

ECLA**EUROPEAN CLASSIFICATION****B22C****FOUNDRY MOULDING (moulding refractory materials in general B28B)**

[N: **WARNING**
[C0803]

- 1.
2. The following IPC groups are not used in the internal ECLA classification scheme. Subject matter covered by these groups is classified in the following ECLA groups:

B22C3/02	covered by	B22C3/00
B22C5/13	covered by	B22C5/12
B22C7/05	covered by	B22C7/04
B22C9/11	covered by	B22C9/10
B22C9/14	covered by	B22C9/12
B22C9/16	covered by	B22C9/12
B22C15/264	to B22C15/276	covered by B22C15/23
B22C19/01	covered by	B22C19/00

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Note

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.

B22C1/00

Compositions of refractory mould or core materials; Grain structures thereof (refractory materials in general C04B35/00); Chemical or physical features in the formation or manufacture of moulds

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| B22C1/02 | . characterised by additives for special purposes, e.g. indicators, break-down additives |
| B22C1/04 | . . for protection of the casting, e.g. against decarbonisation |
| B22C1/06 | . . . for casting extremely oxidisable metals |
| B22C1/08 | . . for decreasing shrinkage of the mould, e.g. for investment casting |
| B22C1/10 | . . for influencing the hardening tendency of the mould material (influencing the hardening tendency of the binding agent only B22C1/16) |
| B22C1/12 | . . for manufacturing permanent moulds or cores |
| B22C1/14 | . . for separating the pattern from the mould |
| B22C1/16 | . characterised by the use of binding agents; Mixtures of binding agents |
| B22C1/16B | . . [N: use of a gaseous treating agent for hardening the binder] |
| B22C1/16D | . . [N: in the manufacture of multilayered shell moulds] |
| B22C1/16M | . . [N: Mixtures of inorganic and organic binding agents] |
| B22C1/18 | . . of inorganic agents [N: (B22C1/16B takes precedence)] |
| B22C1/18C | . . . [N: Cements, oxides or clays] |
| B22C1/18G | . . . [N: Sols, colloids or hydroxide gels] |
| B22C1/18P | . . . [N: containing phosphates, phosphoric acids or its derivatives] |

B22C1/18S	. . . [N: containing ammonium or metal silicates, silica sols]
B22C1/18S2	. . . . [N: Alkali metal silicates]
B22C1/20	. . of organic agents
B22C1/20B	. . . [N: of organic silicon or metal compounds, other organometallic compounds]
B22C1/22	. . . of resins or rosins
B22C1/22C	. . . . [N: obtained by reactions only involving carbon-to-carbon unsaturated bonds]
B22C1/22C2	. . . . . [N: Polyalkenes]
B22C1/22C4	. . . . . [N: Polyacrylates]
B22C1/22C6	. . . . . [N: Polymers containing halogens]
B22C1/22F	. . . . [N: obtained otherwise than by reactions only involving carbon-to-carbon unsaturated bonds]
B22C1/22F2	. . . . . [N: Furan polymers (B22C1/22F10 takes precedence)]
B22C1/22F4	. . . . . [N: Condensation polymers of aldehydes and ketones (B22C1/22F2 , B22C1/22F10 take precedence)]
B22C1/22F4P	. . . . . [N: with phenols]
B22C1/22F6	. . . . . [N: Polyepoxides]
B22C1/22F8	. . . . . [N: Polyesters; Polycarbonates]
B22C1/22F10	. . . . . [N: Polyurethanes; Polyisocyanates]
B22C1/22F12	. . . . . [N: Polyamides]
B22C1/22F14	. . . . . [N: Polyethers]
B22C1/22N	. . . . [N: Natural polymers (B22C1/24 , B22C1/26 take precedence)]
B22C1/24	. . . of oily or fatty substances; of distillation residues therefrom
B22C1/26	. . . of carbohydrates; of distillation residues therefrom

B22C3/00 Selection of compositions for coating the surfaces of moulds, cores, or patterns

B22C5/00 Machines or devices specially designed for dressing or handling the mould material so far as specially adapted for that purpose (of general applicability, see the relevant places, e.g. for material with water-setting properties [B28C](#))

B22C5/02	. Dressing by centrifuging essentially or additionally
B22C5/04	. by grinding, blending, mixing, kneading, or stirring
B22C5/04A	. . [N: Stirring by using vibrations while grinding]
B22C5/04B	. . [N: Blending, mixing, kneading or stirring; Methods therefor (B22C5/04C takes precedence)]
B22C5/04B2	. . . [N: Horizontal mixing and conveying units, e.g. the unit being rotatable about a vertical axis, or having a supplementary mixing house with a vertical axis at its end]
B22C5/04B2B	. . . . [N: Details concerning the method]
B22C5/04B3	. . . [N: Devices having a fixed receptacle with rotating tools, some or all of these tools being rolls or balls loosely mounted on their axis or loose balls in contact with the side wall or the bottom of the receptacle, e.g. with aerating means; "Devices of the Muller type"]
B22C5/04B3B	. . . . [N: having only one vertical tool-driving shaft]

