

Symbol	Typ	Titel
B	Sektion	PERFORMING OPERATIONS; TRANSPORTING
B22	Klasse	CASTING; POWDER METALLURGY
B22D	Unterklasse	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)
B22D 1/00	Hauptgruppe	Treatment of fused masses in the ladle or the supply runners before casting (features relating to gas injection, provided on closures of the sliding-gate type B22D 41/42 , provided on pouring-nozzles B22D 41/58)
B22D 2/00	Hauptgruppe	Arrangement of indicating or measuring devices, e.g. for temperature or viscosity of the fused mass [3] <u>Casting of pigs, i.e. metal castings suitable for subsequent melting; Similar casting</u>
B22D 3/00	Hauptgruppe	Pig or like casting (equipment for conveying molten metal B22D 35/00)
B22D 3/02	1-Punkt Untergruppe	. Moulding of beds
B22D 5/00	Hauptgruppe	Machines or plants for pig or like casting
B22D 5/02	1-Punkt Untergruppe	. with rotary casting tables
B22D 5/04	1-Punkt Untergruppe	. with endless casting conveyers
		<u>Casting of ingots, i.e. metal castings suitable for subsequent rolling or forging</u>
B22D 7/00	Hauptgruppe	Casting ingots (equipment for conveying molten metal B22D 35/00)
B22D 7/02	1-Punkt Untergruppe	. Casting compound ingots of two or more different metals in the molten state, i.e. integrally cast
B22D 7/04	1-Punkt Untergruppe	. Casting hollow ingots
B22D 7/06	1-Punkt Untergruppe	. Ingot moulds or their manufacture
B22D 7/08	2-Punkt Untergruppe	. . Divided ingot moulds
B22D 7/10	2-Punkt Untergruppe	. . Hot tops therefor
B22D 7/12	1-Punkt Untergruppe	. Accessories, e.g. for sintering, for preventing splashing
B22D 9/00	Hauptgruppe	Machines or plants for casting ingots <u>Particular casting processes; Machines or apparatus therefor</u>
B22D 11/00	Hauptgruppe	Continuous casting of metals, i.e. casting in indefinite lengths (metal drawing, metal extruding B21C)
B22D 11/01	1-Punkt Untergruppe	. without moulds, e.g. on molten surfaces [2]
B22D 11/04	1-Punkt Untergruppe	. into open-ended moulds (B22D 11/06 , B22D 11/07 take precedence; plants for continuous casting, e.g. for upwardly drawing the strand, B22D 11/14) [3]
B22D 11/041	2-Punkt Untergruppe	. . for vertical casting (B22D 11/043 , B22D 11/049 to B22D 11/059 take precedence) [7]
B22D 11/043	2-Punkt Untergruppe	. . Curved moulds (B22D 11/049 to B22D 11/059 take precedence) [7]
B22D 11/045	2-Punkt Untergruppe	. . for horizontal casting (B22D 11/049 to B22D 11/059 take precedence) [7]
B22D 11/047	3-Punkt Untergruppe	. . . Means for joining tundish to mould [7]
B22D 11/049	2-Punkt Untergruppe	. . for direct chill casting, e.g. electromagnetic casting [7]
B22D 11/05	2-Punkt Untergruppe	. . into moulds having adjustable walls [7]
B22D 11/051	2-Punkt Untergruppe	. . into moulds having oscillating walls [7]

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B22D 11/053	2-Punkt Untergruppe	. . Means for oscillating the moulds [7]
B22D 11/055	2-Punkt Untergruppe	. . Cooling the moulds [7]
B22D 11/057	2-Punkt Untergruppe	. . Manufacturing or calibrating the moulds [7]
B22D 11/059	2-Punkt Untergruppe	. . Mould materials or platings [7]
B22D 11/06	1-Punkt Untergruppe	. into moulds with travelling walls, e.g. with rolls, plates, belts, caterpillars (B22D 11/07 takes precedence) [3]
B22D 11/07	1-Punkt Untergruppe	. Lubricating the moulds [3]
B22D 11/08	1-Punkt Untergruppe	. Accessories for starting the casting procedure
B22D 11/10	1-Punkt Untergruppe	. Supplying or treating molten metal (B22D 41/00 takes precedence) [1, 7]
B22D 11/103	2-Punkt Untergruppe	. . Distributing the molten metal, e.g. using runners, floats, distributors [7]
B22D 11/106	2-Punkt Untergruppe	. . Shielding the molten jet [7]
B22D 11/108	2-Punkt Untergruppe	. . Feeding additives, powders, or the like [7]
B22D 11/11	2-Punkt Untergruppe	. . Treating the molten metal [7]
B22D 11/111	3-Punkt Untergruppe	. . . by using protecting powders [7]
