

## SECTION B — PERFORMING OPERATIONS; TRANSPORTING

### B22 CASTING; POWDER METALLURGY

#### B22C FOUNDRY MOULDING (moulding refractory materials in general B28B)

##### Note(s)

This subclass covers:

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

##### Subclass index

PATTERNS, MANUFACTURE THEREOF.....	7/00, 3/00
MOULDS, CORES, GENERAL MOULDING PROCESSES; COMPOSITIONS FOR MOULDS AND CORES.....	9/00, 1/00, 3/00
MOULDING MACHINES, PROCESSES INVOLVING THESE MACHINES.....	11/00-19/00
MOULDING PLANTS.....	25/00
TOOLS OR OTHER DEVICES.....	5/00, 21/00, 23/00

<b>1/00</b>	<b>Compositions of refractory mould or core materials; Grain structures thereof</b> (refractory materials in general C04B 35/00); <b>Chemical or physical features in the formation or manufacture of moulds [1, 2006.01]</b>	<b>5/00</b>	<b>Machines or devices specially designed for dressing or handling the mould material so far as specially adapted for that purpose</b> (of general applicability, see the relevant places, e.g. for material with water-setting properties B28C) <b>[1, 2006.01]</b>
1/02	• characterised by additives for special purposes, e.g. indicators, breakdown additives <b>[1, 2006.01]</b>	5/02	• Dressing by centrifuging essentially or additionally <b>[1, 2006.01]</b>
1/04	• • for protection of the casting, e.g. against decarbonisation <b>[1, 2006.01]</b>	5/04	• by grinding, blending, mixing, kneading, or stirring <b>[1, 2006.01]</b>
1/06	• • • for casting extremely oxidisable metals <b>[1, 2006.01]</b>	5/06	• by sieving or magnetic separating <b>[1, 2006.01]</b>
1/08	• • for decreasing shrinkage of the mould, e.g. for investment casting <b>[1, 2006.01]</b>	5/08	• by sprinkling, cooling, or drying <b>[1, 2006.01]</b>
1/10	• • for influencing the hardening tendency of the mould material (influencing the hardening tendency of the binding agent only B22C 1/16) <b>[1, 2006.01]</b>	5/10	• by dust separating <b>[1, 2006.01]</b>
1/12	• • for manufacturing permanent moulds or cores <b>[1, 2006.01]</b>	5/12	• for filling flasks (in combination with compacting B22C 15/20-B22C 15/28) <b>[1, 2006.01]</b>
1/14	• • for separating the pattern from the mould <b>[1, 2006.01]</b>	5/13	• • during vacuum-sealed moulding <b>[6, 2006.01]</b>
1/16	• characterised by the use of binding agents; Mixtures of binding agents <b>[1, 2006.01]</b>	5/14	• Equipment for storing or handling the dressed mould material, forming part of a plant for preparing such material <b>[1, 2006.01]</b>
1/18	• • of inorganic agents <b>[1, 2006.01]</b>	5/16	• • with conveyors or other equipment for feeding the material <b>[1, 2006.01]</b>
1/20	• • of organic agents <b>[1, 2006.01]</b>	5/18	• Plants for preparing mould materials <b>[1, 2006.01]</b>
1/22	• • • of resins or rosins <b>[1, 2006.01]</b>	<b>7/00</b>	<b>Patterns; Manufacture thereof so far as not provided for in other classes [1, 2006.01]</b>
1/24	• • • of oily or fatty substances; of distillation residues therefrom <b>[1, 2006.01]</b>	7/02	• Lost patterns <b>[1, 2006.01]</b>
1/26	• • • of carbohydrates; of distillation residues therefrom <b>[1, 2006.01]</b>	7/04	• Pattern plates <b>[1, 2006.01]</b>
<b>3/00</b>	<b>Selection of compositions for coating the surfaces of moulds, cores, or patterns [1, 2006.01]</b>	7/05	• • for vacuum-sealed moulding <b>[6, 2006.01]</b>
3/02	• specially adapted for vacuum-sealed moulding <b>[6, 2006.01]</b>	7/06	• Core boxes <b>[1, 2006.01]</b>
		<b>9/00</b>	<b>Moulds or cores</b> (uniquely adapted to particular casting processes B22D); <b>Moulding processes</b> (processes involving the use of particular moulding machines, <u>see</u> the relevant groups for these machines) <b>[1, 2006.01]</b>
		9/02	• Sand moulds or like moulds for shaped castings <b>[1, 2006.01]</b>
		9/03	• • formed by vacuum-sealed moulding <b>[6, 2006.01]</b>

