [C25D](#); processes for the electrolytic removal of material from objects [C25F](#); manufacturing printed circuits using precipitation techniques to apply the conductive material to form the desired conductive pattern [H05K3/18](#))
- B23K** **SOLDERING OR UNSOLDERING; WELDING; CLADDING OR PLATING BY SOLDERING OR WELDING; CUTTING BY APPLYING HEAT LOCALLY, e.g. FLAME CUTTING; WORKING BY LASER BEAM** (making metal-coated products by extruding metal [B21C23/22](#); building up linings or coverings by casting [B22D19/08](#); casting by dipping [B22D23/04](#); manufacture of composite layers by sintering metal powder [B22F7/00](#); arrangements on machine tools for copying or controlling [B23Q](#); covering metals or covering materials with metals, not otherwise provided for [C23C](#); burners [F23D](#))
- B23P** **OTHER WORKING OF METAL; COMBINED OPERATIONS; UNIVERSAL MACHINE TOOLS** (arrangements for copying or controlling [B23Q](#))
- B23Q** **DETAILS, COMPONENTS, OR ACCESSORIES FOR MACHINE TOOLS, e.g. ARRANGEMENTS FOR COPYING OR CONTROLLING** (tools of the kind used in lathes or boring machines [B23B27/00](#)); **MACHINE TOOLS IN GENERAL CHARACTERISED BY THE CONSTRUCTION OF PARTICULAR DETAILS OR COMPONENTS; COMBINATIONS OR ASSOCIATIONS OF METAL-WORKING MACHINES, NOT DIRECTED TO A PARTICULAR RESULT** [[C9609](#)]
- B24** **GRINDING; POLISHING**
- Note**  
In this class, the following term is used with the meaning indicated:
- "grinding" is used in the most general sense to mean machining and covers, in particular, "corrective" operations.
- B24B** **MACHINES, DEVICES, OR PROCESSES FOR GRINDING OR POLISHING** (grinding of gear teeth [B23F](#), of screw-threads [B23G1/36](#); by electro-erosion [B23H](#); abrasive or related blasting [B24C](#); tools for grinding, buffing or sharpening [B24D](#); polishing compositions [C09G1/00](#); abrasives [C09K3/14](#); electrolytic etching or polishing [C25F3/00](#); grinding arrangements for use on assembled railway tracks [E01B31/17](#)); **DRESSING OR CONDITIONING OF ABRADING SURFACES; FEEDING OF GRINDING, POLISHING, OR LAPPING AGENTS**

- B24C** **ABRASIVE OR RELATED BLASTING WITH PARTICULATE MATERIAL**
- B24D** **TOOLS FOR GRINDING, BUFFING, OR SHARPENING** (tools for grinding or polishing optical surfaces on lenses or surfaces of similar shape [B24B13/01](#); grinding heads [B24B41/00](#); manufacture of abrasive or friction articles or shaped materials containing macromolecular substances [C08J5/14](#); polishing compositions [C09G1/00](#); abrasives [C09K3/14](#))
- B25** **HAND TOOLS; PORTABLE POWER-DRIVEN TOOLS; MANIPULATORS**
- Note**  
The work "portable" is to be understood as including suspension for easy manual handling, e.g. in connection with springsuspended portable apparatus for use along assembly lines
- B25B** **TOOLS OR BENCH DEVICES NOT OTHERWISE PROVIDED FOR, FOR FASTENING, CONNECTING, DISENGAGING OR HOLDING**
- B25C** **HAND-HELD NAILING OR STAPLING TOOLS; MANUALLY OPERATED PORTABLE STAPLING TOOLS (for shoemaking A43D)**
- B25D** **PERCUSSIVE TOOLS** [N: (percussive machines for forging [B21J](#); hand-held drilling machines, in general [B23B45/00](#), for wood [B27C3/08](#) ; drilling machines, used for mining or quarrying, with reciprocating tool which is turned intermittently when out of contact with the working face [E21B1/00](#)) [M1204]
- B25F** **COMBINATION OR MULTI-PURPOSE TOOLS NOT OTHERWISE PROVIDED FOR; DETAILS OR COMPONENTS OF PORTABLE POWER-DRIVEN TOOLS NOT PARTICULARLY RELATED TO THE OPERATIONS PERFORMED AND NOT OTHERWISE PROVIDED FOR** [N: (machines or arrangements of machines for performing specified combinations of different metal-working operations not covered by a single other subclass [B23P23/00](#) and subgroups)]
- B25G** **HANDLES FOR HAND IMPLEMENTS** (attaching the blades or the like to handles of hand tools for soil working [A01B1/22](#); handles of hand implements for harvesting [A01D1/14](#); handles integral with brushware [A46B](#))
- B25H** **WORKSHOP EQUIPMENT, e.g. FOR MARKING-OUT WORK; STORAGE MEANS FOR WORKSHOPS (storing or packaging B65)**
- B25J** **MANIPULATORS; CHAMBERS PROVIDED WITH MANIPULATION**

**DEVICES** ([N: manipulators specially adapted for use in surgery [A61B19/00M](#); manipulators used in cleaning hollow articles [B08B9/04](#); manipulators associated with rolling mills [B21B39/20](#); manipulators associated with forging machines [B21J13/10](#); [N: manipulators associated with picking-up and placing mechanisms [B23P19/00B5](#)]; means for holding wheels or parts thereof [B60B30/00](#); [N: vehicles with ground-engaging propulsion means, e.g. walking members [B62D57/02](#), [B62D57/032](#); devices for picking-up and depositing articles or materials between conveyers [B65G47/90](#), [B65G47/91](#); manipulators with gripping or holding means for transferring packages [B65H67/06E2](#)]; cranes [B66C](#); [N: manipulators used in the protection or supervision of pipe-line installations [F17D5/00](#); walking equipment adapted for nuclear steam-generators [F22B37/00C3](#)]; manipulators specially adapted for, or associated with, nuclear reactors [G21C](#); [N: apparatus used for handling wafers during manufacture or treatment of semiconductor [H01L21/68](#)]) [C0806]

## B26

## HAND CUTTING TOOLS; CUTTING; SEVERING

### B26B

**HAND-HELD CUTTING TOOLS NOT OTHERWISE PROVIDED FOR** (for harvesting [A01D](#); for horticulture, for forestry [A01G](#); for butchering or meat treatment [A22](#); for manufacturing or repairing footwear [A43D](#); nail clippers or cutters [A45D29/02](#); kitchen equipment [A47J](#); [N: vegetable slicers, julienne cutters and similar devices and holders therefor, [B26D3/28](#)]; for surgical purposes [A61B](#); for metal [B23D](#); cutting by abrasive fluid jets [B24C5/02](#); plier-like tools with cutting edges [B25B7/22](#); pincers [B25C11/02](#); handles for hand implements, in general [B25G](#); guillotine-type cutters [B26D](#); [N: perforating by non-mechanical means, e.g. by fluid jet, [B26F1/26](#)]; for erasing [B43L19/00](#); for textile materials [D06H](#)) [C0805]