- B22C5/04B3C [N: having at least two vertical tool-driving shafts]
- B22C5/04B3D [N: having a horizontal tool-driving shaft]
- B22C5/04B4 [N: Devices having a vertical stirrer shaft in a fixed receptacle ([B22C5/04B3](#) takes precedence)]
- B22C5/04B4B [N: the material flowing continuously through the device]
- B22C5/04B5 [N: Devices having a horizontal stirrer shaft in a fixed receptacle ([B22C5/04B3](#) takes precedence)]
- B22C5/04B6 [N: with bottom disc rotating about a vertical axis or with receptacle rotating about a vertical or steeply inclined axis, e.g. with fixed or driven tools, such as rolls]
- B22C5/04B7 [N: with a receptacle rotating about a horizontal or slightly inclined axis, e.g. with fixed or rotating tools]
- B22C5/04B8 [N: Plants]
- B22C5/04B8B [N: having feeding moulds, e.g. using gas]
- B22C5/04B9 [N: Parts; Accessories; Controlling; Feeding; Discharging; Proportioning]
- B22C5/04B11 [N: Mixing while transporting the mixture on an endless belt, e.g. with driven stirring elements]
- B22C5/04B12 [N: using vibrations]
- B22C5/04C [N: Movable devices for cutting or mixing material laying on the ground]
- B22C5/04C2 [N: using rotating tools]
- B22C5/04C2B [N: combined with another operation, e.g. sieving, or with means for picking up material from the ground]

- B22C5/06 by sieving or magnetic separating

- B22C5/08 by sprinkling, cooling, or drying
- B22C5/08A [N: Cooling or drying the sand together with the castings]

- B22C5/10 by dust separating

- B22C5/12 for filling flasks ([in combination with compacting B22C15/20 to B22C15/28](#))

- B22C5/14 Equipment for storing or handling the dressed mould material, forming part of a plant for preparing such material
- B22C5/16 with conveyers or other equipment for feeding the material

- B22C5/18 Plants for preparing mould materials
- B22C5/18W [N: comprising a wet reclamation step]

- B22C7/00** **Patterns; Manufacture thereof so far as not provided for in other classes**

- B22C7/00A [N: Adjustable, sectional, expandable or flexible patterns]

- B22C7/02 Lost patterns
- B22C7/02B [N: Patterns made from expanded plastic materials]
- B22C7/02B2 [N: by assembling preformed parts ([joining of plastics, in general B29C65/00](#))]

- B22C7/04 Pattern plates

- B22C7/06 . Core boxes
- B22C7/06A . . [N: Sealing means]
- B22C7/06B . . [N: Venting means]
- B22C7/06C . . [N: Ejector elements]

- B22C9/00** **Moulds or cores (uniquely adapted to particular casting processes [B22D](#)); Moulding processes (processes involving the use of particular moulding machines, see the relevant groups for these machines)**

- B22C9/02 . Sand moulds or like moulds for shaped castings
- B22C9/03 . . formed by vacuum-sealed moulding [[N9509](#)]
- B22C9/04 . . Use of lost patterns
- B22C9/04A . . . [N: Removing the consumable pattern]
- B22C9/04B . . . [N: Use of patterns which are eliminated by the liquid metal in the mould]

- B22C9/06 . Permanent moulds for shaped castings ([moulds for ingots \[B22D7/06\]\(#\)](#))
- B22C9/06A . . [N: Materials which make up the mould]
- B22C9/06B . . [N: Mechanisms for locking or opening moulds]
- B22C9/06C . . [N: Locating means for cores]
- B22C9/06D . . [N: Cooling or heating equipment for moulds]
- B22C9/06E . . [N: Venting means for moulds]
- B22C9/06F . . [N: Semi-permanent moulds]

- B22C9/08 . Features with respect to supply of molten metal, e.g. ingates, circular gates, skim gates
- B22C9/08A . . [N: Sprues, pouring cups]
- B22C9/08B . . [N: Breaker cores]
- B22C9/08C . . [N: Filters]
- B22C9/08D . . [N: Feeder heads]

- B22C9/10 . Cores; Manufacture or installation of cores [N: ([breaker cores \[B22C9/08B\]\(#\)](#))]
- B22C9/10A . . [N: Permanent cores]
- B22C9/10B . . [N: Multipart cores]
- B22C9/10C . . [N: Salt cores]
- B22C9/10D . . [N: Vented or reinforced cores]
- B22C9/10E . . [N: Installation of cores]

- B22C9/12 . Treating moulds or cores, e.g. drying, hardening
- B22C9/12A . . [N: Gas-hardening]
- B22C9/12B . . [N: Hardening by freezing]