B22D 11/112	3-Punkt Untergruppe	. . . by accelerated cooling [7]
B22D 11/113	3-Punkt Untergruppe	. . . by vacuum treating [7]
B22D 11/114	3-Punkt Untergruppe	. . . by using agitating or vibrating means (B22D 11/117 takes precedence) [7]
B22D 11/115	4-Punkt Untergruppe	 by using magnetic fields [7]
B22D 11/116	3-Punkt Untergruppe	. . . Refining the metal [7]
B22D 11/117	4-Punkt Untergruppe	 by treating with gases (B22D 11/118 , B22D 11/119 take precedence) [7]
B22D 11/118	4-Punkt Untergruppe	 by circulating the metal under, over or around weirs (B22D 11/119 takes precedence) [7]
B22D 11/119	4-Punkt Untergruppe	 by filtering [7]
B22D 11/12	1-Punkt Untergruppe	. Accessories for subsequent treating or working cast stock in situ (rolling immediately subsequent to continuous casting B21B 1/46 , B21B 13/22) [3]
B22D 11/124	2-Punkt Untergruppe	. . for cooling [2]
B22D 11/126	2-Punkt Untergruppe	. . for cutting [2]
B22D 11/128	2-Punkt Untergruppe	. . for removing [2]
B22D 11/14	1-Punkt Untergruppe	. Plants for continuous casting, e.g. for upwardly drawing the strand
B22D 11/16	1-Punkt Untergruppe	. Controlling or regulating processes or operations [2]
B22D 11/18	2-Punkt Untergruppe	. . for pouring (B22D 11/20 takes precedence) [4]
B22D 11/20	2-Punkt Untergruppe	. . for removing cast stock [4]
B22D 11/22	2-Punkt Untergruppe	. . for cooling cast stock or mould [4]
B22D 13/00	Hauptgruppe	Centrifugal casting; Casting by using centrifugal force
B22D 13/02	1-Punkt Untergruppe	. of elongated solid or hollow bodies, e.g. pipes, in moulds rotating around their longitudinal axis

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B22D 13/04	1-Punkt Untergruppe	. of shallow solid or hollow bodies, e.g. wheels or rings, in moulds rotating around their axis of symmetry
B22D 13/06	1-Punkt Untergruppe	. of solid or hollow bodies in moulds rotating around an axis arranged outside of the mould
B22D 13/08	1-Punkt Untergruppe	. in which a stationary mould is fed from a rotating mass of liquid metal
B22D 13/10	1-Punkt Untergruppe	. Accessories for centrifugal casting apparatus, e.g. moulds, linings therefor, means for feeding molten metal, cleansing moulds, removing castings (making or lining moulds B22C)
B22D 13/12	1-Punkt Untergruppe	. Controlling, supervising, specially adapted to centrifugal casting, e.g. for safety reasons [3]
B22D 15/00	Hauptgruppe	<i>Casting using a mould or core of which a part significant to the process of high thermal conductivity, e.g. chill casting ; Moulds or accessories specially adapted therefor (continuous casting of metals into open-ended moulds for direct chill casting B22D 11/049) [1, 7]</i>
B22D 15/02	1-Punkt Untergruppe	. of cylinders, pistons, bearing shells or like thin-walled objects
B22D 15/04	1-Punkt Untergruppe	. Machines or apparatus for chill casting (B22D 15/02 takes precedence)
B22D 17/00	Hauptgruppe	Pressure die casting or injection die casting, i.e. casting in which the metal is forced into a mould under high pressure [3]
B22D 17/02	1-Punkt Untergruppe	. Hot chamber machines, i.e. with heated press chamber in which metal is melted
B22D 17/04	2-Punkt Untergruppe	. . Plunger machines
B22D 17/06	2-Punkt Untergruppe	. . Air injection machines
B22D 17/08	1-Punkt Untergruppe	. Cold chamber machines, i.e. with unheated press chamber into which molten metal is ladled
B22D 17/10	2-Punkt Untergruppe	. . with horizontal press motion
B22D 17/12	2-Punkt Untergruppe	. . with vertical press motion
B22D 17/14	1-Punkt Untergruppe	. Machines with evacuated die cavity
B22D 17/16	1-Punkt Untergruppe	. specially adapted for casting slide fasteners or elements therefor
B22D 17/18	1-Punkt Untergruppe	. Machines built up from units providing for different combinations
B22D 17/20	1-Punkt Untergruppe	. Accessories; Details