### B26D

## CUTTING; DETAILS COMMON TO MACHINES FOR PERFORATING, PUNCHING, CUTTING-OUT, STAMPING-OUT OR SEVERING

(soil-working [A01B](#); for growing crops or plants [A01D](#), [G](#); for fodder or straw [A01F](#); for bulk butter [A01J](#); for dough [A21C](#); slaughtering [A22B](#); for tobacco, cigars or cigarettes [A24](#); marking-out, perforating or making buttonholes [A41H25/00](#); manufacturing footwear [A43D](#); brushmaking [A46D](#); surgery [A61B](#); disintegrating, mincing or shredding in general [B02C](#); cutting wire, making pins or nails [B21F](#), [G](#); of the kind used for metal [B23](#); cutting by abrasive fluid jets [B24C5/02](#); hand-held cutting tools [B26B](#); perforating, cutting-out, stamping-out or punching, or severing by means other than cutting [B26F](#); for wood [B27](#); for stone [B28D](#); working of plastics or substances in a plastic state [B29](#); making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, [B31B](#); article or web delivery apparatus incorporating cutting or line-perforating devices [B65H35/00](#); for leather or upholstery [B68](#); [C14B](#); for glass [C03B](#); making matches [C06F](#); for peat [C10F](#); for sugar [C13H](#); for textile materials [D06H](#); civil engineering, building, mining, see Section E; for light guides [G02B6/25](#); cutting processed photographic material [G03D15/04](#)) [C9608]

### B26F

**PERFORATING; PUNCHING; CUTTING-OUT; STAMPING-OUT; SEVERING BY MEANS OTHER THAN CUTTING** (marking-out, perforating or making buttonholes [A41H25/00](#); shoemaking [A43D](#); surgery [A61B](#); punching metal [B21D](#); drilling metal [B23B](#); cutting of metal by applying heat locally, e.g. flame cutting,

B23K; cutting by abrasive fluid jets [B24C5/02](#); details common to machines for severing B26D; drilling wood B27C; drilling stone B28D; working of plastics or substances in a plastic state B29; making boxes, cartons, envelopes or bags, of paper or similarly worked materials, e.g. metal foil, B31B; of glass C03B; of leather C14B; of textile materials D06H; for light guides [G02B6/25](#); of tickets G07B)

## **B27 WORKING OR PRESERVING WOOD OR SIMILAR MATERIAL; NAILING OR STAPLING MACHINES IN GENERAL**

**B27B SAWS; COMPONENTS OR ACCESSORIES THEREFOR** (saws specially adapted for pruning or debranching [A01G3/08](#); sawing apparatus specially adapted for felling trees [A01G23/091](#); features not restricted to a particular type of wood saw B23D, e.g. attaching saw blades [B23D51/00](#); machine tool frames, beds, pillars or analogous members, in general [B23Q1/01](#)) [[C9601](#)]

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

**B27D WORKING VENEER OR PLYWOOD** (applying liquids or other fluent materials to surface in general [B05](#); grinding, sanding, or polishing of wood [B24](#); applying adhesives or glue to surfaces of wood [B27G11/00](#); manufacture of veneer [B27L5/00](#))

**B27F DOVETAILED WORK; TENONS; SLOTTING MACHINES; NAILING OR STAPLING MACHINES** (hand- held nailing or stapling tools [B25C](#); manufacture of cases, boxes, or trunks from wood [B27M3/34](#); jointing elements [F16B](#)) [[N](#): manufacture of long strips or planks by bonding together pieces of wood, e.g. by glueing, [B27M3/00B](#)]

**B27G ACCESSORY MACHINES OR APPARATUS; TOOLS; SAFETY DEVICES** e.g. THOSE FOR SAWS (clamping devices for mitre joints, presses for producing frames, press frames, or cages equipped with clamping devices B25B; woodworkers` benches B25H)

**B27H BENDING; COOPERAGE; WHEEL-MAKING**

**B27J MECHANICAL WORKING OF CANE, CORK, OR SIMILAR MATERIALS**

**B27K PROCESSES, APPARATUS OR SELECTION OF SUBSTANCES FOR IMPREGNATING, STAINING, DYEING, BLEACHING OF WOOD OR SIMILAR MATERIALS, OR TREATING OF WOOD OR SIMILAR MATERIALS WITH PERMEANT LIQUIDS, NOT OTHERWISE**

**ED FOR (applying liquids or other fluent materials to surfaces in general B05; coating wood or similar material B44D); CHEMICAL OR PHYSICAL TREATMENT OF CORK, CANE, REED, STRAW OR SIMILAR MATERIALS**

- B27L** REMOVING BARK OR VESTIGES OF BRANCHES ([forestry A01G](#)); SPLITTING WOOD; MANUFACTURE OF VENEER, WOODEN STICKS, WOOD SHAVINGS, WOOD FIBRES OR WOOD POWDER
- B27M** WORKING OF WOOD NOT PROVIDED FOR IN SUBCLASSES [B27B](#) TO [B27L](#); MANUFACTURE OF SPECIFIC WOODEN ARTICLES
- B27N** MANUFACTURE BY DRY PROCESSES OF ARTICLES, WITH OR WITHOUT ORGANIC BINDING AGENTS, MADE FROM PARTICLES OR FIBRES CONSISTING OF WOOD OR OTHER LIGNOCELLULOSIC OR LIKE ORGANIC MATERIAL ([containing cementitious material B28B](#); [shaping of substances in a plastic state B29C](#); [fibreboards made from fibrous suspensions D21J](#); [drying F26B17/00](#))
- B28** WORKING CEMENT, CLAY, OR STONE
- B28B** SHAPING CLAY OR OTHER CERAMIC COMPOSITIONS, SLAG, OR MIXTURES CONTAINING CEMENTITIOUS MATERIAL, e.g. PLASTER (foundry moulding B22C; working stone or stone-like material B28D; shaping of substances in a plastic state, in general B29C; making layered products not composed wholly of these substances B32B; shaping in situ, see the relevant classes of section E)
- B28C** PREPARING CLAY; PRODUCING MIXTURES CONTAINING CLAY OR CEMENTITIOUS MATERIAL, e.g. PLASTER ([preparing material for foundry moulds B22C5/00](#))
- B28D** WORKING STONE OR STONE-LIKE MATERIALS
- B29** WORKING OF PLASTICS; WORKING OF SUBSTANCES IN A PLASTIC STATE, IN GENERAL ([processing doughs A21C](#); [working chocolate A23G](#); [casting of metals B22](#); [working cement, clay B28](#); [chemical aspects, see section C, particularly C08](#); [working glass C03B](#); [candle making C11C5/02](#); [making soap C11D13/00](#); [manufacture of artificial filaments, threads, fibres, bristles or ribbons D01D, F](#); [manufacture of articles from cellulosic fibrous suspensions or from papier-mâché D21J](#))



**Notes [C1003]**

1. This class does not cover the working of plastics sheet material in a manner analogous to the working of paper, which is covered by class B31.