- B22C9/18 . Finishing

- B22C9/20 . Stack moulds, i.e. arrangement of multiple moulds or flasks

- B22C9/22 . Moulds for peculiarly-shaped castings

- B22C9/24 . . for hollow articles
- B22C9/26 . . . for ribbed tubes; for radiators
- B22C9/28 . . for wheels, rolls, or rollers [N: ([B22D15/00R](#) takes precedence)] [C9606]
- B22C9/30 . . for chains

Guide heading: **Moulding machines for making moulds or cores**

B22C11/00 Moulding machines characterised by the relative arrangement of the parts of same

- B22C11/02 . Machines in which the moulds are moved during a cycle of successive operations
- B22C11/04 . . by a horizontal rotary table or carrier
- B22C11/06 . . by a vertical rotary carrier
- B22C11/08 . . by non-rotary conveying means, e.g. by travelling platforms
- B22C11/10 . with one or more flasks forming part of the machine, from which only the sand moulds made by compacting are removed
- B22C11/12 . Moulding machines able to travel

B22C13/00 Moulding machines for making moulds or cores of particular shapes

- B22C13/02 . equipped with templates, e.g. for sweeping operation
- B22C13/04 . . with rotary templates, e.g. arranged on a pillar
- B22C13/06 . . with non-rotary template and rotary flask
- B22C13/08 . for shell moulds or shell cores
- B22C13/08A . . [N: by investing a lost pattern]
- B22C13/10 . for pipes or elongated hollow articles
- B22C13/12 . for cores
- B22C13/14 . . by sweeping, turning, or coating
- B22C13/16 . . by pressing through a die

B22C15/00 Moulding machines characterised by the compacting mechanism; Accessories therefor

- B22C15/02 . Compacting by pressing devices only
- B22C15/04 . . involving muscle power, e.g. hand-operated levers
- B22C15/06 . . involving mechanical gearings, e.g. crank gears ([B22C15/04](#) takes precedence)
- B22C15/08 . . involving pneumatic or hydraulic mechanisms
- B22C15/10 . Compacting by jarring devices only [C9509]
- B22C15/12 . . involving mechanical gearings
- B22C15/14 . . involving pneumatic or hydraulic mechanisms

- B22C15/16 . . . the machine having special provision for reducing shock to its frame
- B22C15/18 by means of separate shock-absorbers
- B22C15/20 . Compacting by centrifugal forces only, e.g. in sand slingers
- B22C15/23 . Compacting by gas pressure or vacuum [N9509]
- B22C15/24 . . involving blowing devices in which the mould material is supplied in the form of loose particles [C9509]
- B22C15/24A . . . [N: Blowing tubes]
- B22C15/26 . . involving propulsion devices in which the mould material is supplied in the shape of a compacted column or the like [C9509]
- B22C15/28 . Compacting by different means acting simultaneously or successively, e.g. preliminary blowing and finally pressing
- B22C15/30 . . by both pressing and jarring devices
- B22C15/32 . . . involving mechanical gearing only
- B22C15/34 . . . involving pneumatic or hydraulic mechanisms only
- B22C17/00 Moulding machines characterised by the mechanism for separating the pattern from the mould or for turning over the flask or the pattern plate**
- B22C17/02 . Moulding machines with pin lifting arrangement
- B22C17/04 . Drop-plate moulding machines
- B22C17/06 . Moulding machines using stripping plates; Stripping plates
- B22C17/08 . Moulding machines with mechanisms to turn over the pattern plate on the mould around a horizontal axis
- B22C17/10 . . Turning-over pattern plate and flask only ([B22C17/14 takes precedence](#))
- B22C17/12 . . Turning-over pattern plate, flask, and compacting device as a unit ([B22C17/14 takes precedence](#))
- B22C17/14 . . arranged to one side of the mould table, so-called roll-over table moulding machines
- B22C19/00 Components or accessories for moulding machines**
- B22C19/02 . Mould tables
- B22C19/04 . Controlling devices specially designed for moulding machines
- B22C19/06 . Devices for rapping or loosening the pattern [C9509]
- B22C21/00 Flasks; Accessories therefor ([stripping plates B22C17/06](#))**
- B22C21/01 . for vacuum-sealed moulding [N9509]
- B22C21/02 . Sectional flasks, i.e. with divided, articulated, or interchangeable side sections

- [B22C21/04](#) . Upset frames; Bottom boards or mould boards ([pattern plates B22C7/04](#))
- [B22C21/06](#) . . Bottom boards or mould boards
- [B22C21/08](#) . Clamping equipment
- [B22C21/10](#) . Guiding equipment
- [B22C21/12](#) . Accessories
- [B22C21/14](#) . . for reinforcing or securing moulding materials or cores, e.g. gaggers, chaplets, pins, bars

[B22C23/00](#) Tools; Devices not mentioned before for moulding

- [B22C23/02](#) . Devices for coating moulds or cores

[B22C25/00](#) Foundry moulding plants ([for preparing mould materials B22C5/18](#); in combination with casting plants [B22D47/02](#))