

CPC COOPERATIVE PATENT CLASSIFICATION

F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING
(NOTE omitted)

LIGHTING; HEATING

F27 FURNACES; KILNS; OVENS; RETORTS
(NOTES omitted)

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 [F23](#))

NOTE

Attention is drawn to the Notes following the title of class [F27](#).

WARNING

In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00	Casings; Linings; Walls; Roofs (refractory materials C04B ; firebridges for combustion chambers F23M 3/00)	2001/0063	. . {Means to strengthen a part}
		2001/0066	. . {Movable or removable parts}
		2001/0069	. . {Means to prevent heat conduction}
1/0003	. {Linings or walls}	2001/0073	. . . {Surrounding protection around the furnace, e.g. covers, circulation of gas}
	NOTE	2001/0076	. . {comprising a corrugated sheet}
	not used, see subgroups	2001/0079	. {Means to assemble at least two parts of a furnace or of any device or accessory associated to its use}
1/0006	. . {Linings or walls formed from bricks or layers with a particular composition or specific characteristics}	2001/0083	. . {Means to assemble a moving part to a fixed one}
1/0009	. . . {Comprising ceramic fibre elements}	2001/0086	. . . {the moving part being in rotation}
1/0013	. . . . {the fibre elements being in the form of a folded blanket or a juxtaposition of folded blankets}	2001/0089	. . . {the moving part being in translation}
1/0016	. . . . . {Interleaved multiple folded blankets}	2001/0093	. . . {the moving part being hinged to the fixed one}
1/002	. . . . {the fibre elements being composed of adjacent separate strips}	2001/0096	. . . {the moving part staying in the same plane}
1/0023	. . {Linings or walls comprising expansion joints or means to restrain expansion due to thermic flows}	1/02	. Crowns; Roofs
1/0026	. . . {the expansion joint being a resilient element, e.g. a metallic plate between two bricks}	1/021	. . {Suspended roofs}
1/003	. . {Linings or walls comprising porous bricks}	1/022	. . . {Parts thereof, e.g. noses, arches}
1/0033	. . {Linings or walls comprising heat shields, e.g. heat shieldsd (shields protecting the charge F27D 5/00)}	1/024	. . . {having an anchored layer of lining}
1/0036	. . {Linings or walls comprising means for supporting electric resistances in the furnace}	1/025	. . {Roofs supported around their periphery, e.g. arched roofs}
1/004	. . {Linings or walls comprising means for securing bricks}	1/027	. . . {Skew backs}
1/0043	. {Floors, hearths}	1/028	. . . {Means to prevent deformation of the arch}
2001/0046	. {Means to facilitate repair or replacement or prevent quick wearing}	1/04	. characterised by the form {, e.g. shape} of the bricks or blocks used
2001/005	. . {Removable part or structure with replaceable elements}	1/042	. . {Bricks shaped for use in regenerators}
2001/0053	. . {Furnace constructed in modules}	1/045	. . {Bricks for lining cylindrical bodies, e.g. skids, tubes}
2001/0056	. . {Aspects of construction intended to prevent wear}	2001/047	. . . {Lining of cylindrical vessels}
2001/0059	. {Construction elements of a furnace}	1/06	. . Composite bricks or blocks {, e.g. panels, modules}
		1/063	. . . {Individual composite bricks or blocks}
		1/066	. . . . {Individual composite bricks or blocks made from hollow bricks filled up with another material}
		1/08	. . . Bricks or blocks with internal reinforcement or metal backing