2. In this class, the following term is used with the meaning indicated:

- "plastics" means macromolecular compounds or compositions based on such compounds.

3. In this class, the following rules apply:

- a. The working of plastics is, as far as possible, classified primarily according to the particular shaping technique used, e.g. in subclass B29C.
- b. Classification according to production of particular articles in subclass B29D is restricted to:
  - i. aspects which are characteristic for the production of a particular article, and not classifiable in subclass B29B or B29C;
  - ii. combined operations for making the particular article which are not fully classifiable in subclass B29C.
- c. Products per se are not classified in this class. However, if a product is characterised by the way it is produced and not by its structure or composition, the production method should be classified in this class.

**B29B**

**PREPARATION OR PRETREATMENT OF THE MATERIAL TO BE SHAPED; MAKING GRANULES OR PREFORMS; RECOVERY OF PLASTICS OR OTHER CONSTITUENTS OF WASTE MATERIAL CONTAINING PLASTICS**

**B29C**

**SHAPING OR JOINING OF PLASTICS; SHAPING OF SUBSTANCES IN A PLASTIC STATE, IN GENERAL; AFTER-TREATMENT OF THE SHAPED PRODUCTS, e.g. REPAIRING** ([N: moulding devices for producing toilet or cosmetic sticks [A45D40/16](#)]; working in the manner of metal B23; grinding, polishing B24; cutting B26D, B26F; making preforms [B29B11/00](#); making laminated products by combining previously unconnected layers which become one product whose layers will remain together [B32B37/00-B32B41/00](#)) [C1003]

**B29D**

**PRODUCING PARTICULAR ARTICLES FROM PLASTICS OR FROM SUBSTANCES IN A PLASTIC STATE** (making granules [B29B9/00](#); making preforms [B29B11/00](#))

**B30**

**PRESSES**

**B30B**

**PRESSES IN GENERAL** (producing ultra-high pressure or ultra-high pressure and high temperature to effect modifications of a substance, e.g. for making artificial



diamonds [B01J3/00](#)) [N: (compressing means for refuse receptacles [B65F1/14B](#))]

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

**Notes**

1. The word "paper" in this class is to be interpreted as covering material worked in a manner analogous to paper, e.g. plastic sheet materials, laminated materials or metal foils. This class does not include making articles directly from paper pulp, which is covered by [D21J](#).
2. This class is to be understood as restricted to adaptations or associations of handling sheets, webs, or blank peculiar to paper-working, e.g. bag or box making, machinery. Handling sheets, webs, or blanks of wider applicability, irrespective of whether described or claimed only for paper-working machinery, is to be regarded as of a more comprehensive nature and as such classified in [B65H](#).

**B31B** **MAKING BOXES, CARTONS, ENVELOPES OR BAGS** (incising, scoring, in general [B26D3/08](#); combined making and filling [B65B](#))

**B31C** **MAKING WOUND ARTICLES, e.g. WOUND TUBES** (characteristics relating to the working of plastics [B29](#))

**B31D** **MAKING OTHER PAPER ARTICLES** (manufacture by dry processes of articles made from particles or fibres consisting of wood or other lignocellulosic material [B27N](#); making layered products not composed wholly of paper or cardboard [B32B](#); making cardboard or paper [D21F](#), [D21H](#); making articles from wood pulp [D21J](#))

**B31F** **MECHANICAL WORKING OR DEFORMATION OF PAPER OR CARDBOARD** (cutting, trimming, in general [B26](#); incising, scoring, in general [B26D3/08](#); making layered products not composed wholly of paper or cardboard [B32B](#); multi-ply material of paper or cardboard, its manufacture [D21H](#))

**B32** **LAYERED PRODUCTS**

**B32B** **LAYERED PRODUCTS, i.e. PRODUCTS BUILT-UP OF STRATA OF FLAT OR NON-FLAT, e.g. CELLULAR OR HONEYCOMB, FORM**

**SUBSECTION: Printing**

- B41 PRINTING; LINING MACHINES; TYPEWRITERS; STAMPS**  
(reproduction or duplication of pictures or patterns by scanning and converting into electrical signals [H04N](#))
- B41B MACHINES OR ACCESSORIES FOR MAKING, SETTING, OR DISTRIBUTING TYPE; TYPE; PHOTOGRAPHIC OR PHOTOELECTRIC COMPOSING DEVICES** (photographic devices in general [G03](#))
- B41C PROCESSES FOR THE MANUFACTURE OR REPRODUCTION OF PRINTING SURFACES** (photomechanical processes for producing printing surfaces [G03F](#); photoelectrical processes for producing printing surfaces [G03G](#))
- B41D APPARATUS FOR THE MECHANICAL REPRODUCTION OF PRINTING SURFACES FOR STEREOTYPE PRINTING; SHAPING ELASTIC OR DEFORMABLE MATERIAL TO FORM PRINTING SURFACES** ([N: engraving by spark erosion [B23H](#);] marking or engraving metal by the action of a high concentration of electric current [B23H9/06](#); type, machines or accessories for making, setting, or distributing type [B41B](#); processes for the manufacture or reproduction of printing surfaces [B41C](#); machines or apparatus for engraving in general, or for embossing [B44B3/00](#), [B44B5/00](#); chemical etching of metal [C23F1/00](#); electrolytic etching [C25F3/00](#); photomechanical reproduction [G03F](#)) [**M1207**]
- B41F PRINTING MACHINES OR PRESSES** (machines for manufacturing footwear incorporating printing or embossing apparatus [A43D](#), e.g. [A43D8/26](#), [A43D95/14](#); presses in general [B30B](#); making of printing surfaces [B41C](#), [B41D](#); manifold devices, office printing machines [B41L](#); stencilling [B41L](#), [N:[B44D](#)]; printing processes not dependent on the use of special machines [B41M](#); duplicating or marking by sublimation or volatilisation of design [B41M5/035](#); thermography [B41M5/26](#); embossing decorations or marks [B44B5/00](#); [N: applying transfers or decalcomanias [B44C1/16](#)]; handling thin or filamentary material [B65H](#); electrography, electrophotography, magnetography [G03G](#)) [**C9409**]
- B41G APPARATUS FOR BRONZE PRINTING, LINE PRINTING, OR FOR BORDERING OR EDGING SHEETS OR LIKE ARTICLES; AUXILIARY FOR PERFORATING IN CONJUNCTION WITH PRINTING** (perforating in general [B26D](#); production of decorations [B44C](#); perforating in conjunction with sheet or web delivery [B65H35/00](#); folding or unfolding thin material, e.g. sheets, webs, [B65H45/00](#), [B65H47/00](#))
- B41J TYPEWRITERS; SELECTIVE PRINTING MECHANISMS, [N: e.g. INK-JET PRINTERS, THERMAL PRINTERS], i.e. MECHANISMS PRINTING OTHERWISE THAN FROM A FORME; CORRECTION OF TYPOGRAPHICAL ERRORS** (composing [B41B](#); printing on special surfaces [B41F](#); laundry marking [B41K](#); erasers, rubbers or erasing devices [B43L19/00](#); fluid media