B22D 17/22	2-Punkt Untergruppe	. . Dies (manufacture, see the appropriate class, e.g. B23P 15/24); Die plates; Die supports; Cooling equipment for dies; Accessories for loosening and ejecting castings from dies
B22D 17/24	3-Punkt Untergruppe	. . . Accessories for locating and holding cores or inserts
B22D 17/26	2-Punkt Untergruppe	. . Mechanisms or devices for locking or opening dies
B22D 17/28	2-Punkt Untergruppe	. . Melting pots
B22D 17/30	2-Punkt Untergruppe	. . Accessories for supplying molten metal, e.g. in rations
B22D 17/32	2-Punkt Untergruppe	. . Controlling equipment
B22D 18/00	Hauptgruppe	Pressure casting; Vacuum casting (B22D 17/00 takes precedence; treating the metal in the mould by using pressure or vacuum B22D 27/00) [3]
B22D 18/02	1-Punkt Untergruppe	. Pressure casting making use of mechanical pressing devices, e.g. cast-forging (B22D 18/04 takes precedence) [3]
B22D 18/04	1-Punkt Untergruppe	. Low pressure casting, i.e. making use of pressures up to a few bars to fill the mould [3]
B22D 18/06	1-Punkt Untergruppe	. Vacuum casting, i.e. making use of vacuum to fill the mould [3]
B22D 18/08	1-Punkt Untergruppe	. Controlling, supervising, e.g. for safety reasons [3]

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B22D 19/00	Hauptgruppe	Casting in, on, or around, objects which form part of the product (B22D 23/04 takes precedence; alumino-thermic welding B23K 23/00; coating by casting molten material on the substrate C23C 6/00)
B22D 19/02	1-Punkt Untergruppe	. for making reinforced articles (B22D 19/14 takes precedence) [3]
B22D 19/04	1-Punkt Untergruppe	. for joining parts
B22D 19/06	1-Punkt Untergruppe	. for manufacturing or repairing tools
B22D 19/08	1-Punkt Untergruppe	. for building up linings or coverings, e.g. of anti-frictional metal
B22D 19/10	1-Punkt Untergruppe	. Repairing defective or damaged objects by metal casting techniques (by other techniques B23P 6/04)
B22D 19/12	1-Punkt Untergruppe	. for making objects, e.g. hinges, with parts which are movable relatively to one another
B22D 19/14	1-Punkt Untergruppe	. the objects being filamentary or particulate in form (making alloys containing fibres or filaments by contacting the fibres or filaments with molten metal C22C 47/08) [3]
B22D 19/16	1-Punkt Untergruppe	. for making compound objects cast of two or more different metals, e.g. for making rolls for rolling mills (casting compound ingots B22D 7/02) [3]
B22D 21/00	Hauptgruppe	Casting non-ferrous metals or metallic compounds so far as their metallurgical properties are of importance for the casting procedure; Selection of compositions therefor
B22D 21/02	1-Punkt Untergruppe	. Casting exceedingly oxidisable non-ferrous metals, e.g. in inert atmosphere (apparatus for vacuum casting B22D 18/00; use of inert atmosphere in casting metals in general B22D 23/00)
B22D 21/04	2-Punkt Untergruppe	. . Casting aluminium or magnesium
B22D 21/06	1-Punkt Untergruppe	. Casting non-ferrous metals with a high melting-point, e.g. metallic carbides (B22D 21/02 takes precedence)
B22D 23/00	Hauptgruppe	Casting processes not provided for in groups B22D 1/00 to B22D 21/00 (making metallic powder by casting B22F 9/08; alumino-thermic welding B23K 23/00; remelting metals C22B 9/16)
B22D 23/02	1-Punkt Untergruppe	. Top casting
B22D 23/04	1-Punkt Untergruppe	. Casting by dipping (hot-dipping or immersion processes for applying coating material in the molten state without affecting the shape C23C 2/00)
B22D 23/06	1-Punkt Untergruppe	. Melting-down metal, e.g. metal particles, in the mould
B22D 23/10	2-Punkt Untergruppe	. . Electroslag casting [5]
B22D 25/00	Hauptgruppe	Special casting characterised by the nature of the product (B22D 15/02 , B22D 17/16 , B22D 19/00 take precedence; casting stereotype plates B41D 3/00) [2]
B22D 25/02	1-Punkt Untergruppe	. by its peculiarity of shape; of works of art
