

## 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</b>	5/04	• by grinding, blending, mixing, kneading, or stirring
		5/06	• by sieving or magnetic separating
1/02	• characterised by additives for special purposes, e.g. indicators, breakdown additives	5/08	• by sprinkling, cooling, or drying
1/04	• • for protection of the casting, e.g. against decarbonisation	5/10	• by dust separating
1/06	• • • for casting extremely oxidisable metals	5/12	• for filling flasks (in combination with compacting B22C 15/20-B22C 15/28)
1/08	• • for decreasing shrinkage of the mould, e.g. for investment casting	5/13	• • during vacuum-sealed moulding [6]
1/10	• • for influencing the hardening tendency of the mould material (influencing the hardening tendency of the binding agent only B22C 1/16)	5/14	• Equipment for storing or handling the dressed mould material, forming part of a plant for preparing such material
1/12	• • for manufacturing permanent moulds or cores	5/16	• • with conveyers or other equipment for feeding the material
1/14	• • for separating the pattern from the mould	5/18	• Plants for preparing mould materials
1/16	• characterised by the use of binding agents; Mixtures of binding agents	<b>7/00</b>	<b>Patterns; Manufacture thereof so far as not provided for in other classes</b>
1/18	• • of inorganic agents	7/02	• Lost patterns
1/20	• • of organic agents	7/04	• Pattern plates
1/22	• • • of resins or rosins	7/05	• • for vacuum-sealed moulding [6]
1/24	• • • of oily or fatty substances; of distillation residues therefrom	7/06	• Core boxes
1/26	• • • of carbohydrates; of distillation residues therefrom	<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>3/00</b>	<b>Selection of compositions for coating the surfaces of moulds, cores, or patterns</b>	9/02	• Sand moulds or like moulds for shaped castings
3/02	• specially adapted for vacuum-sealed moulding [6]	9/03	• • formed by vacuum-sealed moulding [6]
		9/04	• • Use of lost patterns
<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, <u>see</u> the relevant places, e.g. for material with water-setting properties B28C)	9/06	• Permanent moulds for shaped castings (moulds for ingots B22D 7/06)
5/02	• Dressing by centrifuging essentially or additionally	9/08	• Features with respect to supply of molten metal, e.g. ingates, circular gates, skim gates
		9/10	• Cores; Manufacture or installation of cores
		9/11	• • for vacuum-sealed moulding [6]
		9/12	• Treating moulds or cores, e.g. drying, hardening

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- 9/14 • • Equipment or plant specially adapted for drying moulds or cores (B22C 13/08 takes precedence)
- 9/16 • • • Movable drying equipment
- 9/18 • Finishing
- 9/20 • Stack moulds, i.e. arrangement of multiple moulds or flasks
- 9/22 • Moulds for peculiarly-shaped castings
- 9/24 • • for hollow articles
- 9/26 • • • for ribbed tubes; for radiators
- 9/28 • • for wheels, rolls, or rollers
- 9/30 • • for chains

### Moulding machines for making moulds or cores

#### **11/00 Moulding machines for making moulds or cores, characterised by the relative arrangement of their parts**

- 11/02 • Machines in which the moulds are moved during a cycle of successive operations
- 11/04 • • by a horizontal rotary table or carrier
- 11/06 • • by a vertical rotary carrier
- 11/08 • • by non-rotary conveying means, e.g. by travelling platforms
- 11/10 • with one or more flasks forming part of the machine, from which only the sand moulds made by compacting are removed
- 11/12 • Moulding machines able to travel

#### **13/00 Moulding machines for making moulds or cores of particular shapes**

- 13/02 • equipped with templates, e.g. for sweeping operation
- 13/04 • • with rotary templates, e.g. arranged on a pillar
- 13/06 • • with non-rotary template and rotary flask
- 13/08 • for shell moulds or shell cores
- 13/10 • for pipes or elongated hollow articles
- 13/12 • for cores
- 13/14 • • by sweeping, turning, or coating
- 13/16 • • by pressing through a die

#### **15/00 Moulding machines for making moulds or cores, characterised by the compacting mechanism; Accessories therefor**

- 15/02 • Compacting by pressing devices only
- 15/04 • • involving muscle power, e.g. hand-operated levers
- 15/06 • • involving mechanical gearings, e.g. crank gears (B22C 15/04 takes precedence)
- 15/08 • • involving pneumatic or hydraulic mechanisms
- 15/10 • Compacting by jarring devices only
- 15/12 • • involving mechanical gearings
- 15/14 • • involving pneumatic or hydraulic mechanisms
- 15/16 • • • the machine having special provision for reducing shock to its frame
- 15/18 • • • • by means of separate shock-absorbers
- 15/20 • Compacting by centrifugal forces only, e.g. in sand slingers
- 15/23 • Compacting by gas pressure or vacuum [6]
- 15/24 • • involving blowing devices in which the mould material is supplied in the form of loose particles

- 15/26 • • involving propulsion devices in which the mould material is supplied in the shape of a compacted column or the like
- 15/264 • • Compacting after charge of the mould material [6]
- 15/268 • • • involving explosive combustion [6]
- 15/272 • • • involving the storage of gas under pressure [6]
- 15/276 • • • by vacuum, e.g. vacuum-sealed moulding processes [6]
- 15/28 • Compacting by different means acting simultaneously or successively, e.g. preliminary blowing and finally pressing
- 15/30 • • by both pressing and jarring devices
- 15/32 • • • involving mechanical gearing only
- 15/34 • • • involving pneumatic or hydraulic mechanisms only

#### **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**

- 17/02 • Moulding machines with pin lifting arrangement
- 17/04 • Drop-plate moulding machines
- 17/06 • Moulding machines using stripping plates; Stripping plates
- 17/08 • Moulding machines with mechanisms to turn over the pattern plate or the mould around a horizontal axis
- 17/10 • • Turning-over pattern plate and flask only (B22C 17/14 takes precedence)
- 17/12 • • Turning-over pattern plate, flask, and compacting device as a unit (B22C 17/14 takes precedence)
- 17/14 • • arranged to one side of the mould table, so-called roll-over table moulding machines

#### **19/00 Components or accessories for moulding machines for making moulds or cores**

- 19/01 • Devices for applying sealing coating [6]
- 19/02 • Mould tables
- 19/04 • Controlling devices specially designed for moulding machines
- 19/06 • Devices for rapping or loosening the pattern

#### **21/00 Flasks; Accessories therefor** (stripping plates B22C 17/06)

- 21/01 • for vacuum-sealed moulding [6]
- 21/02 • Sectional flasks, i.e. with divided, articulated, or interchangeable side sections
- 21/04 • Upset frames; Bottom boards or mould boards (pattern plates B22C 7/04)
- 21/06 • • Bottom boards or mould boards
- 21/08 • Clamping equipment
- 21/10 • Guiding equipment
- 21/12 • Accessories
- 21/14 • • for reinforcing or securing moulding materials or cores, e.g. gagers, chaplets, pins, bars

#### **23/00 Tools; Devices not mentioned before for moulding**

- 23/02 • Devices for coating moulds or cores

#### **25/00 Foundry moulding plants** (for preparing mould materials B22C 5/18; in combination with casting plants B22D 47/02)