for correction of typographical errors by coating [C09D10/00](#); recording the results of measuring G01; recognition or presentation of data, marking record carriers in digital fashion, e.g. by punching, G06K; franking or ticket-printing and issuing apparatus G07B; electric keyboard switches, in general [H01H13/70](#), [H03K17/94](#); coding in connection with keyboards or like devices, in general [H03M11/00](#); receivers or transmitters for transmission of digital information H04L; transmission or reproduction of documents, or the like, e.g. facsimile transmission, [H04N1/00](#); printing mechanisms specially adapted for apparatus, e.g. cash registers, weighing machines, producing records of their own performance, see the relevant subclasses) [\[C9511\]](#)

- B41K STAMPS; STAMPING OR NUMBERING APPARATUS OR DEVICES**  
(marking meat [A22C17/10](#); embossing combined with printing [B41F19/00](#); selective printing mechanisms [B41J](#); embossing decorations or marks [B44B5/00](#); marking or coding completed packages [B65B61/26](#); ticket printing and issuing, fare registering, nonprinting aspects of franking apparatus [G07B](#))
- B41L APPARATUS OR DEVICES FOR MANIFOLDING, DUPLICATING, OR PRINTING FOR OFFICE OR OTHER COMMERCIAL PURPOSES; ADDRESSING MACHINES OR LIKE SERIES-PRINTING MACHINES**  
(printing presses or machines for industrial purposes [B41F](#); stamps, stamping or numbering devices [B41K](#))
- B41M PRINTING, DUPLICATING, MARKING, OR COPYING PROCESSES; COLOUR PRINTING,** (correction of typographical errors [B41J](#); processes for applying transfer pictures or the like [B44C1/16](#); fluid media for correction of typographical errors by coating [C09D10/00](#); printing textiles D06P)
- B41N PRINTING PLATES OR FOILS (photosensitive material G03); MATERIALS FOR SURFACES USED IN PRINTING MACHINES FOR PRINTING, INKING, DAMPING, OR THE LIKE; PREPARING SUCH SURFACES FOR USE AND CONSERVING THEM** [\[N: In this subclass the COPES System is used\]](#)
- B42 BOOKBINDING; ALBUMS; FILES; SPECIAL PRINTED MATTER**
- B42B PERMANENTLY ATTACHING TOGETHER SHEETS, QUIRES OR SIGNATURES OR PERMANENTLY ATTACHING OBJECTS THERETO**  
(nailing or stapling in general B25C, B27F; machines for both collating or gathering and permanently attaching together sheets or signatures [B42C1/12](#); temporarily attaching sheets together B42F)
- B42C BOOKBINDING (cutting or perforating machines, devices or tools B26; folding sheets or webs B31F; ornamenting books B44)**

- B42D** BOOKS; BOOK COVERS; LOOSE LEAVES; PRINTED MATTER OF SPECIAL FORMAT OR STYLE NOT OTHERWISE PROVIDED FOR; DEVICES FOR USE THEREWITH; MOVABLE-STRIP WRITING OR READING APPARATUS ([book stands A47B19/00](#); [book-rests A47B23/00](#))<br/>
- B42F** SHEETS TEMPORARILY ATTACHED TOGETHER; FILING APPLIANCES; FILE CARDS; INDEXING ([reading desks A47B19/00](#); [book rests A47B23/00](#))
- B43** WRITING OR DRAWING IMPLEMENTS; BUREAU ACCESSORIES
- B43K** IMPLEMENTS FOR WRITING OR DRAWING ([containers, casings or accessories for cosmetic substances, e.g. shaving soap, lipstick, make-up A45D34/00, A45D40/00](#))
- B43L** ARTICLES FOR WRITING OR DRAWING UPON; [N: WRITING OR DRAWING AIDS;] ACCESSORIES FOR WRITING OR DRAWING ([workshop equipment for marking-out work B25H7/00](#); [teaching hand-writing or drawing G09B11/00](#))
- B43M** BUREAU ACCESSORIES NOT OTHERWISE PROVIDED FOR ([stapling devices B25C5/00](#); [devices for temporarily attaching sheets together B42F](#))
- B44** DECORATIVE ARTS
- Note**  
Any machine, apparatus, tool or process is classified in this class insofar as it produces an effect or mark meant to be judged by the eye and insofar as such machine, apparatus, tool or process is not provided for elsewhere
- B44B** MACHINES, APPARATUS OR TOOLS FOR ARTISTIC WORK, e.g. FOR SCULPTURING, GUILLOCHING, CARVING, BRANDING, INLAYING (processes for producing decorative effects **B44C**; [embossing leather C14B](#))
- B44C** PRODUCING DECORATIVE EFFECTS ([processes for applying liquids or other fluent materials to surfaces, in general B05D](#); [shaping of plastics or substances in a plastic state B29C](#); [printing processes to produce transfer pictures B41M3/12](#); [thermographic duplication or marking methods B41M5/00](#)); MOSAICS; TARSIA WORK ([imitation of mosaic or tarsia work patterns B44F11/04](#)); PAPERHANGING [N: ([Labels G09F](#); [Multi-step processes for making paper labels or tags B31D1/02](#))]
- B44D** PAINTING OR ARTISTIC DRAWING, NOT OTHERWISE PROVIDED

**FOR; PRESERVING PAINTINGS; SURFACE TREATMENT TO OBTAIN SPECIAL ARTISTIC SURFACE EFFECTS OR FINISHES (surface treatment in general, see the relevant places, e.g. applying liquids or other fluent materials B05) [C0710]<br/>**

## **B44F SPECIAL DESIGNS OR PICTURES**

### **SUBSECTION: Transporting**

## **B60 VEHICLES IN GENERAL**

### **Notes**

In this class, the following term is used with the meaning indicated:- "vehicle" means all vehicles except those restricted to one of the following types of vehicles: rail vehicles, waterborne vessels, aircraft, space vehicles, hand carts, cycles, animal-drawn vehicles, and sledges, which are covered by the relevant subclasses of [B61](#) to [B64](#). Thus, the term "vehicle" includes:- vehicular characteristics which are common to more than one of the above listed types;- certain characteristics restricted to automobiles, road or cross-country trailersThe following exceptions to the above should be noted:

