

31 Gjutning av metaller [-68]

31 Furnaces; Kilns; Ovens; Retorts; Casting; Powder metallurgy [68-]

31a Smältugnar; Torkugnar; Torkningsanordningar [-68]

(31a (IPC: F27) Furnaces; Kilns; Ovens; Retorts) [68-]

31a1 (IPC: F27B) Furnaces, kilns, ovens, or retorts in general; Open sintering or like apparatus [68-]

31a2 (IPC: F27C) Furnaces specially adapted for carrying-out metallurgical processes, for melting materials, or for heating liquid or molten materials [68-70]

31a3 (IPC: F27D) Details or accessories of furnaces, kilns, ovens, or retorts, in so far as they are of kinds occurring in more than one kind of furnace [68-]

31b Formmaskiner [-68]

(31b (IPC: B22) Casting; Powder metallurgy) [68-]

31b1 (IPC: B22C) Foundry moulding [68-]

31b2 (IPC: B22D) Casting of metals; Casting of other substances by the same processes or devices [68-]

31b3 (IPC: B22F) Working metallic powder; Manufacture of articles from metallic powder; Obtaining metallic powder, not otherwise provided for [68-]

31c Gjutning; Formning [-68]

31a Smältugnar; Torkugnar; Torkningsanordningar [-68]

Kupolugnar [-68]

31a-1/01 Kupolugnar med speciella utföringsformer, speciella blästeranordningar e.d. (beskickningsanordningar 18a-6, 18a-6/01 – 18a-6/05, 18a-56/01 – 18a-56/05) [-68]

31a-1/10 Kupolugnar med förhärdat; Schakthärdugnar [-68]

31a-1/20 Kupolugnar med slaggavskiljare [-68]

31a-1/30 Kupolugnar med flera schakt [-68]

31a-1/40 Kupolugnar med blästerförvärmning [-68]

31a-1/50 Kupolugnar med oljeeldning, gaseldning eller kolpulvereldning [-68]

31a-1/60 Kupolugnar i förbindelse med flamugnar, degelugnar eller elektriska ugnar [-68]

31a-1/70 Detaljer vid kupolugnar, t.ex. säkerhetsanordningar, sotfångare eller gnistfångare [-68]

Flamugnar eller härdugnar (18b; 24c-9; 32a-1 – 32a-4; 32a-5/00; 40a-8; 48a-19/10; flamugnsupphettning 24a-14; elektrisk upphettning 21h-14 – 21h-28) [-68]

31a-2/01 Fasta flamugnar eller härdugnar med värmeackumulatorer eller förvärmare [-68]

31a-2/10 Fasta flamugnar eller härdugnar med rosteldning [-68]

31a-2/20 Fasta flamugnar eller härdugnar med kolpulvereldning [-68]

31a-2/30 Vridbara eller tippbara flamugnar eller härdugnar med gaseldning, oljeeldning eller kolpulvereldning [-68]

31a-2/40 Elektriskt upphettade härdsmältugnar, t.ex. ljusbågsugnar eller induktionsugnar [-68]

	Degelugnar (40a-9; 40a-19/12; 80b-8)	[-68]
31a-3/01	Fasta degelugnar av speciella utföringsformer, t.ex. med elektrisk upphettning	[-68]
31a-3/10	Fasta degelugnar med rosteldning	[-68]
31a-3/20	Fasta degelugnar med gaseldning eller oljeeldning, t.ex. flamlös upphettning	[-68]
31a-3/30	Tippbara degelugnar med rosteldning	[-68]
31a-3/40	Tippbara degelugnar med gaseldning eller oljeeldning, t.ex. flamlös upphettning	[-68]
31a-3/50	Degelflamugnar; Förbandugnar; Batteriugnar	[-68]
31a-3/60	Vannugnar; Andra specialugnar	[-68]
31a-3/70	Deglar; Avtappningsdeglar; Framställning av sådana	[-68]
31a-3/80	Gasfångare, förvärmningsanordningar, avdragningsanordningar, locklyftare e.d. vid degelugnar eller vannugnar	[-68]
31a-4	Torkugnar eller torkanläggningar för gjutformar eller kärnor (82a-2)	[-68]
31a-5/01	Rörliga torkugnar eller upphettningugnar för formar eller kärnor	[-68]
31a-5/10	Elektriska upphettninganordningar för formar eller kärnor (82a)	[-68]
31a-6/01	Framställning av ugnsinfodringar	[-68]
31a-6/10	Blästerformor för kupolugnar	[-68]
31a-6/20	Utslagshål; Igensättningsanordningar	[-68]
31a-6/40	Säkerhetsanordningar vid flamugnar eller degelugnar	[-68]

31a1 (IPC: F27B) Furnaces, kilns, ovens, or retorts in general; Open sintering or like apparatus [68-]

Notes: [68-]

1. This subclass deals with furnaces, kilns, ovens, retorts, open sintering apparatus, and details or accessories therefor, in general. It includes the arrangement of electrical heating elements in or on furnaces, but not the elements themselves. It is not concerned with the processes carried on within the furnaces. [68-]

2. In this subclass: Where appropriate, the term "furnaces" is to be understood as covering kilns, ovens, or retorts. [68-]

31a1-1/00	Shaft or like vertical or substantially vertical furnaces [68-]
31a1-1/02	. with two or more shafts or chambers, e.g. multi-storey [68-]
31a1-1/04	. . Combinations or arrangements of shafts [68-]
31a1-1/06	. of other than up-draught type [68-]
31a1-1/08	. heated otherwise than by solid fuel mixed with charge [68-]
31a1-1/10	. Details, accessories, or equipment peculiar to furnaces of these types [68-]
31a1-1/12	. . Shells or casings; Supports therefor [68-]
31a1-1/14	. . . Arrangements of linings (linings in general 31a3-1/00) [68-]
31a1-1/16	. . Arrangements of tuyeres [68-]
31a1-1/18	. . Arrangements of dust collectors [68-]
31a1-1/20	. . Arrangements of devices for charging or discharging [68-]
31a1-1/22	. . Arrangements of heat-exchange apparatus (heat-exchangers in general 17) [68-]
31a1-1/24	. . Cooling arrangements [68-]
31a1-1/26	. . Arrangements of controlling devices [68-]
31a1-1/28	. . Arrangements of monitoring devices, of indicators, of alarm devices [68-]
31a1-3/00	Hearth-type furnaces, e.g. of reverberatory type (31a1-9/00, 31a1-11/00, 31a1-13/00, 31a1-14/00, 31a1-15/00, 31a1-21/00 take precedence); Tank furnaces [68-]
31a1-3/02	. of single-chamber fixed-hearth type [68-]
31a1-3/04	. of multiple-hearth type; of multiple-chamber type; Combinations of hearth-type furnaces [68-]
31a1-3/06	. with movable working chambers or hearths, e.g. tiltable [68-]
31a1-3/08	. heated electrically, with or without any other source of heat [68-]
31a1-3/10	. Details, accessories, or equipment peculiar to hearth-type furnaces [68-]
31a1-3/12	. . Working chambers or casings; Supports therefor [68-]