B22D 25/04	2-Punkt Untergruppe	. . Casting metal electric battery plates or the like (manufacture thereof by multi-step processes H01M 4/82) [2]
B22D 25/06	1-Punkt Untergruppe	. by its physical properties (B22D 27/00 takes precedence)
B22D 25/08	2-Punkt Untergruppe	. . by uniform hardness (B22D 15/00 takes precedence)
B22D 27/00	Hauptgruppe	Treating the metal in the mould while it is molten or ductile (B22D 7/12 , B22D 11/10 , B22D 18/00 , B22D 43/00 take precedence) [3]
B22D 27/02	1-Punkt Untergruppe	. Use of electric or magnetic effects
B22D 27/04	1-Punkt Untergruppe	. <i>Influencing the temperature of the metal, e.g. by heating or cooling the mould (cooling of open-ended moulds in continuous casting B22D 11/055) [1, 7]</i>
B22D 27/06	2-Punkt Untergruppe	. . Heating the top discard of ingots (hot tops for ingot moulds B22D 7/10)
B22D 27/08	1-Punkt Untergruppe	. <i>Shaking, vibrating, or turning of moulds (B22D 11/051 , B22D 11/053 take precedence) [1, 7]</i>

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B22D 27/09	1-Punkt Untergruppe	. by using pressure [3]
B22D 27/11	2-Punkt Untergruppe	. . making use of mechanical pressing devices [3]
B22D 27/13	2-Punkt Untergruppe	. . making use of gas pressure [3]
B22D 27/15	1-Punkt Untergruppe	. by using vacuum [3]
B22D 27/18	1-Punkt Untergruppe	. Measures for using chemical processes for influencing the surface composition of castings, e.g. for increasing resistance to acid attack
B22D 27/20	1-Punkt Untergruppe	. Measures not previously mentioned for influencing the grain structure or texture; Selection of compositions therefor
		<u>Final measures after casting (cleaning of castings by sand-blasting B24C)</u>
B22D 29/00	Hauptgruppe	Removing castings from moulds, not restricted to casting processes covered by a single main group; Removing cores; Handling ingots [2]
B22D 29/02	1-Punkt Untergruppe	. Vibratory apparatus specially designed for shaking out flasks
B22D 29/04	1-Punkt Untergruppe	. Handling or stripping castings or ingots (grippers in general, see the relevant subclasses, e.g. B66C)
B22D 29/06	2-Punkt Untergruppe	. . Strippers actuated by fluid pressure
B22D 29/08	2-Punkt Untergruppe	. . Strippers actuated mechanically [2]
B22D 30/00	Hauptgruppe	Cooling castings, not restricted to casting processes covered by a single main group (accessories for cooling cast stock in continuous casting of metals B22D 11/124; controlling or regulating processes or operations for cooling cast stock or mould in continuous casting of metals B22D 11/22; chill casting B22D 15/00) [5]
B22D 31/00	Hauptgruppe	Cutting-off surplus material, e.g. gates
		<u>Other equipment for casting (arrangement of indicating or measuring devices B22D 2/00) [3]</u>
B22D 33/00	Hauptgruppe	Equipment for handling moulds
B22D 33/02	1-Punkt Untergruppe	. Turning or transposing moulds
B22D 33/04	1-Punkt Untergruppe	. Bringing together or separating moulds
B22D 33/06	1-Punkt Untergruppe	. Burdening or relieving moulds
B22D 35/00	Hauptgruppe	Equipment for conveying molten metal into beds or moulds (B22D 37/00 to B22D 41/00 take precedence; specially adapted to particular processes or machines, see the relevant groups)
B22D 35/02	1-Punkt Untergruppe	. into beds
B22D 35/04	1-Punkt Untergruppe	. into moulds, e.g. base plates, runners
B22D 35/06	1-Punkt Untergruppe	. Heating or cooling equipment
B22D 37/00	Hauptgruppe	Controlling or regulating the pouring of molten metal from a casting melt-holding vessel (B22D 39/00 , B22D 41/00 take precedence; specially adapted to particular processes or machines, see the relevant groups of this subclass) [3, 5]
B22D 39/00	Hauptgruppe	Equipment for supplying molten metal in rations (specially adapted to particular processes or machines, see the relevant groups of this subclass)
B22D 39/02	1-Punkt Untergruppe	. having means for controlling the amount of molten metal by volume [3]