1. Subclass [B60B](#) or [B60C](#) embrace all vehicle wheels and tyres, except wheels for roller skates [A63C17/22](#), wheels for model railway vehicles [A63H19/22](#), and special adaptations of wheels or tyres for aircraft [B64C25/36](#)
2. Subclass [B60C](#) embraces the connection of valves to inflatable elastic bodies in general, and in this respect it is not limited to vehicles
3. Subclass [B60L](#) embraces certain electric equipment of all electrically-propelled vehicles
4. Subclass [B60M](#) embraces certain power supply for, but external to, any kind of electrically-propelled vehicle
5. Subclass [B60R](#) embraces safety belts or body harnesses used in all types of land vehicles
6. Subclass [B60S](#) relates to all kinds of vehicles, except the servicing of rail locomotives [B61K11/00](#), ground equipment for aircraft [B64F](#), or cleaning apparatus peculiar to waterborne vessels [B63B57/00](#), [B63B59/00](#)
7. Subclass [B60T](#) includes brake control systems of general applicability, and in this respect it is not limited to vehicles. It also includes rail-vehicle power-brake systems and some other features of rail-vehicle brake systems

## **B60B VEHICLE WHEELS; CASTORS; AXLES; INCREASING WHEEL ADHESION**

## **B60C VEHICLE TYRES (manufacture B29); TYRE INFLATION; TYRE CHANGING OR REPAIRING; REPAIRING, OR CONNECTING VALVES TO, INFLATABLE ELASTIC BODIES IN GENERAL; DEVICES OR ARRANGEMENTS RELATED TO TYRES (testing of tyres [G01M17/02](#)) [C9409]**

- B60D**                    **VEHICLE CONNECTIONS** (components of brake systems [B60T17/04](#))
- B60F**                    **VEHICLES FOR USE BOTH ON RAIL AND ON ROAD; AMPHIBIOUS OR LIKE VEHICLES; CONVERTIBLE VEHICLES** (air-cushion vehicles B60V)
- B60G**                    **VEHICLE SUSPENSION ARRANGEMENTS** (air-cushion vehicles B60V; [N: cycle suspensions [B62K25/00](#)])
- B60H**                    **ARRANGEMENTS OR ADAPTATIONS OF HEATING, COOLING, VENTILATING, OR OTHER AIR-TREATING DEVICES SPECIALLY FOR PASSENGER OR GOODS SPACES OF VEHICLES**
- B60J**                    **WINDOWS, WINDSCREENS, NON-FIXED ROOFS, DOORS, OR SIMILAR DEVICES FOR VEHICLES; REMOVABLE EXTERNAL PROTECTIVE COVERINGS SPECIALLY ADAPTED FOR VEHICLES** (fastening, suspending, closing, or opening of such devices E05) [\[C1004\]](#)
- B60K**                    **ARRANGEMENT OR MOUNTING OF PROPULSION UNITS OR OF TRANSMISSIONS IN VEHICLES; ARRANGEMENT OR MOUNTING OF PLURAL DIVERSE PRIME-MOVERS; AUXILIARY DRIVES; INSTRUMENTATION OR DASHBOARDS FOR VEHICLES; ARRANGEMENTS IN CONNECTION WITH COOLING, AIR INTAKE, GAS EXHAUST, OR FUEL SUPPLY, OF PROPULSION UNITS, IN VEHICLES**
- B60L**                    **ELECTRIC EQUIPMENT OR PROPULSION OF ELECTRICALLY-PROPELLED VEHICLES; MAGNETIC SUSPENSION OR LEVITATION FOR VEHICLES; ELECTRODYNAMIC BRAKE SYSTEMS FOR VEHICLES, IN GENERAL** (electric coupling devices combined with mechanical couplings of vehicles [B60D1/62](#); electric heating for vehicles B60H; transmitting drive from electric motors to ultimate propulsive elements in vehicles B60K; disposition of electric propulsion equipment, other than current collectors, in vehicles B60K; auxiliary generator drives on vehicles B60K; lighting for vehicles B60Q; vehicle brake control systems in general B60T; preventing wheel slip by reducing power in rail vehicles B61C; railway track circuits in general B61L; lighting in general F21; H05B; switches in general H01H; coupling devices for electric connections in general H01R; dynamo-electric machines H02K; electric converters H02M; starting, controlling, braking of electric machines or converters in general H02P; electric heating in general H05B) [\[C9507\]](#)
- B60M**                    **POWER SUPPLY LINES, AND DEVICES ALONG RAILS, FOR ELECTRICALLY- PROPELLED VEHICLES** (control of points and

safety arrangements along railway lines B61L; construction of rails and points in general E01B)

- B60N** VEHICLE PASSENGER ACCOMMODATION NOT OTHERWISE PROVIDED FOR (furniture construction A47)
- B60P** VEHICLES ADAPTED FOR LOAD TRANSPORTATION OR TO TRANSPORT, TO CARRY OR TO COMPRISE SPECIAL LOADS OR OBJECTS (vehicles with special provisions for invalids [A61G3/00](#)) [\[C9602\]](#)
- B60Q** VEHICLE LIGHTING OR SIGNALLING (arrangement of signalling or lighting devices, the mounting or supporting thereof for rail vehicles B61D, for cycles B62J, for ships B63B, for aircrafts B64D; lighting in general, lighting devices per se F21, H05B; signalling in general G08; electric switches per se H01H)
- B60R** VEHICLES, VEHICLE FITTINGS, OR VEHICLE PARTS, NOT OTHERWISE PROVIDED FOR
- B60S** SERVICING, CLEANING, REPAIRING, SUPPORTING, LIFTING, OR MANOEUVRING OF VEHICLES, NOT OTHERWISE PROVIDED FOR
- B60T** VEHICLE BRAKE CONTROL SYSTEMS OR PARTS THEREOF; BRAKE CONTROL SYSTEMS OR PARTS THEREOF, IN GENERAL (electrodynamic brake systems for vehicle, in general B60L; brakes per se, i.e. devices where braking effect occurs, including ultimate brake actuators, F16D); ARRANGEMENT OF BRAKING ELEMENTS ON VEHICLES IN GENERAL; PORTABLE DEVICES FOR PREVENTING UNWANTED MOVEMENT OF VEHICLES; VEHICLE MODIFICATIONS TO FACILITATE COOLING OF BRAKES
- B60V** AIR-CUSHION VEHICLES (devices for short-distance movement of heavy loads by providing a high-pressure fluid cushion, supplied from an independent source, between load and ground [B65G7/06](#))
- B60W** CONJOINT CONTROL OF VEHICLE SUB-UNITS OF DIFFERENT TYPE OR DIFFERENT FUNCTION; CONTROL SYSTEMS SPECIALLY ADAPTED FOR HYBRID VEHICLES; ROAD VEHICLE DRIVE CONTROL SYSTEMS FOR PURPOSES NOT RELATED TO THE CONTROL OF A PARTICULAR SUB-UNIT [\[N0405\]](#) [\[C0805\]](#)
- B61** RAILWAYS