31a1-3/14	. . . Arrangements of linings	[68-]
31a1-3/16	. . . Walls; Roofs	[68-]
31a1-3/18	. . Arrangements of devices for charging or discharging	[68-]
31a1-3/20	. . Arrangements of heating devices	[68-]
31a1-3/22	. . Arrangements of air or gas supply devices	[68-]
31a1-3/24	. . Cooling arrangements	[68-]
31a1-3/26	. . Arrangements of heat-exchange apparatus	[68-]
31a1-5/00	Muffle furnaces; Retort furnaces; Other furnaces in which the charge is held completely isolated (31a1-9/00 takes precedence)	[68-]
31a1-5/02	. of multiple-chamber type	[68-]
31a1-5/04	. adapted for treating the charge in vacuum or special atmosphere	[68-]
31a1-5/06	. Details, accessories, or equipment peculiar to furnaces of these types	[68-]
31a1-5/08	. . Arrangements of linings	[68-]
31a1-5/10	. . Muffles	[68-]
31a1-5/12	. . Arrangements of devices for charging or discharging	[68-]
31a1-5/14	. . Arrangements of heating devices	[68-]
31a1-5/16	. . Arrangements of air or gas supply devices	[68-]
31a1-7/00	Rotary-drum furnaces, i.e. horizontal or slightly inclined	[68-]
31a1-7/02	. of multiple-chamber or multiple-drum type	[68-]
31a1-7/04	. . with longitudinal divisions	[68-]
31a1-7/06	. adapted for treating the charge in vacuum or special atmosphere	[68-]
31a1-7/08	. externally heated	[68-]
31a1-7/10	. internally heated, e.g. by means of passages in the wall	[68-]
31a1-7/12	. tiltable	[68-]
31a1-7/14	. with means for agitating or moving the charge	[68-]
31a1-7/16	. . the means being fixed relatively to the drum (31a1-7/04 takes precedence)	[68-]
31a1-7/18	. . the means being movable within the drum	[68-]
31a1-7/20	. Details, accessories, or equipment peculiar to rotary-drum furnaces	[68-]
31a1-7/22	. . Rotary drums; Supports therefor	[68-]
31a1-7/24	. . . Seals between rotary and stationary parts	[68-]
31a1-7/26	. . Drives	[68-]
31a1-7/28	. . Arrangements of linings	[68-]
31a1-7/30	. . Arrangements of partitions	[68-]
31a1-7/32	. . Arrangements of devices for charging or discharging	[68-]
31a1-7/34	. . Arrangements of heating devices	[68-]
31a1-7/36	. . Arrangements of air or gas supply devices	[68-]
31a1-7/38	. . Arrangements of cooling devices	[68-]
31a1-9/00	Furnaces through which the charge is moved mechanically, e.g. of tunnel type (31a1-7/14 takes precedence); Similar furnaces in which the charge moves by gravity	[68-]
31a1-9/02	. of multiple-track type; of multiple-chamber type; Combinations of furnaces	[68-]
31a1-9/04	. adapted for treating the charge in vacuum or special atmosphere	[68-]
31a1-9/06	. heated without contact between combustion gases and charge; electrically heated	[68-]
31a1-9/08	. . heated through chamber walls	[68-]
31a1-9/10	. . heated by hot air or gas	[68-]
31a1-9/12	. with special arrangements for preheating or cooling the charge	[68-]
31a1-9/14	. characterised by the path of the charge during treatment; characterised by the means by which the charge is moved during treatment (31a1-9/28 takes precedence; travelling or movable supports or containers for the charge 31a3-3/12)	[68-]
31a1-9/16	. . the charge moving in a circular or arcuate path	[68-]
31a1-9/18	. . . under the action of scrapers or pushers	[68-]
31a1-9/20	. . the charge moving in a substantially straight path	[68-]
31a1-9/22	. . . under the action of scrapers or pushers (31a1-9/26 takes precedence)	[68-]
31a1-9/24	. . . being carried by a conveyer	[68-]
31a1-9/26	. . . on or in trucks, sleds, or containers	[68-]
31a1-9/28	. for treating continuous lengths of work	[68-]

31a1-9/30	. Details, accessories, or equipment peculiar to furnaces of these types	[68-]
31a1-9/32	. . Casings	[68-]
31a1-9/34	. . . Arrangements of linings	[68-]
31a1-9/36	. . Arrangements of heating devices	[68-]
31a1-9/38	. . Arrangements of devices for charging or discharging	[68-]
31a1-9/40	. . Arrangements of controlling or monitoring devices	[68-]
31a1-11/00	Bell-type furnaces	[68-]
31a1-11/02	. inverted or side-facing; moving	[68-]
31a1-11/04	. Multi-station furnaces	[68-]
31a1-11/06	. . adapted for treating the charge in vacuum or special atmosphere	[68-]
31a1-11/08	. Single-station furnaces adapted for treating the charge in vacuum or special atmosphere	[68-]
31a1-11/10	. Details, accessories, or equipment peculiar to bell-type furnaces	[68-]
31a1-11/12	. . Arrangements of charging or discharging devices	[68-]
31a1-11/14	. . Arrangements of heating devices	[68-]
31a1-13/00	Furnaces with both stationary charge and progression of heating, e.g. of ring type, of type in which segmental kiln moves over stationary charge	[68-]
31a1-13/02	. of multiple-chamber type with permanent partitions; Combinations of furnaces	[68-]
31a1-13/04	. of single-chamber type with temporary partitions	[68-]
31a1-13/06	. Details, accessories, or equipment peculiar to furnaces of this type	[68-]
31a1-13/08	. . Casings	[68-]
31a1-13/10	. . . Arrangements of linings	[68-]
31a1-13/12	. . Arrangements of heating devices	[68-]
31a1-14/00	Crucible or pot furnaces	[68-]
31a1-14/02	. with tilting or rocking arrangements (31a1-14/04 takes precedence)	[68-]
31a1-14/04	. adapted for treating the charge in vacuum or special atmosphere	[68-]
31a1-14/06	. heated electrically, with or without any other source of heat (31a1-14/04 takes precedence)	[68-]
31a1-14/08	. Details peculiar to crucible or pot furnaces	[68-]
31a1-14/10	. . Crucibles	[68-]
31a1-14/12	. . . Covers therefor	[68-]
31a1-14/14	. . Arrangements of heating devices	[68-]
31a1-15/00	Fluidised-bed furnaces; Other furnaces using or treating finely-divided materials in dispersion	[68-]
31a1-15/02	. Details, accessories, or equipment peculiar to furnaces of these types	[68-]
31a1-15/04	. . Casings; Supports therefor	[68-]
31a1-15/06	. . . Arrangements of linings	[68-]
31a1-15/08	. . Arrangements of devices for charging or discharging	[68-]
31a1-15/10	. . Arrangements of air or gas supply devices	[68-]
31a1-15/12	. . Arrangements of dust collectors	[68-]
31a1-15/14	. . Arrangements of heating devices	[68-]
31a1-15/16	. . Arrangements of cooling devices	[68-]
31a1-15/18	. . Arrangements of controlling devices	[68-]
31a1-15/20	. . Arrangements of monitoring devices, of indicators, of alarm devices	[68-]
31a1-17/00	Furnaces of a kind not covered by any preceding group (structural combinations of furnaces 31a1-19/02)	[68-]
31a1-17/02	. specially designed for laboratory use	[68-]
31a1-19/00	Combinations of furnaces of kinds not covered by a single preceding main group	[68-]
31a1-19/02	. combined in one structure	[68-]
31a1-19/04	. arranged for associated working	[68-]
31a1-21/00	Open or uncovered sintering apparatus; Other heat-treatment apparatus of like construction	[68-]
31a1-21/02	. Sintering grates or tables	[68-]