B22D 39/04	1-Punkt Untergruppe	. having means for controlling the amount of molten metal by weight [3]
B22D 39/06	1-Punkt Untergruppe	. having means for controlling the amount of molten metal by controlling the pressure above the molten metal [3]
B22D 41/00	Hauptgruppe	Casting melt-holding vessels, e.g. ladles, tundishes, cups or the like (B22D 39/00 , B22D 43/00 take precedence) [5]

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B22D 41/005	1-Punkt Untergruppe	. with heating or cooling means [5]
B22D 41/01	2-Punkt Untergruppe	. . Heating means [5]
B22D 41/015	3-Punkt Untergruppe	. . . with external heating, i.e. the heat source not being a part of the ladle [5]
B22D 41/02	1-Punkt Untergruppe	. Linings
B22D 41/04	1-Punkt Untergruppe	. tiltable
B22D 41/05	2-Punkt Untergruppe	. . Tea-pot spout ladles [5]
B22D 41/06	1-Punkt Untergruppe	. Equipment for tilting
B22D 41/08	1-Punkt Untergruppe	. for bottom pouring (B22D 41/14 , B22D 41/50 take precedence)
B22D 41/12	1-Punkt Untergruppe	. Travelling ladles or similar containers; Cars for ladles (casting cranes B66C)
<i>B22D 41/13</i>	<i>2-Punkt Untergruppe</i>	<i>. . Ladle turrets [7]</i>
B22D 41/14	1-Punkt Untergruppe	. Closures [5]
B22D 41/16	2-Punkt Untergruppe	. . stopper-rod type, i.e. a stopper-rod being positioned downwardly through the vessel and the metal therein, for selective registry with the pouring opening [5]
B22D 41/18	3-Punkt Untergruppe	. . . Stopper-rods therefor [5]
B22D 41/20	3-Punkt Untergruppe	. . . Stopper-rod operating equipment [5]
B22D 41/22	2-Punkt Untergruppe	. . sliding-gate type, i.e. having a fixed plate and a movable plate in sliding contact with each other for selective registry of their openings [5]
B22D 41/24	3-Punkt Untergruppe	. . . characterised by a rectilinearly movable plate (B22D 41/38 to B22D 41/42 take precedence) [5]
B22D 41/26	3-Punkt Untergruppe	. . . characterised by a rotatively movable plate (B22D 41/38 to B22D 41/42 take precedence) [5]
B22D 41/28	3-Punkt Untergruppe	. . . Plates therefor (B22D 41/38 to B22D 41/42 take precedence) [5]
B22D 41/30	4-Punkt Untergruppe	 Manufacturing or repairing thereof [5]
B22D 41/32	5-Punkt Untergruppe	 characterised by the materials used therefor [5]
B22D 41/34	4-Punkt Untergruppe	 Supporting, fixing or centering means therefor [5]
B22D 41/36	4-Punkt Untergruppe	 Treating the plates, e.g. lubricating, heating (ladles, cups or the like with heating means B22D 41/01) [5]
B22D 41/38	3-Punkt Untergruppe	. . . Means for operating the sliding gate [5]
B22D 41/40	3-Punkt Untergruppe	. . . Means for pressing the plates together [5]
B22D 41/42	3-Punkt Untergruppe	. . . Features relating to gas injection [5]
B22D 41/44	2-Punkt Untergruppe	. . Consumable closure means, i.e. closure means being used only once [5]
B22D 41/46	3-Punkt Untergruppe	. . . Refractory plugging masses [5]
B22D 41/48	3-Punkt Untergruppe	. . . Meltable closures [5]
B22D 41/50	1-Punkt Untergruppe	. Pouring-nozzles [5]
B22D 41/52	2-Punkt Untergruppe	. . Manufacturing or repairing thereof [5]
B22D 41/54	3-Punkt Untergruppe	. . . characterised by the materials used therefor [5]

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B22D 41/56	2-Punkt Untergruppe	. . Means for supporting, manipulating or changing a pouring-nozzle [5]
B22D 41/58	2-Punkt Untergruppe	. . with gas injecting means [5]
B22D 41/60	2-Punkt Untergruppe	. . with heating or cooling means [5]
B22D 41/62	2-Punkt Untergruppe	. . with stirring or vibrating means [5]
B22D 43/00	Hauptgruppe	Mechanical cleaning, e.g. skimming of molten metals
B22D 45/00	Hauptgruppe	Equipment for casting, not otherwise provided for
B22D 46/00	Hauptgruppe	Controlling, supervising, not restricted to casting covered by a single main group, e.g. for safety reasons [3]
B22D 47/00	Hauptgruppe	Casting plants
B22D 47/02	1-Punkt Untergruppe	. for both moulding and casting