**Note**

In this class, the following expression is used with the meaning indicated:- "railway systems" covers:

1. systems in which trains or individual passenger vehicles or load carriers run on or are guided by ground or elevated tracks defined by rails, ropes, cables, or other guiding elements for wheels, rollers, or sliding anti-friction devices ([N: load carriers] permanently attached to a continuous traction element [B65G17/00](#));
2. systems in which carriers or impellers for persons or loads are attached to, e.g. suspended from, a guided traction rope or cable which determines their path of movement ([chain conveyers](#), [scraper conveyers](#) [B65G17/00](#), [B65G19/00](#));
3. power and free systems of either of the above types in which vehicles, load carriers or loads may be selectively coupled to, or uncoupled from, continuous traction members, e.g. cables, chains

<b>B61B</b>	<b>RAILWAY SYSTEMS; EQUIPMENT THEREFOR NOT OTHERWISE PROVIDED FOR</b> ( <a href="#">lifts or hoists</a> , <a href="#">elevators</a> , <a href="#">escalators</a> , <a href="#">moving walkways</a> <a href="#">B66B</a> )
<b>B61C</b>	<b>LOCOMOTIVES; MOTOR RAILCARS</b> (vehicles in general <a href="#">B60</a> ; frames or bogies <a href="#">B61F</a> ; special railroad equipment for locomotives <a href="#">B61J</a> , <a href="#">B61K</a> )
<b>B61D</b>	<b>BODY DETAILS OR KINDS OF RAILWAY VEHICLES</b> (vehicles in general <a href="#">B60</a> ; adaptation of vehicles to special systems <a href="#">B61B</a> ; underframes <a href="#">B61F</a> )
<b>B61F</b>	<b>RAIL VEHICLE SUSPENSIONS, e.g. UNDERFRAMES, BOGIES, ARRANGEMENTS OF WHEEL AXLES; RAIL VEHICLES FOR USE ON TRACKS OF DIFFERENT WIDTH; PREVENTING DERAILING; WHEEL GUARDS; OBSTRUCTION REMOVERS, OR THE LIKE</b> (for vehicles in general <a href="#">B60</a> ; axles, wheels <a href="#">B60B</a> ; tyres <a href="#">B60C</a> )
<b>B61G</b>	<b>COUPLINGS; DRAUGHT AND BUFFING APPLIANCES</b> (vehicle connections in general <a href="#">B60D</a> )
<b>B61H</b>	<b>BRAKES OR OTHER RETARDING APPARATUS PECULIAR TO RAIL VEHICLES; ARRANGEMENTS OR DISPOSITIONS OF BRAKES OR OTHER RETARDING APPARATUS IN RAIL VEHICLES</b> ( <a href="#">electrodynamic braking of vehicles</a> <a href="#">B60L</a> , in general <a href="#">H02K</a> ; arrangements in rail vehicles for adjusting wheel-braking force to meet varying vehicular or permanent-way conditions <a href="#">B60T8/00</a> ; transmitting braking action from initiating means to ultimate brake actuator with power assistance or drive, brake systems incorporating such transmitting means, e.g. air-pressure brake systems, <a href="#">B60T13/00</a> to <a href="#">B60T17/00</a> ; brakes per se <a href="#">F16D</a> )



- B61J**                    **SHIFTING OR SHUNTING OF RAIL VEHICLES** (shifting vehicles in general [B60S](#); marshalling systems [B61B](#))
- B61K**                    **OTHER AUXILIARY EQUIPMENT FOR RAILWAYS** (energy storing brakes [B61H](#); protection of permanent way against weather influences [E01B](#); rail cleaning, snow ploughs [E01H](#))
- B61L**                    **GUIDING RAILWAY TRAFFIC; ENSURING THE SAFETY OF RAILWAY TRAFFIC** (power supply lines for electrically-propelled vehicles [B60M](#); vehicle signalling in general [B60Q](#); brakes or auxiliary equipment [B61H](#), [B61K](#); point or crossing construction [E01B](#); insulated rail joints [E01B11/54](#); optical devices in general [G02](#); controlling in general [G05](#); electric communication technique [H04](#))
- B62**                     **LAND VEHICLES FOR TRAVELLING OTHERWISE THAN ON RAILS**
- B62B**                    **HAND-PROPELLED VEHICLES, e.g. HAND CARTS, PERAMBULATORS; SLEDGES**
- B62C**                    **VEHICLES DRAWN BY ANIMALS**
- B62D**                    **MOTOR VEHICLES; TRAILERS** (steering, or guiding on a desired track, of agricultural machines or implements [A01B69/00](#); 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](#)) [[C9503](#)]
- B62H**                    **CYCLE STANDS; SUPPORTS OR HOLDERS FOR PARKING OR STORING CYCLES; APPLIANCES PREVENTING OR INDICATING UNAUTHORIZED USE OR THEFT OF CYCLES; LOCKS INTEGRAL WITH CYCLES; DEVICES FOR LEARNING TO RIDE CYCLES**

- B62J** CYCLE SADDLES OR SEATS; ACCESSORIES PECULIAR TO CYCLES AND NOT OTHERWISE PROVIDED FOR, e.g. ARTICLE CARRIERS, CYCLE PROTECTORS
- B62K** CYCLES; CYCLE FRAMES; CYCLE STEERING DEVICES; RIDER-OPERATED TERMINAL CONTROLS SPECIALLY ADAPTED FOR CYCLES; CYCLE AXLE SUSPENSIONS; CYCLE SIDE-CARS, FORECARS, OR THE LIKE
- B62L** BRAKES SPECIALLY ADAPTED FOR CYCLES [N: (arrangements in cycles for adjusting wheel-braking force to meet varying vehicular or ground-surface conditions [B60T8/00](#))]
- B62M** RIDER PROPULSION OF WHEELED VEHICLES OR SLEDGES; POWERED PROPULSION OF SLEDGES OR [N: SINGLE-TRACK] CYCLES; TRANSMISSIONS SPECIALLY ADAPTED FOR SUCH VEHICLES (arrangements or mounting of transmissions in vehicles in general B60K; transmission elements per se F16)
- B63** SHIPS OR OTHER WATERBORNE VESSELS; RELATED EQUIPMENT
- B63B** SHIPS OR OTHER WATERBORNE VESSELS; EQUIPMENT FOR SHIPPING ([N: amphibious vehicles [B60F3/00](#);] air-cushion vehicles B60V; arrangements of vessel ventilation, heating, cooling or air conditioning [B63J2/00](#)) [C0407]
- B63C** LAUNCHING, HAULING-OUT, OR DRY-DOCKING OF VESSELS; LIFE-SAVING IN WATER; EQUIPMENT FOR DWELLING OR WORKING UNDER WATER; MEANS FOR SALVAGING OR SEARCHING FOR UNDERWATER OBJECTS (floating nets, floating slipways, or the like for recovering aircraft from the water B63B 35/52) [C1005]
- B63G** OFFENSIVE OR DEFENSIVE ARRANGEMENTS ON VESSELS; MINE-LAYING; MINE-SWEEPING; SUBMARINES; AIRCRAFT CARRIERS (means of attack or defence in general e.g. turrets F41H)
- B63H** MARINE PROPULSION OR STEERING ([N: arrangement of propulsion or steering means on amphibious vehicles [B60F3/00B](#);] propulsion of air-cushion vehicles [B60V1/14](#); peculiar to submarines, other than nuclear propulsion, B63G; peculiar to torpedoes [F42B19/00](#)) [C1005]