1/10	• Monolithic linings; Supports therefor	2003/0002	• • {involving positioning devices, e.g. buffers or buffer zones}
	NOTE	2003/0003	• • {involving a system for aligning the articles through a lateral guidance, e.g. funnel}
	{supports are classified in F27D 1/14 }	2003/0004	• • {involving devices for measuring the article, the stack of articles or the height of the furnace passage or for adjusting the height of the passage to the charge or for putting the articles in the same position}
1/12	• incorporating cooling arrangements (constructions of tube assemblies in general F28)	2003/0006	• • {Particulate materials}
1/14	• Supports for linings (F27D 1/10 takes precedence)	2003/0007	• • • {Circular distribution}
1/141	• • {Anchors therefor}	2003/0008	• • • {Longitudinal distribution}
1/142	• • • {Anchors made from ceramic material}	2003/0009	• • • {Separation of different types of fines, e.g. by a blower}
1/144	• • {Supports for ceramic fibre materials}	2003/001	• • • {Series of dispensers or separation in two or more parts}
1/145	• • {Assembling elements}	2003/0012	• • {Working with piles}
1/147	• • • {for bricks}	2003/0013	• • • {Unstacking or making stacks}
1/148	• • • • {Means to suspend bricks}	2003/0014	• • {involving the use of magazines}
1/16	• Making or repairing linings {increasing the durability of linings or breaking away linings}	2003/0015	• • • {the magazine being vertical}
2001/1605	• • {Repairing linings}	2003/0016	• • • {the magazine being a rotary device}
2001/161	• • • {Hot repair}	2003/0018	• • {comprising means to introduce or extract the charge in series of separate containers or zones}
2001/1615	• • • {through a hole in the casing, e.g. injecting refractory from outside the vessel}	2003/0019	• • • {simultaneously}
1/1621	• • {Making linings by using shaped elements, e.g. bricks}	2003/002	• • {Transforming a single row in a multiple row}
1/1626	• • {Making linings by compacting a refractory mass in the space defined by a backing mould or pattern and the furnace wall}	3/0021	• • {of ceramic ware}
2001/1631	• • • {using an expandable core}	3/0022	• • {Disposition of the charge}
1/1636	• • {Repairing linings by projecting or spraying refractory materials on the lining}	3/0024	• • {of metallic workpieces}
1/1642	• • • {using a gunning apparatus}	3/0025	• • {Charging or loading melting furnaces with material in the solid state}
1/1647	• • • • {the projected materials being partly melted, e.g. by exothermic reactions of metals (Al, Si) with oxygen}	3/0026	• • {Introducing additives into the melt}
1/1652	• • • • • {Flame gunning; Use of a fuel}	3/0027	• • {Charging vertically with corbs}
2001/1657	• • • • • {Solid fuel}	3/0028	• • • {Corbs}
2001/1663	• • • • • {Fluid fuel, e.g. gas}	3/003	• • {Charging laterally, e.g. with a charging box}
1/1668	• • • • • {Plasma gunning}	3/0031	• • {Charging with tiltable dumpers}
1/1673	• • • {applied centrifugally}	3/0032	• • {using an air-lock}
1/1678	• • {Increasing the durability of linings; Means for protecting}	3/0033	• • {charging of particulate material}
1/1684	• • • {by a special coating applied to the lining}	2003/0034	• • {Means for moving, conveying, transporting the charge in the furnace or in the charging facilities}
2001/1689	• • • • {obtained from materials added to the melt}	2003/0036	• • {comprising inflatable or extendable parts}
1/1694	• • {Breaking away the lining or removing parts thereof}	2003/0037	• • {comprising friction surfaces}
1/18	• Door frames; Doors, lids, removable covers	2003/0038	• • {comprising shakers}
1/1808	• • {Removable covers}	2003/0039	• • {comprising magnetic means}
1/1816	• • • {Removable covers specially adapted for arc furnaces}	2003/004	• • • {Magnetic lifters}
2001/1825	• • • {Means for moving the cover}	2003/0042	• • {comprising roller trains}
2001/1833	• • • • {comprising a screw mechanism}	2003/0043	• • • {at least one of them being driven separately}
2001/1841	• • • • {comprising means for rotating or moving the cover in a horizontal or quasi horizontal plane}	2003/0044	• • • {at least one of them being removable}
2001/185	• • • • {comprising means for tilting the cover}	2003/0045	• • • {Use of rollable bodies, e.g. balls}
1/1858	• • {Doors}	2003/0046	• • {comprising one or more movable arms, e.g. forks}
1/1866	• • • {Door-frames}	2003/0048	• • • {Walking beams}
2001/1875	• • • {Hanging doors and walls}	2003/0049	• • • • {comprising eccentrics or lever arms}
2001/1883	• • • • {Hanging curtains}	2003/005	• • • • {comprising ramps}
2001/1891	• • • {Doors for separating two chambers in the furnace}	2003/0051	• • {comprising means to pick up the charge and put it down}
3/00	Charging; Discharging; Manipulation of charge	2003/0053	• • {comprising a device for charging with the doors closed}
	(moving charge through a furnace F27B 9/14)	2003/0054	• • {Means to move molten metal, e.g. electromagnetic pump}
2003/0001	• {Positioning the charge}	2003/0055	• • • {with flow regulation}
		2003/0056	• • • {through a syphon in a vacuum chamber, e.g. involving aspiration or pressure on the bath}
		2003/0057	• • {Fast-outlet or inlet means}