31a1-21/04	. Sintering pots or sintering pans	[68-]
31a1-21/06	. Endless-strand sintering machines	[68-]

31a2 (IPC: F27C) Furnaces specially adapted for carrying-out metallurgical processes, for melting materials, or for heating liquid or molten materials (fluidised bed furnaces 31a1-15/00) [68-70]

Notes: [68-70]

1: This subclass deals with furnaces, kilns, ovens, retorts, open sintering apparatus, and details or accessories therefor, in general. It includes the arrangement of electrical heating elements in or on furnaces, but not the elements themselves. It is not concerned with the processes carried on within the furnaces. [68-70]

2: In this subclass: Where appropriate, the term "furnaces" is to be understood as covering kilns, ovens, or retorts. [68-70]

31a2-1/00 Shaft or like vertical or substantially vertical furnaces [68-70]

31a2-1/02	. with two or more shafts or chambers, e.g. multi-storey	[68-70]
31a2-1/04	. Details peculiar to furnaces of these types	[68-70]
31a2-1/06	. . Forms of shells or bodies; Arrangements of internal fittings	[68-70]
31a2-1/08	. . Arrangements of tuyeres or air-delivery passages	[68-70]
31a2-1/10	. . in respect of heating or firing	[68-70]
31a2-1/12	. . Cooling arrangements	[68-70]

31a2-3/00 Hearth-type furnaces, e.g. of reverberatory type, of Siemens type (31a2-5/00 to 31a2-13/00 take precedence); Tank furnaces [68-70]

31a2-3/02	. of single-chamber fixed-hearth type	[68-70]
31a2-3/04	. of multiple-hearth type; of multiple-chamber type; Combinations of hearth-type furnaces	[68-70]
31a2-3/06	. Details peculiar to furnaces of these types	[68-70]
31a2-3/08	. . Working chambers	[68-70]
31a2-3/10	. . in respect of heating or firing	[68-70]
31a2-3/12	. . Cooling arrangements	[68-70]

31a2-5/00 Muffle furnaces [68-70]

31a2-5/02	. adapted for treating the charge in vacuum or special atmosphere	[68-70]
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31a2-7/00 Rotary-drum furnaces [68-70]

31a2-9/00 Furnaces through which the charge is moved mechanically, e.g. of tunnel type (31a2-7/00 takes precedence); Similar furnaces in which the charge moves by gravity [68-70]

31a2-11/00 Bell-type furnaces [68-70]

31a2-11/02	. adapted for treating the charge in vacuum or special atmosphere	[68-70]
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31a2-13/00 Crucible or pot furnaces [68-70]

31a2-13/02	. with tilting or rocking arrangements (31a2-13/04 takes precedence)	[68-70]
31a2-13/04	. adapted for treating the charge in vacuum or special atmosphere	[68-70]
31a2-13/06	. heated electrically, with or without any other source of heat (31a2-13/04 takes precedence)	[68-70]
31a2-13/08	. Details peculiar to crucible or pot furnaces	[68-70]
31a2-13/10	. . Crucibles	[68-70]
31a2-13/12	. . . Covers therefor	[68-70]
31a2-13/14	. . Arrangements of heating devices	[68-70]

31a2-15/00 Other furnaces; Combinations of furnaces not covered by a single preceding main group [68-70]

Features peculiar to furnaces dealt with in this subclass, so far as not fully covered by a single preceding group [68-70]

31a2-17/00	Tapping equipment; Equipment for removing slag	[68-70]
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31a2-19/00 Details peculiar to furnaces dealt with in this subclass, so far as not fully covered by a single preceding group [68-]

31a3 (IPC: F27D) Details or accessories of furnaces, kilns, ovens, or retorts, in so far as they are of kinds occurring in more than one kind of furnace (combustion apparatus 24) [68-]

Notes: [68-]

1. This subclass deals with furnaces, kilns, ovens, retorts, open sintering apparatus, and details or accessories therefor, in general. It includes the arrangement of electrical heating elements in or on furnaces, but not the elements themselves. It is not concerned with the processes carried on within the furnaces. [68-]

2. In this subclass: Where appropriate, the term "furnaces" is to be understood as covering kilns, ovens, or retorts. [68-]

31a3-1/00 Casings; Linings; Walls; Roofs (refractory material per se 80b; firebridges for combustion chambers 24k) [68-]

31a3-1/02 . Crowns; Roofs [68-]

31a3-1/04 . characterised by the form of the bricks or blocks used [68-]

31a3-1/06 . . Composite bricks or blocks [68-]

31a3-1/08 . . . Bricks or blocks with internal reinforcement or metal backing [68-]

31a3-1/10 . Monolithic linings; Supports therefor [68-]

31a3-1/12 . incorporating cooling arrangements (constructions of tube assemblies in general 17) [68-]

31a3-1/14 . Supports for linings (31a3-1/10 takes precedence) [68-]

31a3-1/16 . Making or repairing linings [68-]

31a3-1/18 . Door frames; Doors, lids, removable covers [68-]

31a3-3/00 Charging; Discharging; Manipulation of charge (moving charge through a furnace 31a1-9/14) [68-]

31a3-3/02 . Skids or tracks for heavy objects [68-]

31a3-3/04 . Ram or pusher apparatus [68-]

31a3-3/06 . Charging or discharging machines on travelling carriages [68-]

31a3-3/08 . Screw feeders; Screw dischargers [68-]

31a3-3/10 . Charging directly from hoppers or shoots [68-]

31a3-3/12 . Travelling or movable supports or containers for the charge [68-]

31a3-3/14 . Charging or discharging liquid or molten material [68-]

31a3-3/15 . Tapping equipment; Equipment for removing slag [68-]

31a3-3/16 . Introducing a fluid jet or current into the charge [68-]

31a3-5/00 Supports, screens, or the like for the charge within the furnace (travelling or movable supports 31a3-3/12) [68-]

31a3-7/00 Forming, maintaining, or circulating atmospheres in heating chambers [68-]

31a3-7/02 . Supplying steam, vapour, gases, or liquids [68-]

31a3-7/04 . Circulating atmospheres by mechanical means [68-]

31a3-7/06 . Forming or maintaining special atmospheres or vacuum within heating chambers (31a3-7/02 takes precedence) [68-]

31a3-9/00 Cooling of furnaces or of charges therein (31a3-1/00, 31a3-3/00 take precedence) [68-]

31a3-11/00 Arrangement of elements for electric heating in or on furnaces (details 21h) [68-]

31a3-11/02 . Ohmic resistance heating [68-]

31a3-11/04 . . with direct passage of current through the material being heated [68-]

31a3-11/06 . Induction heating, i.e. in which the material being heated, or its container or elements embodied therein, form the secondary of a transformer [68-]

31a3-11/08 . Heating by electric discharge, e.g. arc discharge [68-]