- 9/04 • • Use of lost patterns [1, 2006.01]
- 9/06 • Permanent moulds for shaped castings (moulds for ingots B22D 7/06) [1, 2006.01]
- 9/08 • Features with respect to supply of molten metal, e.g. ingates, circular gates, skim gates [1, 2006.01]
- 9/10 • Cores; Manufacture or installation of cores [1, 2006.01]
- 9/11 • • for vacuum-sealed moulding [6, 2006.01]
- 9/12 • Treating moulds or cores, e.g. drying, hardening [1, 2006.01]
- 9/14 • • Equipment or plant specially adapted for drying moulds or cores (B22C 13/08 takes precedence) [1, 2006.01]
- 9/16 • • • Movable drying equipment [1, 2006.01]
- 9/18 • Finishing [1, 2006.01]
- 9/20 • Stack moulds, i.e. arrangement of multiple moulds or flasks [1, 2006.01]
- 9/22 • Moulds for peculiarly-shaped castings [1, 2006.01]
- 9/24 • • for hollow articles [1, 2006.01]
- 9/26 • • • for ribbed tubes; for radiators [1, 2006.01]
- 9/28 • • for wheels, rolls, or rollers [1, 2006.01]
- 9/30 • • for chains [1, 2006.01]

#### **Moulding machines for making moulds or cores**

- 11/00 Moulding machines for making moulds or cores, characterised by the relative arrangement of their parts [1, 2006.01]**
- 11/02 • Machines in which the moulds are moved during a cycle of successive operations [1, 2006.01]
- 11/04 • • by a horizontal rotary table or carrier [1, 2006.01]
- 11/06 • • by a vertical rotary carrier [1, 2006.01]
- 11/08 • • by non-rotary conveying means, e.g. by travelling platforms [1, 2006.01]
- 11/10 • with one or more flasks forming part of the machine, from which only the sand moulds made by compacting are removed [1, 2006.01]
- 11/12 • Moulding machines able to travel [1, 2006.01]
- 13/00 Moulding machines for making moulds or cores of particular shapes [1, 2006.01]**
- 13/02 • equipped with templates, e.g. for sweeping operation [1, 2006.01]
- 13/04 • • with rotary templates, e.g. arranged on a pillar [1, 2006.01]
- 13/06 • • with non-rotary template and rotary flask [1, 2006.01]
- 13/08 • for shell moulds or shell cores [1, 2006.01]
- 13/10 • for pipes or elongated hollow articles [1, 2006.01]
- 13/12 • for cores [1, 2006.01]
- 13/14 • • by sweeping, turning, or coating [1, 2006.01]
- 13/16 • • by pressing through a die [1, 2006.01]
- 15/00 Moulding machines for making moulds or cores, characterised by the compacting mechanism; Accessories therefor [1, 2006.01]**
- 15/02 • Compacting by pressing devices only [1, 2006.01]
- 15/04 • • involving muscle power, e.g. hand-operated levers [1, 2006.01]
- 15/06 • • involving mechanical gearings, e.g. crank gears (B22C 15/04 takes precedence) [1, 2006.01]
- 15/08 • • involving pneumatic or hydraulic mechanisms [1, 2006.01]
- 15/10 • Compacting by jarring devices only [1, 2006.01]
- 15/12 • • involving mechanical gearings [1, 2006.01]