2003/0059	. . {comprising tracks, e.g. rails and wagon}	2003/124	. . {Sleds; Transport supports}
2003/006	. . . {with a return track}	2003/125	. . {Charging cars, lift trolleys}
2003/0061	. . . {with means for changing track}	2003/126	. . . {with long arms, charging forks}
2003/0062	. . {using devices for tilting or rocking the charge}	2003/127	. . . {for carrying pots}
2003/0063	. . {comprising endless belts}	2003/128	. . . {for carrying stacks of articles, e.g. bricks}
2003/0065	. . {Lifts, e.g. containing the bucket elevators}	3/14	. Charging or discharging liquid or molten material
2003/0066	. . {comprising scrapers or systems to pull out}	3/145	. . {Runners therefor}
2003/0067	. . {comprising conveyors where the translation is communicated by friction from at least one rotating element, e.g. two opposed rotations combined}	3/15	. Tapping equipment; Equipment for removing {or retaining} slag
2003/0068	. . {comprising clamps or tongs}	3/1509	. . {Tapping equipment}
2003/0069	. . {the device being suspended, e.g. from a crane}	3/1518	. . . {Tapholes}
2003/0071	. . {Use of a comminuting device, e.g. grinding mill}	3/1527	. . . {Taphole forming equipment, e.g. boring machines, piercing tools}
2003/0072	. . {Use of a pinion and a rack}	3/1536	. . . {Devices for plugging tap holes, e.g. plugs stoppers}
2003/0073	. . {the charge floating on a liquid, e.g. water}	NOTE	
2003/0074	. . . {floating on water}	{ the devices fixed permanently to the melt container are classified in F27D 3/1509 }	
2003/0075	. . {Charging or discharging vertically, e.g. through a bottom opening}	3/1545	. . {Equipment for removing or retaining slag}
2003/0077	. . {Use of centrifugal devices}	3/1554	. . . {for removing the slag from the surface of the melt}
2003/0078	. . {comprising jacks, e.g. hydraulic jacks}	3/1563	. . . . {by the use of scrapers}
2003/0079	. . {Use of cams}	3/1572	. . . . {by suction}
2003/008	. . {comprising cross-beams or gantry cranes}	3/1581	. . . . {by the use of blowers}
2003/0081	. . {Series of little rams}	3/159	. . . {for retaining slag during the pouring of the metal or retaining metal during the pouring of the slag}
2003/0083	. . {Means for stirring the charge}	3/16	. Introducing a fluid jet or current into the charge
3/0084	. {Charging; Manipulation of SC or SC wafers}	{(porous elements for gas flushing of molten metals B22D 1/005)}	
2003/0085	. {Movement of the container or support of the charge in the furnace or in the charging facilities}	2003/161	. . {through a porous element}