31a3-11/10	. . Disposition of electrodes; Control of position of electrodes (automatic control of temperature 42q)	[68-]
31a3-11/12	. with electromagnetic fields acting directly on the material being heated	[68-]
31a3-13/00	Apparatus for preheating charges; Arrangements for preheating charges	[68-]
31a3-15/00	Handling or treating discharged material; Supports or receiving chambers therefor	[68-]
31a3-15/02	. Cooling	[68-]
31a3-17/00	Arrangement for using waste heat (heat-exchangers per se 17); Arrangement for using, or disposing of, waste gases	[68-]
31a3-19/00	Arrangement of controlling devices	[68-]
31a3-21/00	Arrangement of monitoring devices; Arrangements of safety devices	[68-]
31a3-21/02	. Observation or illuminating devices	[68-]
31a3-21/04	. Arrangements of indicators or alarms	[68-]
31a3-23/00	Details or accessories not covered by any preceding group	[68-]
31a3-23/02	. Devices for removing incrustations	[68-]
31b	Formmaskiner	[-68]
	Maskindrivna formmaskiner	[-68]
31b-1/01	med anordningar för avlyftning av formflaskor	[-68]
31b-1/10	med anordningar för nedsänkning av modeller	[-68]
31b-1/20	med vändbord	[-68]
31b-1/30	med genomdragningsplattor	[-68]
	Handdrivna formmaskiner	[-68]
31b-2/01	med anordningar för avlyftning av formflaskor	[-68]
31b-2/10	med anordningar för nedsänkning av modeller	[-68]
31b-2/20	med vändbord	[-68]
31b-2/30	med genomdragningsplattor (80a-10 – 80a-14)	[-68]
31b-3/01	Formmaskiner med omkring horisontalaxeln vandrande bord eller kedjor	[-68]
31b-3/10	Formmaskiner med omkring vertikalaxeln vandrande formbord (80a-18)	[-68]
31b-4	Formmaskiner med valsar	[-68]
	Formmaskiner för rör (80a-34)	[-68]
31b-5/01	med stående formflaskor	[-68]
31b-5/10	med liggande formflaskor	[-68]
31b-5/20	Stampar; Stampningsanordningar	[-68]
31b-5/30	med skakanordningar eller stötanordningar	[-68]
31b-5/40	med pressning med hjälp av dorn	[-68]
31b-5/50	med pressning med hjälp av snäckor	[-68]
31b-6	Formmaskiner för remskivor	[-68]
31b-7/01	Formmaskiner för hjul	[-68]
31b-7/10	Schabloneringsanordningar	[-68]
31b-8/01	Formmaskiner för krukor eller husgerådskärl	[-68]
31b-8/10	Formmaskiner för badkar e.d.	[-68]
31b-9/01	Kärnformmaskiner (80a-26 – 80a-28), allmänt	[-68]
31b-9/10	Pressning mellan liggande kärnplattor	[-68]
31b-9/20	Kärnframställning genom schablonering, svarvning eller lindning	[-68]
31b-9/30	Kolvsträngpressar	[-68]
31b-9/40	Snäcksträngpressar	[-68]
31b-9/50	Kärnformmaskiner med skakanordningar	[-68]

	Skakformmaskiner (80a-49)	[-68]
31b-10/01	allmänt	[-68]
31b-10/10	med mekaniska drivanordningar	[-68]
31b-10/20	drivna av tryckluft eller tryckvatten	[-68]
31b-10/30	med elektromagnetiska drivanordningar	[-68]
31b-10/40	med motstötsanordningar; Stötlösa skakformmaskiner	[-68]
31b-10/50	med vändbord	[-68]
31b-11	Maskiner för slungning av sand för fyllning av formar	[-68]
31b-12	Sandblästermaskiner för fyllning av formar (80a-46)	[-68]
31b-13/01	Formmaskiner av speciell konstruktion (formningsförfaranden 31c-5/01)	[-68]
31b-13/10	Körbara formmaskiner	[-68]
31b-13/20	Formmaskiner för framställning av flasklösa formar	[-68]
31b-13/30	Formpressar drivna av vevanordningar, excenteranordningar e.d	[-68]
31b-13/40	Formpressar drivna av tryckluft eller tryckvatten	[-68]
31b-13/50	Formpressar med elektriska drivanordningar	[-68]
31b-13/60	Formpressar med dubbelsidig pressning	[-68]
31b-13/70	Formpressar med körbart eller utsvängbart presshuvud	[-68]
31b-13/80	Tvillingpressformmaskiner	[-68]
31b-14/01	Slaganordningar eller skakanordningar för formmaskiner	[-68]
31b-14/10	Anordningar för reglering av tryck	[-68]
31b-14/20	Anordningar för vändning, avsättning eller avlyftning	[-68]
31b-14/30	Inställbara formbord	[-68]

31b1 (IPC: B22C) Foundry moulding (moulding refractory materials in general 80a) [-68-]

Note: [-68-]
This subclass deals with the making of moulds for casting metals or of other refractory moulds. It embraces selection and preparation of materials therefor and also the necessary patterns, processes, machines, accessory devices or tools. [-68-]

31b1-1/00 Compositions of refractory mould or core materials; Grain structures thereof (refractory materials in general 80b); Chemical or physical features in the formation or manufacture of moulds [-68-]

31b1-1/02	. characterised by additives for special purposes, e.g. indicators, break-down additives	[-68-]
31b1-1/04	. . for protection of the casting, e.g. against decarbonisation	[-68-]
31b1-1/06	. . . for casting extremely oxidisable metals	[-68-]
31b1-1/08	. . for decreasing shrinkage of the mould, e.g. for investment casting	[-68-]
31b1-1/10	. . for influencing the hardening tendency of the mould material (influencing the hardening tendency of the binding agent only 31b1-1/16)	[-68-]
31b1-1/12	. . for manufacturing permanent moulds or cores	[-68-]
31b1-1/14	. . for separating the pattern from the mould	[-68-]
31b1-1/16	. characterised by the use of binding agents; Mixtures of binding agents	[-68-]
31b1-1/18	. . of inorganic agents	[-68-]
31b1-1/20	. . of organic agents	[-68-]
31b1-1/22	. . . of resins or rosins	[-68-]
31b1-1/24	. . . of oily or fatty substances; of distillation residues therefrom	[-68-]
31b1-1/26	. . . of carbohydrates; of distillation residues therefrom	[-68-]

31b1-3/00 Selection of compositions for coating the surfaces of moulds, cores, or patterns [-68-]