- B63J**                    **AUXILIARIES ON VESSELS**
- B64**                    **AIRCRAFT; AVIATION; COSMONAUTICS**
- B64B**                    **LIGHTER-THAN AIR AIRCRAFT**
- B64C**                    **AEROPLANES; HELICOPTERS (air-cushion vehicles B60V)**
- B64D**                    **EQUIPMENT FOR FITTING IN OR TO AIRCRAFT; FLYING SUITS; PARACHUTES; ARRANGEMENTS OR MOUNTING OF POWERPLANTS OR PROPULSION TRANSMISSIONS**
- B64F**                    **GROUND OR AIRCRAFT-CARRIER-DECK INSTALLATIONS**
- B64G**                    **COSMONAUTICS; VEHICLES OR EQUIPMENT THEREFOR** ([apparatus for, or methods of, winning materials from extraterrestrial sources E21C51/00](#))
- B65**                    **CONVEYING; PACKING; STORING; HANDLING THIN OR FILAMENTARY MATERIAL**
- B65B**                    **MACHINES, APPARATUS OR DEVICES FOR, OR METHODS OF, PACKAGING ARTICLES OR MATERIALS; UNPACKING** ([bundling and pressing devices for cigars A24C1/44](#); [paper-bag holders as shop or office accessories A47F13/08](#); [apparatus for coating, e.g. by dipping, B05C](#); [devices for tensioning and securing binders adapted to be supported by the article or articles to be bound B25B, B65B13/00](#); [nailing or stapling devices per se B25C, B27F](#); [N: [cutting or severing in general B26D, B26F](#);] [inserting documents in envelopes and closing the latter B43M3/00, B43M5/00](#); [wrappers, containers or other packaging elements, e.g. binders protective caps B65D](#); [stacking articles in, or removing them from, pallets B65G](#); [devices for handling sheets or webs of interest apart from their application in packaging machines B65H](#); [packaging of matches C06F](#); [wrapping sugar during manufacture C13H](#); [N: [filling of grease guns F16N37/02](#); [packing of shotgun cartridges for immediate use F42B](#); [wrapping of coins G07D9/00](#)]; [making containers or receptacles per se, see the appropriate subclasses](#)) [C9410]
- B65C**                    **LABELLING OR TAGGING MACHINES, APPARATUS, OR PROCESSES** ([nailing or stapling in general B25C, B27F](#); [applying labels for packaging purposes B65B](#); [labels, name-plates G09F](#)) [N: [\(series-printing machines B41L](#); [containers for the storage or transport of packages B65D\)](#)]

**B65D****CONTAINERS FOR STORAGE OR TRANSPORT OF ARTICLES OR MATERIALS, e.g. BAGS, BARRELS, BOTTLES, BOXES, CANS, CARTONS, CRATES, DRUMS, JARS, TANKS, HOPPERS, FORWARDING CONTAINERS; ACCESSORIES, CLOSURES, OR FITTINGS THEREFOR; PACKAGING ELEMENTS; PACKAGES**

(containers specially adapted for storing agricultural or horticultural products [A01F25/14](#); containers specially adapted for use in dairies [A01J](#); travelling bags or baskets, suitcases [A45C](#); travelling or camp equipment [A45F](#); [N: linkable display containers [A47B87/00C](#)]; household or table equipment [A47G](#); letter-boxes for home use [A47G29/12](#); kitchen equipment [A47J](#); associated with vehicles, see the appropriate subclass of B60 to B64; machines, apparatus, or devices for, or methods of, packaging articles or materials [B65B](#); sack holders [B65B67/00](#); refuse receptacles [B65F1/00](#); handling sheets, webs or filamentary material [B65H](#); load-engaging elements or devices attached to lifting or lowering gear of cranes or adapted for connection therewith for transmitting lifting forces [B66C](#); liquid handling [B67](#); storing gases [F17](#); [N: packaging for photosensitive or like materials [G03](#), e.g. [G03C3/00](#)]; making containers, see subclasses dealing with the working of the material concerned) [[C9809](#)]

**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 [B65B67/00](#); converting refuse into fertilisers [C05F](#); converting refuse into solid fuels [C10L](#); sewers, cesspools [E03F](#); arrangements in buildings for the disposal of refuse [E04F17/10](#); refuse-consuming furnaces [F23G](#); [N: for surgical articles [A61B19/02R](#)])

**B65G****TRANSPORT OR STORAGE DEVICES, e.g. CONVEYERS FOR LOADING OR TIPPING; SHOP CONVEYER SYSTEMS; PNEUMATIC TUBE CONVEYERS** ([N: preventing fire in special objects or places [A62C3/00](#)];

transport or storage devices used in a particular handling or treatment of articles or materials, see the relevant subclass, e.g. in metal-working [B21D43/00](#), [B23Q7/00](#), [B23Q41/02](#); vehicle, railway, sea or aircraft aspects [B60](#) to [B64](#); in packaging [B65B](#); handling thin or filamentary materials [B65H](#); hoisting, lifting, hauling, e.g. truck loaders [B66](#); handling liquids [B67](#); [N: transport or storage containers for preparing or distributing road building materials [E01C](#); construction or assembling of bulk storage containers employing civil engineering techniques in site or off the site [E04H7/00](#)]; specially adapted to underground conditions in mines [E21F13/00](#); storing or distributing gases or liquids [F17](#); in handling radioactive materials [G21C19/00](#))

**B65H****HANDLING THIN OR FILAMENTARY MATERIAL, e.g. SHEETS, WEBS, CABLES****B66****HOISTING; LIFTING; HAULING****B66B**

**ELEVATORS; ESCALATORS OR MOVING WALKWAYS** ([N: apparatus for raising or lowering persons on theatrical stages or the like [A63J5/12](#)]; funicular railbound systems with rigid ground-supported tracks and cable traction, e.g. cliff railways,