2003/0086	. . {Up or down}	2003/162	. . {the fluid being an oxidant or a fuel}
2003/0087	. . {Rotation about a vertical axis}	2003/163	. . . {the fluid being an oxidant}
2003/0089	. . {Rotation about a horizontal or slightly inclined axis}	2003/164	. . . . {Oxygen}
2003/009	. . . {Oscillations about a horizontal axis; Rocking}	2003/165	. . . {the fluid being a fuel}
2003/0091	. . {Horizontally}	2003/166	. . {the fluid being a treatment gas}
2003/0092	. . . {with a reciprocating movement}	2003/167	. . {the fluid being a neutral gas}
2003/0093	. . {Movement on a slope}	2003/168	. . {through a lance}
2003/0095	. . {the advancement being step by step}	2003/169	. . . {Construction of the lance, e.g. lances for injecting particles}
2003/0096	. . {Advancement along the longitudinal axis of the workpiece}	3/18	. Charging particulate material using a fluid carrier
2003/0097	. . {Advancement along an axis perpendicular to the axis of the workpiece}	2003/185	. . {Conveying particles in a conduct using a fluid}
2003/0098	. . . {Workpiece rolling on its support}	5/00 Supports, screens, or the like for the charge within the furnace (travelling or movable supports F27D 3/12)	
3/02	. Skids or tracks for heavy objects	5/0006	. {Composite supporting structures}
3/022	. . {Skids}	5/0012	. . {Modules of the sagger or setter type; Supports built up from them}
3/024	. . . {Details of skids, e.g. riders}	5/0018	. . {Separating elements}
3/026	. . {transport or conveyor rolls for furnaces; roller rails (conveyor rolls in general B65G)}	5/0025	. . {assembled to present a three-point support}
3/028	. . . {Roller rails or succession of small sized rollers}	5/0031	. {Treatment baskets for ceramic articles (for metallic articles C21D 9/0025)}
3/04	. Ram or pusher apparatus	5/0037	. {Supports specially adapted for semi-conductors}
2003/045	. . {used to pull the charge}	5/0043	. {Supports specially adapted for dental prosthesis}
3/06	. Charging or discharging machines on travelling carriages	5/005	. {Supports specially adapted for holding elongated articles in an upright position, e.g. sparking plugs}
3/08	. Screw feeders; Screw dischargers	5/0056	. {Hangers}
3/10	. Charging directly from hoppers or shoots	5/0062	. {Shields for the charge (shields for the lining F27D 1/0033)}
2003/105	. . {using shutters}	5/0068	. {Containers}
3/12	. Travelling or movable supports or containers for the charge	2005/0075	. . {Pots, e.g. slag pots, ladles}
2003/121	. . {Band, belt or mesh}		
2003/122	. . . {Band made from longitudinal wires or bars}		
3/123	. . {Furnace cars}		