31b1-5/00 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 classes, e.g. for material with water-setting properties 80a)	[68-]
31b1-5/02	. dressing by centrifuging essentially or additionally	[68-]
31b1-5/04	. by grinding, blending, mixing, kneading, or stirring	[68-]
31b1-5/06	. by sieving or magnetic separating	[68-]
31b1-5/08	. by sprinkling, cooling, or drying	[68-]
31b1-5/10	. by dust separating	[68-]
31b1-5/12	. for filling flasks (in combination with compacting 31b1-15/20 to 31b1-15/28)	[68-]
31b1-5/14	. Equipment for storing or handling the dressed mould material, forming part of a plant for preparing such material	[68-]
31b1-5/16	. . with conveyers or other equipment for feeding the material	[68-]
31b1-5/18	. Plants for preparing mould materials	[68-]
31b1-7/00	Patterns; Manufacture thereof so far as not provided for in other classes	[68-]
31b1-7/02	. Lost patterns	[68-]
31b1-7/04	. Pattern plates	[68-]
31b1-7/06	. Core boxes	[68-]
31b1-9/00	Moulds or cores (uniquely adapted to particular casting processes 31b2); Moulding processes (processes involving the use of particular moulding machines, see the relevant groups for these machines)	[68-]
31b1-9/02	. Sand moulds or like moulds for shaped castings	[68-]
31b1-9/04	. . Use of lost patterns	[68-]
31b1-9/06	. Permanent moulds for shaped castings (moulds for ingots 31b2-7/06)	[68-]
31b1-9/08	. Features with respect to supply of molten metal, e.g. ingates, circular gates, skim gates	[68-]
31b1-9/10	. Cores; Manufacture or installation of cores	[68-]
31b1-9/12	. Treating moulds or cores, e.g. drying, hardening	[68-]
31b1-9/14	. . Equipment or plant specially designed for drying moulds or cores (31b1-13/08 takes precedence)	[68-]
31b1-9/16	. . . Movable drying equipment	[68-]
31b1-9/18	. Finishing	[68-]
31b1-9/20	. Stack moulds, i.e. arrangement of multiple moulds or flasks	[68-]
31b1-9/22	. Moulds for peculiarly-shaped castings	[68-]
31b1-9/24	. . for hollow articles	[68-]
31b1-9/26	. . . for ribbed tubes; for radiators	[68-]
31b1-9/28	. . for wheels, rolls, or rollers	[68-]
31b1-9/30	. . for chains	[68-]
	<u>Moulding machines for making moulds or cores</u>	[68-]
31b1-11/00	Moulding machines characterised by the relative arrangement of the parts of same	[68-]
31b1-11/02	. Machines in which the moulds are moved during a cycle of successive operations	[68-]
31b1-11/04	. . by a horizontal rotary table or carrier	[68-]
31b1-11/06	. . by a vertical rotary carrier	[68-]
31b1-11/08	. . by non-rotary conveying means, e.g. by travelling platforms	[68-]
31b1-11/10	. with one or more flasks forming part of the machine, from which only the sand moulds made by compacting are removed	[68-]
31b1-11/12	. Moulding machines able to travel	[68-]
31b1-13/00	Moulding machines for making moulds or cores of particular shapes	[68-]
31b1-13/02	. equipped with templates, e.g. for sweeping operation	[68-]
31b1-13/04	. . with rotary templates, e.g. arranged on a pillar	[68-]
31b1-13/06	. . with non-rotary template and rotary flask	[68-]
31b1-13/08	. for shell moulds or shell cores	[68-]
31b1-13/10	. for pipes or elongated hollow articles	[68-]
31b1-13/12	. for cores	[68-]
31b1-13/14	. . by sweeping, turning, or coating	[68-]
31b1-13/16	. . by pressing through a die	[68-]

31b1-15/00	Moulding machines characterised by the compacting mechanism; Accessories therefor	[68-]
31b1-15/02	. Compacting by pressing devices only	[68-]
31b1-15/04	. . involving muscle power, e.g. hand-operated levers	[68-]
31b1-15/06	. . involving mechanical gearings, e.g. crank gears (31b1-15/04 takes precedence)	[68-]
31b1-15/08	. . involving pneumatic or hydraulic mechanisms	[68-]
31b1-15/10	. Compacting by jarring devices only (features of the jarring devices per se 42s)	[68-]
31b1-15/12	. . involving mechanical gearings	[68-]
31b1-15/14	. . involving pneumatic or hydraulic mechanisms	[68-]
31b1-15/16	. . . the machine having special provision for reducing shock to its frame	[68-]
31b1-15/18 by means of separate shock-absorbers	[68-]
31b1-15/20	. Compacting by centrifugal forces only, e.g. in sand slingers	[68-]
31b1-15/22	. Compacting during the charge of the mould material by pressure air or vacuum	[68-]
31b1-15/24	. . involving blowing devices in which the material is supplied in the form of loose particles	[68-]
31b1-15/26	. . involving propulsion devices in which the material is supplied in the shape of a compacted column or the like	[68-]
31b1-15/28	. Compacting by different means acting simultaneously or successively, e.g. preliminary blowing and finally pressing	[68-]
31b1-15/30	. . by both pressing and jarring devices	[68-]
31b1-15/32	. . . involving mechanical gearing only	[68-]
31b1-15/34	. . . involving pneumatic or hydraulic mechanisms only	[68-]
31b1-17/00	Moulding machines characterised by the mechanism for separating the pattern from the mould and/or for turning over the flask or the pattern plate	[68-]
31b1-17/02	. Moulding machines with pin lifting arrangement	[68-]
31b1-17/04	. Drop-plate moulding machines	[68-]
31b1-17/06	. Moulding machines using stripping plates; Stripping plates	[68-]
31b1-17/08	. Moulding machines with mechanisms to turn over the pattern plate and/or the mould around a horizontal axis	[68-]
31b1-17/10	. . Turning-over pattern plate and flask only (31b1-17/14 takes precedence)	[68-]
31b1-17/12	. . Turning-over pattern plate, flask, and compacting device as a unit (31b1-17/14 takes precedence)	[68-]
31b1-17/14	. . arranged to one side of the mould table, so-called roll-over table moulding machines	[68-]
31b1-19/00	Components or accessories for moulding machines	[68-]
31b1-19/02	. Mould tables	[68-]
31b1-19/04	. Controlling devices specially designed for moulding machines	[68-]
31b1-19/06	. Devices for rapping or loosening the pattern (vibratory features per se 42s)	[68-]
31b1-21/00	Flasks; Accessories therefor (stripping plates 31b1-17/06)	[68-]
31b1-21/02	. Sectional flasks, i.e. with divided, articulated, or interchangeable side sections	[68-]
31b1-21/04	. Upset frames; Bottom boards or mould boards (pattern plates 31b1-7/04)	[68-]
31b1-21/06	. . Bottom boards or mould boards	[68-]
31b1-21/08	. Clamping equipment	[68-]
31b1-21/10	. Guiding equipment	[68-]
31b1-21/12	. Accessories	[68-]
31b1-21/14	. . Reinforcing or securing equipment of the moulding material or of cores, e.g. gagers, chaplets, pins, bars	[68-]
31b1-23/00	Tools; Devices not mentioned before for moulding	[68-]
31b1-23/02	. Devices for coating moulds or cores	[68-]
31b1-25/00	Foundry moulding plants (for preparing mould materials 31b1-5/18; in combination with casting plants 31b2-47/02)	[68-]

31b2 (IPC: B22D) Casting of metals; Casting of other substances by the same processes or devices (metallurgical processing, selection of substances to be added to metal 18, 40) **[68-]**

Note: **[68-]**
In this subclass any material to be cast is referred to as metal. **[68-]**

31b2-1/00 Treatment of fused masses in the ladle or the supply runners before casting (metallurgical processing, e.g. refining of iron or other metal 18, 40) **[68-]**

31b2-1/02 . Arrangement of indicating or measuring devices, e.g. for temperature or viscosity of the fused mass **[68-]**

Casting of pigs, i.e. metal castings suitable for subsequently melting; Similar casting **[68-]**

31b2-3/00 Pig or like casting (equipment for conveying molten metal 31b2-35/00) **[68-]**
31b2-3/02 . Moulding of beds **[68-]**

31b2-5/00 Machines or plants for pig or like casting **[68-]**
31b2-5/02 . with rotary casting tables **[68-]**
31b2-5/04 . with endless casting conveyers **[68-]**

Casting of ingots, i.e. metal castings suitable for subsequently rolling or forging **[68-]**

31b2-7/00 Casting ingots (equipment for conveying molten metal 31b2-35/00) **[68-]**
31b2-7/02 . Casting compound ingots of two or more different metals in the molten state, i.e. integrally cast **[68-]**
31b2-7/04 . Casting hollow ingots **[68-]**
31b2-7/06 . Ingot moulds or their manufacture **[68-]**
31b2-7/08 . . Divided ingot moulds **[68-]**
31b2-7/10 . . Hot tops therefor **[68-]**
31b2-7/12 . Appurtenances, e.g. for sintering, for preventing splashing **[68-]**