- 15/14 • • involving pneumatic or hydraulic mechanisms [1, 2006.01]
- 15/16 • • • the machine having special provision for reducing shock to its frame [1, 2006.01]
- 15/18 • • • • by means of separate shock-absorbers [1, 2006.01]
- 15/20 • Compacting by centrifugal forces only, e.g. in sand slingers [1, 2006.01]
- 15/23 • Compacting by gas pressure or vacuum [6, 2006.01]
- 15/24 • • involving blowing devices in which the mould material is supplied in the form of loose particles [1, 2006.01]
- 15/26 • • involving propulsion devices in which the mould material is supplied in the shape of a compacted column or the like [1, 2006.01]
- 15/264 • • Compacting after charge of the mould material [6, 2006.01]
- 15/268 • • • involving explosive combustion [6, 2006.01]
- 15/272 • • • involving the storage of gas under pressure [6, 2006.01]
- 15/276 • • • by vacuum, e.g. vacuum-sealed moulding processes [6, 2006.01]
- 15/28 • Compacting by different means acting simultaneously or successively, e.g. preliminary blowing and finally pressing [1, 2006.01]
- 15/30 • • by both pressing and jarring devices [1, 2006.01]
- 15/32 • • • involving mechanical gearing only [1, 2006.01]
- 15/34 • • • involving pneumatic or hydraulic mechanisms only [1, 2006.01]

- 17/00 Moulding machines for making moulds or cores, characterised by the mechanism for separating the pattern from the mould or for turning over the flask or the pattern plate [1, 2006.01]**
- 17/02 • Moulding machines with pin lifting arrangement [1, 2006.01]
- 17/04 • Drop-plate moulding machines [1, 2006.01]
- 17/06 • Moulding machines using stripping plates; Stripping plates [1, 2006.01]
- 17/08 • Moulding machines with mechanisms to turn over the pattern plate or the mould around a horizontal axis [1, 2006.01]
- 17/10 • • Turning-over pattern plate and flask only (B22C 17/14 takes precedence) [1, 2006.01]
- 17/12 • • Turning-over pattern plate, flask, and compacting device as a unit (B22C 17/14 takes precedence) [1, 2006.01]
- 17/14 • • arranged to one side of the mould table, so-called roll-over table moulding machines [1, 2006.01]

- 19/00 Components or accessories for moulding machines for making moulds or cores [1, 2006.01]**
- 19/01 • Devices for applying sealing coating [6, 2006.01]
- 19/02 • Mould tables [1, 2006.01]
- 19/04 • Controlling devices specially designed for moulding machines [1, 2006.01]
- 19/06 • Devices for rapping or loosening the pattern [1, 2006.01]
- 21/00 Flasks; Accessories therefor (stripping plates B22C 17/06) [1, 2006.01]**
- 21/01 • for vacuum-sealed moulding [6, 2006.01]
- 21/02 • Sectional flasks, i.e. with divided, articulated, or interchangeable side sections [1, 2006.01]
- 21/04 • Upset frames; Bottom boards or mould boards (pattern plates B22C 7/04) [1, 2006.01]
- 21/06 • • Bottom boards or mould boards [1, 2006.01]

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| 21/08    • Clamping equipment [ <b>1, 2006.01</b> ]<br>21/10    • Guiding equipment [ <b>1, 2006.01</b> ]<br>21/12    • Accessories [ <b>1, 2006.01</b> ]<br>21/14    • • for reinforcing or securing moulding materials or<br>cores, e.g. gaggers, chaplets, pins,<br>bars [ <b>1, 2006.01</b> ] | <b>23/00    Tools; Devices not mentioned before for<br/> moulding [<b>1, 2006.01</b>]</b><br>23/02    • Devices for coating moulds or cores [ <b>1, 2006.01</b> ]<br><br><b>25/00    Foundry moulding plants</b> (for preparing mould<br>materials B22C 5/18; in combination with casting plants<br>B22D 47/02) [ <b>1, 2006.01</b> ] |
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