[B61B9/00](#); arrangements of ammunition handlers in vessels [B63G3/00](#); hoists, lifts, or conveyers for loading or unloading in general [B65G](#); braking or detent devices controlling normal movements of winding drums or barrels [B66D](#); ship-lifting devices [E02C](#); garages for many vehicles with mechanical means for lifting vehicles [E04H6/12](#); hoists for feeding ammunition or projectiles to launching apparatus or to loading mechanisms [F41A9/00](#)) [[C9409](#)]

- B66C** **CRANES; LOAD-ENGAGING ELEMENTS OR DEVICES FOR CRANES, CAPSTANS, WINCHES, OR TACKLES** ([N: specially adapted for lifting invalids [A61G7/10](#);] rope, cable, or chain winding mechanisms, braking or detent devices therefor [B66D](#); specially adapted for nuclear reactors [G21](#)) [[C0405](#)]
- B66D** **CAPSTANS; WINCHES; TACKLES, e.g. PULLEY BLOCKS; HOISTS (winding or unwinding ropes or cables for feeding or storage purposes [B65H](#); rope or cable winding or unwinding mechanisms for lifts [B66B](#))**
- B66F** **HOISTING, LIFTING, HAULING OR PUSHING, NOT OTHERWISE PROVIDED FOR, e.g. DEVICES WHICH APPLY A LIFTING OR PUSHING FORCE DIRECTLY TO THE SURFACE OF A LOAD** ([N: invalid lifting devices [A61G7/10](#);] mounting artificial islands on piles or like supports [E02B17/00](#); scaffolding combined with lifting devices [E04G1/22](#); lifting devices for sliding forms [E04G11/24](#); lifting of buildings [E04G23/06](#); shores or struts [E04G25/00](#); lifts or other hoisting devices on ladders [E06C7/12](#); props for mining [E21D15/00](#)) [[C0405](#)]
- B67** **OPENING, CLOSING [N: OR CLEANING] BOTTLES, JARS OR SIMILAR CONTAINERS; LIQUID HANDLING** (nozzles in general [B05B](#); packaging liquids [B65B](#), e.g. [B65B3/00](#); pumps in general [F04](#); siphons [F04F10/00](#); valves [F16K](#); handling liquefied gases [F17C](#)) [[C9410](#)]
- B67B** **APPLYING CLOSURE MEMBERS TO BOTTLES JARS, OR SIMILAR CONTAINERS; OPENING CLOSED CONTAINERS (opening or closing devices attached to, or incorporated in, containers or container closures [B65D](#))**
- B67C** **CLEANING, FILLING WITH LIQUIDS OR SEMILIQUIDS, OR EMPTYING, OF BOTTLES, JARS, CANS, CASKS, BARRELS, OR SIMILAR CONTAINERS, NOT OTHERWISE PROVIDED FOR; FUNNELS**
- B67D** **DISPENSING, DELIVERING OR TRANSFERRING LIQUIDS, NOT OTHERWISE PROVIDED FOR** (cleaning pipes or tubes or systems of pipes or tubes [B08B9/02](#); emptying or filling of bottles, jars, cans, casks, barrels, or similar containers, not otherwise provided for [B67C](#); water supply [E03](#); pipe systems [F17D](#);

domestic hot-water supply systems F24D; measuring volume, volume flow, mass flow or liquid level, metering by volume G01F; coin-freed or like apparatus G07F) [C9502]

## **B68 SADDLERY; UPHOLSTERY**

### **B68B HARNESS; DEVICES USED IN CONNECTION THEREWITH; WHIPS OR THE LIKE**

### **B68C SADDLES; STIRRUPS**

### **B68F MAKING ARTICLES FROM LEATHER, CANVAS, OR THE LIKE**

### **B68G METHODS, EQUIPMENT, OR MACHINES FOR USE IN UPHOLSTERING; UPHOLSTERY NOT OTHERWISE PROVIDED FOR**

## **SUBSECTION: Micro-structural technology; Nano-technology**

## **B81 MICRO-STRUCTURAL TECHNOLOGY**

### **Notes**

1. This class covers micro-structural devices or systems, including at least one essential element or formation characterised by its very small size typically within the range of  $10^{-4}$  to  $10^{-7}$  meters, i.e. its significant features can not, in at least one dimension, be completely discerned without the use of an optical microscope.
2. In this class, the following expressions are used with the meaning indicated :
  - "micro-structural devices" covers:
    - (i) micro-mechanical devices comprising movable, flexible or deformable elements; and
    - (ii) three-dimensional structures without movable, flexible or deformable elements, comprising microformations designed to accomplish an essential structural function for interacting with their environment, as opposed to purely electronic or chemical functions, regardless of whether the structures are combined with micro-electronic devices or formed from specific materials;
  - "micro-structural systems" covers:
    - (i) systems of cooperating micro-structural devices; and
    - (ii) micro-electro-mechanical or micro-opto-mechanical systems, which combine on a common substrate the specific features of micro-structural devices and

electrical or optical components, e.g. for  
controlling, analysing or signalling the  
functioning  
of micro-structural devices.

**B81B** **MICRO-STRUCTURAL DEVICES OR SYSTEMS, e.g.  
MICRO-MECHANICAL DEVICES** (piezo-electric, electrostrictive or  
magnetostrictive elements per se [H01L41/00](#))

**B81C** **PROCESSES OR APPARATUS SPECIALLY ADAPTED FOR THE  
MANUFACTURE OR TREATMENT OF MICRO-STRUCTURAL  
DEVICES OR SYSTEMS** (making microcapsules or microballoons [B01J13/02](#);  
processes or apparatus peculiar to the manufacture or treatment of piezo-electric,  
electrostrictive or magnetostrictive element per se [H01L41/22](#))

**B82** **NANO-TECHNOLOGY**

**Notes**[\[N1012\]](#)

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

- "nano-size" or "nano-scale" relate to a controlled geometrical size below 100 nanometres (nm) in one or more dimensions;
- "nano-structure" means an entity having at least one nano-sized functional component that makes physical, chemical or biological properties or effects available, which are uniquely attributable to the nano-scale.

**B82B** **NANO-STRUCTURES FORMED BY MANIPULATION OF INDIVIDUAL  
ATOMS, MOLECULES, OR LIMITED COLLECTIONS OF ATOMS OR  
MOLECULES AS DISCRETE UNITS; MANUFACTURE OR  
TREATMENT THEREOF** [\[C1012\]](#)

**B82Y** **SPECIFIC USES OR APPLICATIONS OF NANO-STRUCTURES;  
MEASUREMENT OR ANALYSIS OF NANO-STRUCTURES;  
MANUFACTURE OR TREATMENT OF NANO-STRUCTURES** [\[N1012\]](#)