31b2-9/00 Machines or plants for casting ingots **[68-]**

Particular casting processes; Machines or apparatus therefor **[68-]**

31b2-11/00 Continuous casting of metals, i.e. casting in indefinite lengths (metal drawing, metal extruding 7b) **[68-]**
31b2-11/02 . by drawing the fused mass only; Casting into tubular open-ended moulds **[68-]**
31b2-11/04 . . Casting into tubular open-ended calibrating moulds **[68-]**
31b2-11/06 . into moulds with travelling walls, e.g. with rolls, plates, belts, caterpillars, molten surfaces (rolling metal directly from melt 7a-1/44) **[68-]**
31b2-11/08 . Accessories for starting the casting procedure **[68-]**
31b2-11/10 . Accessories for supplying or treating molten metal **[68-]**
31b2-11/12 . Accessories for subsequent treating or working cast stock on the spot, e.g. cooling, cutting, removing **[68-]**
31b2-11/14 . Plants for continuous casting **[68-]**

31b2-13/00 Centrifugal casting; Casting by using centrifugal force **[68-]**
31b2-13/02 . of elongated solid or hollow bodies, e.g. pipes, in moulds rotating around their longitudinal axis **[68-]**
31b2-13/04 . of shallow solid or hollow bodies, e.g. wheels or rings, in moulds rotating around their axis of symmetry **[68-]**
31b2-13/06 . of solid or hollow bodies in moulds rotating around an axis arranged outside of the mould **[68-]**
31b2-13/08 . in which a stationary mould is fed from a rotating mass of liquid metal **[68-]**
31b2-13/10 . Accessories for centrifugal casting apparatus, e.g. moulds, linings therefor, means for feeding molten metal, cleansing moulds, removing castings (making or lining moulds 31b1) **[68-]**

31b2-15/00	Casting using a mould or core of which an important part is of high thermal conductivity, e.g. chill casting; Moulds or accessories specially adapted therefor	[68-]
31b2-15/02	. of cylinders, pistons, bearing shells or like thin-walled objects	[68-]
31b2-15/04	. Machines or apparatus for chill casting (31b2-15/02 takes precedence)	[68-]
31b2-17/00	Pressure or injection die casting; Machines or accessories therefor, e.g. trimming dies, splash guards	[68-]
31b2-17/02	. Hot chamber machines, i.e. with heated press chamber in which metal is melted	[68-]
31b2-17/04	. . Plunger machines	[68-]
31b2-17/06	. . air injection machines	[68-]
31b2-17/08	. Cold chamber machines, i.e. with unheated press chamber into which molten metal is ladled	[68-]
31b2-17/10	. . with horizontal press motion	[68-]
31b2-17/12	. . with vertical press motion	[68-]
31b2-17/14	. Machines with evacuated die cavity	[68-]
31b2-17/16	. specially adapted for casting slide fasteners or elements therefor	[68-]
31b2-17/18	. built up from units providing for different combinations	[68-]
31b2-17/20	. Accessories; Details	[68-]
31b2-17/22	. . Dies (manufacture see the appropriate class, e.g. 49I-15/24); Die plates; Die supports; Cooling equipment for dies; Accessories for loosening and ejecting castings from dies	[68-]
31b2-17/24	. . . Accessories for locating and holding cores or inserts	[68-]
31b2-17/26	. . Mechanisms or devices for locking or opening dies	[68-]
31b2-17/28	. . Melting pots	[68-]
31b2-17/30	. . Accessories for supplying molten metal, e.g. in rations	[68-]
31b2-17/32	. . Controlling equipment	[68-]
31b2-19/00	Casting in, on, or around objects which form part of the product (31b2-23/04 takes precedence; alumino-thermic welding 49h-23/00; covering surfaces by treatment with liquid metal without affecting the shape 48b-1/00)	[68-]
31b2-19/02	. for making reinforced articles	[68-]
31b2-19/04	. for joining parts, e.g. pipes	[68-]
31b2-19/06	. for manufacturing or repairing tools	[68-]
31b2-19/08	. for building up linings or coverings, e.g. of anti-frictional metal	[68-]
31b2-19/10	. Repairing defective or damaged objects by metal casting procedures (by other procedures 49I-7/04)	[68-]
31b2-19/12	. for making objects, e.g. hinges, with parts which are movable relatively to one another	[68-]
31b2-21/00	Casting non-ferrous metals or metallic compounds so far as their metallurgical properties are of importance for the casting procedure; Selection of compositions therefor	[68-]
31b2-21/02	. Casting exceedingly oxidisable non-ferrous metals, e.g. in inert atmosphere (use of inert atmosphere in casting metals in general 31b2-23/00; apparatus for vacuum casting 31b2-27/16)	[68-]
31b2-21/04	. . Casting aluminium or magnesium	[68-]
31b2-21/06	. Casting non-ferrous metals with a high melting-point, e.g. metallic carbides (31b2-21/02 takes precedence)	[68-]
31b2-23/00	Casting processes not mentioned before (aluminothermic welding 49h-23/00)	[68-]
31b2-23/02	. Top casting	[68-]
31b2-23/04	. Casting by dipping (covering surfaces by treatment with liquid metal without affecting the shape 48b-1/00)	[68-]
31b2-23/06	. Melting-down metal, e.g. metal particles, in the mould	[68-]
31b2-23/08	. Obtaining granules or pellets from molten material (spraying devices per se 85g)	[68-]

31b2-25/00	Special casting characterised by the nature of the product (31b2-15/02, 31b2-17/16, 31b2-19/00 take precedence)	[68-]
31b2-25/02	. by its peculiarity of shape; of works of art	[68-]
31b2-25/04	. . Casting metal electric battery plates or the like (casting electrodes for accumulators 21k9-35/20)	[68-]
31b2-25/06	. by its physical properties (31b2-27/00 takes precedence)	[68-]
31b2-25/08	. . by uniform hardness (31b2-15/00 takes precedence)	[68-]
31b2-27/00	Treating the metal in the mould while it is molten or ductile (31b2-7/12, 31b2-11/10, 31b2-43/00 take precedence); Pressure or vacuum casting (31b2-17/00 takes precedence)	[68-]
31b2-27/02	. Use of electric or magnetic effects	[68-]
31b2-27/04	. Influencing the temperature of the metal, e.g. by heating or cooling the mould	[68-]
31b2-27/06	. . Heating the top discard of ingots (hot tops for ingot moulds 31b2-7/10)	[68-]
31b2-27/08	. Shaking, vibrating, or turning of moulds	[68-]
31b2-27/10	. Pressure casting	[68-]
31b2-27/12	. . making use of pressing devices	[68-]
31b2-27/14	. . making use of pressure gas	[68-]
31b2-27/16	. Vacuum casting	[68-]
31b2-27/18	. Measures for using chemical processes for influencing the surface composition of castings, e.g. for increasing resistance to acid attack	[68-]
31b2-27/20	. Measures not previously mentioned for influencing the grain structure or texture; Selection of compositions therefor	[68-]
	<u>Final measures after casting</u> (cleaning of castings by sand-blasting 67b)	[68-]
31b2-29/00	Removing castings from moulds; Removing cores	[68-]
31b2-29/02	. Vibratory apparatus specially designed for shaking out flasks	[68-]
31b2-29/04	. Strippers specially designed therefor (strippers per se 35b)	[68-]
31b2-29/06	. . actuated by pressure fluid	[68-]
31b2-31/00	Cutting-off surplus material, e.g. gates	[68-]
	<u>Other equipment for casting</u>	[68-]
31b2-33/00	Equipment for handling moulds	[68-]
31b2-33/02	. Turning and transposing moulds	[68-]
31b2-33/04	. Bringing together or separating moulds	[68-]
31b2-33/06	. Burdening or relieving moulds	[68-]
31b2-35/00	Equipment for conveying molten metal into beds or moulds (31b2-37/00 to 31b2-41/00 take precedence; specially adapted to particular processes or machines, see the relevant groups)	[68-]
31b2-35/02	. into beds	[68-]
31b2-35/04	. into moulds, e.g. base plates, runners	[68-]
31b2-35/06	. Heating or cooling equipment	[68-]
31b2-37/00	Equipment for controlling the pouring of molten metal from the ladle into moulds (31b2-39/00 takes precedence)	[68-]
31b2-39/00	Equipment for supplying molten metal in rations	[68-]
31b2-41/00	Casting ladles, cups or the like (31b2-37/00, 31b2-39/00, 31b2-43/00 take precedence)	[68-]
31b2-41/02	. Linings	[68-]
31b2-41/04	. tiltable	[68-]
31b2-41/06	. Equipment for tilting	[68-]
31b2-41/08	. for bottom pouring	[68-]
31b2-41/10	. . Stoppers; Stopper removing equipment	[68-]
31b2-41/12	. Travelling ladles or similar containers; Cars for ladles (casting cranes 35b)	[68-]
31b2-43/00	Mechanical cleaning, e.g. skimming of molten metals	[68-]
31b2-45/00	Equipment for casting, not otherwise provided for	[68-]