2005/0081	. {Details}	2009/0094	. . {making use of already cooled material, e.g. forming a layer}
2005/0087	. . {Means to prevent the adherence of the charge}	2009/0097	. . . {the charge being used as a coolant}
2005/0093	. . {Means to maintain the form of the article}		
7/00	Forming, maintaining, or circulating atmospheres in heating chambers	11/00	Arrangement of elements for electric heating in or on furnaces (electric heating per se H05B)
7/02	. Supplying steam, vapour, gases, or liquids	11/02	. Ohmic resistance heating
2007/023	. . {Conduits}	11/04	. . with direct passage of current through the material being heated
2007/026	. . {Dampers}	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
7/04	. Circulating atmospheres by mechanical means	11/08	. Heating by electric discharge, e.g. arc discharge
2007/045	. . {Fans}	11/10	. . Disposition of electrodes (automatic control of temperature G05D 23/00 ; electric discharge apparatus H01T ; arrangements for feeding or guiding electrodes H05B 7/10 ; automatic control of power by positioning of electrodes H05B 7/144)
7/06	. Forming or maintaining special atmospheres or vacuum within heating chambers (F27D 7/02 takes precedence)	11/12	. with electromagnetic fields acting directly on the material being heated
2007/063	. . {Special atmospheres, e.g. high pressure atmospheres}		
2007/066	. . {Vacuum}	13/00	Apparatus for preheating charges; Arrangements for preheating charges
9/00	Cooling of furnaces or of charges therein (F27D 1/00, F27D 3/00 take precedence)	13/002	. {Preheating scrap (preheating of scrap for steel making C21C 5/565)}
2009/0002	. {Cooling of furnaces}	13/005	. {Drying of green clay prior to baking}
2009/0005	. . {the cooling medium being a gas}	2013/007	. {using a rotary furnace}
2009/0008	. . . {Ways to inject gases against surfaces}		
2009/001	. . {the cooling medium being a fluid other than a gas}	15/00	Handling or treating discharged material; Supports or receiving chambers therefor
2009/0013	. . . {the fluid being water}	15/02	. Cooling
2009/0016	. . . . {Water-spray}	15/0206	. . {with means to convey the charge}
2009/0018	. . {the cooling medium passing through a pattern of tubes}	15/0213	. . . {comprising a cooling grate}
2009/0021	. . . {with the parallel tube parts close to each other, e.g. a serpentine}	15/022	. . . . {grate plates}
2009/0024	. . . . {with contiguous tubes, which may be separately welded one to the other}	2015/0226	. . . . . {Support, fixation of the grate}
2009/0027	. . . . {linked by elements}	2015/0233	. . . . . {with gas, e.g. air, supply to the grate}
2009/0029	. . . . {fixed, e.g. welded to a supporting surface}	2015/024	. . . . {Multiple grates}
2009/0032	. . . {integrated with refractories in a panel}	2015/0246	. . . . {Combination of fixed and movable grates}
2009/0035	. . . {arranged for the covering of a cylindrical surface}	2015/0253	. . . . . {Gratin grates}
2009/0037	. . {the cooling medium passing a radiator}	2015/026	. . . . . {Means to discharge the fines}
2009/004	. . {the cooling medium passing a waterbox}	15/0266	. . . {on an endless belt}
2009/0043	. . {Insert type waterbox, e.g. cylindrical or flat type}	15/0273	. . . {on a rotary hearth}
2009/0045	. . {the cooling medium passing a block, e.g. metallic}	15/028	. . . {comprising a rotary drum}
2009/0048	. . . {incorporating conduits for the medium}	15/0286	. . {in a vertical, e.g. annular, shaft (shafts including rotating parts F27D 15/0273)}
2009/0051	. . {comprising use of studs to transfer heat or retain the liner}	2015/0293	. . . {including rotating parts}
2009/0054	. . . {adapted to retain formed bricks}		
2009/0056	. . {Use of high thermoconductive elements}	17/00	Arrangements for using waste heat (heat-exchangers per se F28); Arrangements for using, or disposing of, waste gases
2009/0059	. . . {made mostly from graphite}	17/001	. {Extraction of waste gases, collection of fumes and hoods used therefor (in general B08B 15/00)}
2009/0062	. . . {made from copper or copper alloy}	17/002	. . {Details of the installations, e.g. fume conduits or seals}
2009/0064	. . {Cooling of furnace arches}	17/003	. . {of waste gases emanating from an electric arc furnace}
2009/0067	. . {Cooling element inlet and outlet tubes}	17/004	. {Systems for reclaiming waste heat}
2009/007	. {Cooling of charges therein}	2017/005	. . {including pyrolysing the waste gases}
2009/0072	. . {the cooling medium being a gas}	2017/006	. . {using a boiler}
2009/0075	. . . {in direct contact with the charge}	2017/007	. . {including regenerators}
2009/0078	. . . {in indirect contact with the charge}	17/008	. {cleaning gases}
2009/0081	. . {the cooling medium being a fluid (other than a gas in direct or indirect contact with the charge)}	2017/009	. {Cyclone for separating fines from gas}
2009/0083	. . . {the fluid being water}		
2009/0086	. . . . {applied in spray form}	19/00	Arrangements of controlling devices
2009/0089	. . {Quenching}		
2009/0091	. . {in a fluidised bed of cooling elements}		