31b2-47/00	Casting plants	[68-]
31b2-47/02	. for both moulding and casting	[68-]
31b3	(IPC: B22F) Working metallic powder; Manufacture of articles from metallic powder; Obtaining metallic powder, not otherwise provided for (processes or apparatus for obtaining metallic powder, covered by a single other sub-class, see the relevant sub-class, e.g. obtaining by spraying molten metal 31b2-23/08; making ceramics by compacting or sintering 80b; making alloys by compacting or sintering 40b-1/04, 40b-33/02)	[68-]
	Notes:	[68-]
	1. The term "metallic powder" is to be understood as covering powders containing a substantial proportion of non-metallic material.	[68-]
	2. The term "powder" is not intended to exclude somewhat larger particles which behave in a similar way.	[68-]
31b3-1/00	Special treatment of metallic powder before working, e.g. to facilitate the operation; Metallic powders per se, e.g. mixtures of particles of different composition (80b, 39b take precedence)	[68-]
31b3-3/00	Manufacture of workpieces or articles from metallic powder characterised by the manner of compacting or sintering; Apparatus specially adapted therefor	[68-]
31b3-3/02	. Compacting only	[68-]
31b3-3/04	. . by applying fluid pressure	[68-]
31b3-3/06	. . by centrifugal forces	[68-]
31b3-3/08	. . by explosive forces	[68-]
31b3-3/10	. Sintering only, e.g. making porous workpieces	[68-]
31b3-3/12	. Both compacting and sintering	[68-]
31b3-3/14	. . simultaneously	[68-]
31b3-3/16	. . in successive or repeated steps	[68-]
31b3-3/18	. for producing sheet material by making use of pressure rollers	[68-]
31b3-3/20	. for producing extruded rod stock	[68-]
31b3-3/22	. for producing castings from a slip	[68-]
31b3-3/24	. After-treatment of workpieces or articles	[68-]
31b3-3/26	. . Impregnating	[68-]
31b3-5/00	Manufacture of workpieces or articles from metallic powder characterised by the special shape of the product	[68-]
31b3-5/02	. of piston rings	[68-]
31b3-5/04	. of turbine blades	[68-]
31b3-5/06	. of threaded articles, e.g. nuts	[68-]
31b3-5/08	. of toothed articles, e.g. gear wheels; of cam discs	[68-]
31b3-7/00	Manufacture of composite layers, workpieces, or articles, comprising metallic powder, by sintering the powder, with or without compacting	[68-]
31b3-7/02	. of composite layers	[68-]
31b3-7/04	. . with one or more layers not made from powder, e.g. made from solid metal	[68-]
31b3-7/06	. of composite workpieces or articles from parts, e.g. to form tipped tools	[68-]
31b3-7/08	. . with one or more parts not made from powder	[68-]
31b3-9/00	Making metallic powder by methods not otherwise provided for	[68-]
31c	Gjutning, Formning	[-68]
	Formning	[-68]
31c-1/01	Massor för formar eller kärnor	[-68]
31c-1/02	Formmassor för gjutning av lätttoxiderbara metaller	[-68]
31c-1/03	Kärnoljor	[-68]

31c-2	Puder för modeller eller formar	[-68]
31c-3	Massor för inklädning av gjutformer	[-68]
31c-4	Anordningar för pudring eller inklädning av gjutformer (75c-22)	[-68]
31c-5/01	Allmänna formningsförfaranden	[-68]
31c-5/02	Stapelformning	[-68]
31c-5/03	Formning av kärnor	[-68]
31c-5/04	Formning för radiatorer	[-68]
31c-5/05	Formning för badkar, kärl eller liknande hålkroppar (31b-8)	[-68]
31c-5/06	Formning för hjul eller valsar (31b-6; 31b-7)	[-68]
	Bearbetning av formmassor	[-68]
31c-6/01	Sandslungmaskiner (31b-11; 31b-12; 50c-9; 80a-7)	[-68]
31c-6/02	Kollergångar; Valsar (50c-6; 80a-2; 80a-3)	[-68]
31c-6/03	Skaksiktar; Trumsiktar; Magnetseparatorer (1a-20/10; 1a-21; 1b; 50d-1 – 50d-11)	[-68]
31c-6/04	Sandpiskar; Desintegratorer (50c-9; 80a-7)	[-68]
31c-6/05	Körbara maskiner (80a-1 – 80a-7)	[-68]
31c-6/06	Anordningar för torkning eller fuktning av formmassor (80a-5)	[-60]
31c-6/06	Anordningar för torkning, stoftavskiljning, kylning eller fuktning av formmassor (80a-5)	[60-68]
31c-6/07	Tillförselanordningar för sand (31b-11; 31b-12; 31b-14; 80a-1 – 81a-7)	[-68]
31c-6/08	Anläggningar för beredning av sand	[-68]
	Hjälpmedel vid formning	[-68]
31c-7/01	Kärnsplikar; Grimmer	[-68]
31c-7/02	Dubbar; Styranvisningar	[-68]
31c-7/03	Kärnstöd	[-68]
31c-8/01	Formflaskor eller kärnlådor i allmänhet (80a-48)	[-68]
31c-8/02	Delbara eller ledade formflaskor (80a-48)	[-68]
31c-8/03	Avdragningsflaskor; Ramar (80a-48)	[-68]
31c-8/04	Krampor för formflaskor (80a-48)	[-68]
31c-8/05	Styrningar eller förbindningar för formflaskor (80a-48)	[-68]
31c-8/06	Sandstöd; Sandlister	[-68]
31c-8/07	Modeller; Framställning av modeller (48a-7; 48a-8; 48a-7/00; 48b-2; 48b-1/00)	[-68]
31c-8/08	Modellplattor; Framställning av modellplattor (48a-7; 48a-8; 48a-7/00; 48b-2; 48b-1/00)	[-68]
31c-9	Andra hjälpanordningar för formning, t.ex. anordningar för avlyftning (31c-4)	[-68]
	Gjutning	[-68]
31c-10/01	Kokiller, allmänt	[-68]
31c-10/02	Delbara kokiller	[-68]
31c-10/03	Framställning av kokiller (31c-10/01; 31c-19/01)	[-68]
31c-10/04	Kanalstenar; Stigplan (31c-30/01; 80a-43)	[-68]
31c-10/05	Sjunkboxar; Övre inlopp	[-68]
31c-10/06	Gjutning av hålblock (31c-10/03; 31c-18/01 – 31c-19/02)	[-68]
31c-10/07	Gjutning av mindre valsämnen; Horisontell gjutning	[-68]
31c-11	Åstadkommande av tätt gjutgods genom tryck med pressanordningar (18b-11; 18c-7/00)	[-68]
31c-12/01	Åstadkommande av tätt gjutgods, allmänt, under gastryck eller explosionstryck (små gjutmaskiner 30b-17)	[-68]
31c-12/02	Åstadkommande av tätt gjutgods i luffförtunnade rum; Kombinerade tryck- och sugförfaranden (30b-17)	[-68]
31c-13	Åstadkommande av tätt gjutgods med hjälp av av elektricitet (21h-5)	[-68]
31c-14	Åstadkommande av tätt gjutgods genom uppvärmning av sjunkhuvudet (31c-10/05; 31c-15/02)	[-68]

31c-15/01	Åstadkommande av tätt gjutgods genom skakning, centrifugering eller vändning av kokillerna	[68]
31c-15/02	Åstadkommande av tätt gjutgods genom kylning eller uppvärmning av kokillen (31c-14; 31c-30/02)	[68]
31c-15/03	Borttagande av gjutfel	[68]
31c-15/04	Åstadkommande av tätt gjutgods genom andra förfaranden	[68]
31c-16/01	Framställning av kokillhärdat gjutgods (40b-16; 40b-17; 40b-19/00), allmänt, t.ex. projektiler (72d), bromsskor (20f), korsningsstycken eller skenstycken (20i)	[68]
31c-16/02	Gjutning av valsar (7a)	[68]
31c-16/03	Gjutning av roststavar (7f; 24f)	[68]
31c-16/04	Gjutning av hjul (20d; 49h)	[68]
31c-16/05	Påverkande av ytan; Alkalibeständigt eller syrabeständigt gjutgods (18c; 48a; 48b; 48d)	[68]
31c-17	Kompoundgjutning av göt eller plattor (65a1-20)	[68]
31c-18/01	Centrifugalgjutning för framställning av rör (80a-56)	[68]
31c-18/02	Centrifugalgjutning för framställning av annat gjutgods, t.ex. hjul, lagerskålar, kolvringar eller projektiler (30b-12; 30b-16; 30b-17)	[68]
31c-19/01	Gjutning av rör eller rörstycken, t.ex. formningsförfaranden (31c-10/03; 31c-10/06; 31c-18/01)	[68]
31c-19/02	Anläggningar för rörgjutning (31c-29/01)	[68]
31c-20/01	Konstgjutning	[68]
31c-20/02	Störtgjutning	[68]
31c-20/03	Doppgjutning	[68]
31c-21	Stränggjutning; Gjutning av tråd (7a-8; 7b-2; 7b-3)	[68]
31c-22	Gjutning av kedjor (49k-1 – 49k-7)	[68]
31c-23/01	Gjutning av legeringar, t.ex. kopparlegeringar; Gjutning av ickejärnmetaller	[68]
31c-23/02	Gjutning av lättmetaller	[68]
31c-23/03	Gjutning av svårsmälta metaller eller karbider, t.ex. formar därför	[68]
31c-24/01	Kringgjutning; Pågjutning; Infodring (31c-25/04)	[68]
31c-24/02	Ingjutning av förstärkningsinlägg	[60]
31c-24/02	Ingjutning av förstärkningsinlägg eller andra inlägg	[60-68]
31c-24/03	Rörförbindningar (47f-6 – 47f-14)	[68]
31c-24/04	Gjutning av föremål av två slags metaller, t.ex. skärverktyg (31c-24/01; 69-24; 69-25)	[68]
31c-25/01	Speciellt gjutgods med tillhörande gjutformar, t.ex. kulor, spikar eller hästskor (gjutning av ackumulatorplattor 21b)	[68]
31c-25/02	Framställning av motorkolvar eller motorcylindrar (46c1; 47f)	[68]
31c-25/03	Framställning av kolvringar (31c-18/02; 49l-9; 46c1-10; 47f-19/02)	[68]
31c-25/04	Framställning av lager (20d-15; 47b-12; 63d-20; 63d-21)	[68]
	Anordningar, anläggningar eller hjälpmedel vid gjuterier (typgjutning 15a)	[68]
31c-26/01	Pressgjutmaskiner, allmänt (15a-17 – 15a-26)	[68]
31c-26/02	Framställning av motorkolvar eller motorcylindrar	[52]
31c-26/02	Gjutmaskiner med kolvtryck	[52-68]
31c-26/03	Gjutmaskiner med gastryck och fast behållare	[68]
31c-26/04	Gjutmaskiner med rörlig behållare	[68]
31c-27/01	Tippbara gjutskänkar (32a-6; 32a-5/00)	[60]
31c-27/01	Upphettningsanordningar eller infodring för gjutskänkar (32a-6; 32a-5/00)	[60-68]
31c-27/02	Gjutskänkar med stopparetillslutning (32a-6; 32a-5/00); Tärningar; Stoppare	[68]
31c-27/03	Körbara gjutskänkar eller skänkvagnar (18a-9)	[68]
31c-28/01	Gjutning av tackor, t.ex. formning av gjutbäddar	[68]
31c-28/02	Gjutning av tackor på vandrande gjutbord	[68]

31c-28/03	Gjutning av tackor på rörliga kedjor	[-68]
31c-29/01	Anläggningar för gjutning eller formning i allmänhet, t.ex. för kontinuerlig tillverkning (31c-19/02)	[-68]
31c-29/02	Anläggningar för gjutning av göt	[-68]
31c-30/01	Inlopp (31c-10/04)	[-68]
31c-30/02	Kylanordningar; Upphettningsanordningar (31c-15/02; 31c-27/01)	[-68]
31c-30/03	Anordningar för avskiljning av gjutansatser (31c-26/01; 49c-10 – 49c-12)	[-68]
31c-30/04	Anordningar för avlägsnande av gjutstycken eller formsand ur formarna, t.ex. skakanordningar (31b-10; 31b-14)	[-68]
31c-30/05	Degeltänger (32a-5; 32a-6)	[-68]
31c-30/06	Anordningar för skakning av deglar	[-68]
31c-31	Anordning för utstötning av göt ur kokiller; Strippningsanordningar (stripperkranar 35b)	[-68]
31c-32	Anordningar för putsning av gjutgods (polertrummor 67a-23; sandblästerapparater 67b)	[-60]
31c-32	Anordningar för putsning av för gjutgods; Avkärning (polertrummor 67a-23; sandblästerapparater 67b)	[60-68]
31c-33/01	Omsmältning av metallspån (40a-15; 40a-9/00)	[-68]
31c-33/02	Mekanisk rening av flytande metall i smältbehållare eller i skänkar (raffinering 40a-15; 40a-9/00; 40b)	[-68]