2019/0003	. {Monitoring the temperature or a characteristic of the charge and using it as a controlling value}	2021/0064	. . {against noises}
2019/0006	. {Monitoring the characteristics (composition, quantities, temperature, pressure) of at least one of the gases of the kiln atmosphere and using it as a controlling value}	2021/0071	. . {against explosions}
2019/0009	. . {Monitoring the pressure in an enclosure or kiln zone}	2021/0078	. . {against the presence of an undesirable element in the atmosphere of the furnace}
2019/0012	. . {Monitoring the composition of the atmosphere or of one of their components}	2021/0085	. . {against molten metal, e.g. leakage or splashes}
2019/0015	. . . {Monitoring the composition of the exhaust gases or of one of its components}	2021/0092	. . {against a jam in the transport line or a production interruption}
2019/0018	. . {Monitoring the temperature of the atmosphere of the kiln}	21/02	. Observation or illuminating devices
2019/0021	. . . {Monitoring the temperature of the exhaust gases}	2021/023	. . {Closable inserting openings, e.g. for the introduction of lances, sensors or burners}
2019/0025	. . {Monitoring the temperature of a part or of an element of the furnace structure}	2021/026	. . {using a video installation}
2019/0028	. {Regulation}	21/04	. Arrangements of indicators or alarms
2019/0031	. . {through control of the flow of the exhaust gases}	25/00	Devices {or methods} for removing incrustations {, e.g. slag, metal deposits, dust; Devices or methods for preventing the adherence of slag}
2019/0034	. . {through control of a heating quantity such as fuel, oxidant or intensity of current}	25/001	. {comprising breaking tools, e.g. hammers, drills, scrapers (breaking away linings F27D 1/1694 ; boring machines for forming tapholes F27D 3/1527)}
2019/0037	. . . {Quantity of electric current}	25/003	. . {used for punching tuyeres}
2019/004	. . . {Fuel quantity}	25/005	. . {used for cleaning the channels of induction furnaces}
2019/0043	. . . . {Amount of air or O ₂ to the burner}	25/006	. {using explosives}
2019/0046	. . . . {Amount of secondary air to the burner}	25/008	. {using fluids or gases, e.g. blowers, suction units}
2019/005	. . . {Amount of heat given to the charge via a controlled heat exchanger}	27/00	Stirring devices for molten material (F27D 3/14 takes precedence)
2019/0053	. . . . {involving heating the charge in a fluid or fluidised medium}	2027/002	. {Gas stirring}
2019/0056	. . {Regulation involving cooling}	27/005	. {Pumps}
2019/0059	. . {Regulation involving the control of the conveyor movement, e.g. speed or sequences}	27/007	. . {Pulsating pumps}
2019/0062	. . . {control of the workpiece stay in different zones}	99/00	Subject matter not provided for in other groups of this subclass
2019/0065	. . {Regulation involving controlled section modification}	99/0001	. {Heating elements or systems}
2019/0068	. . {Regulation involving a measured inflow of a particular gas in the enclosure}	99/0003	. . {with particulate fuel, e.g. aspects relating to the feeding}
2019/0071	. . {Regulation using position sensors}	99/0005	. . . {Injecting liquid fuel}
2019/0075	. . {Regulation of the charge quantity}	99/0006	. . {Electric heating elements or system}
2019/0078	. . {Regulation of the speed of the gas through the charge}	2099/0008	. . . . {Resistor heating}
2019/0081	. {Controlling an air-lock chamber}	2099/001	. . . . {the container being the resistor}
2019/0084	. {Controlling closure systems, e.g. doors}	2099/0011	. . . . {The resistor heats a radiant tube or surface}
2019/0087	. {Automatisation of the whole plant or activity}	2099/0013	. . . . . {immersed in the charge}
2019/009	. . {Use of codes, e.g. bar codes}	2099/0015	. . . . {Induction heating}
2019/0093	. {Maintaining a temperature gradient}	2099/0016	. . . . . {Different magnetic fields, e.g. two coils, different characteristics of the same coil along its length or different parts of the same coil used}
2019/0096	. {involving simulation means, e.g. of the treating or charging step}	2099/0018	. . . . . {Relative movement of the coil and the charge during the heat treatment}
21/00	Arrangements of monitoring devices; Arrangements of safety devices	2099/002	. . . . . {Core heating}
2021/0007	. {Monitoring the pressure}	2099/0021	. . . . {Arc heating}
21/0014	. {Devices for monitoring temperature}	2099/0023	. . . . . {DC arc heating}
21/0021	. {Devices for monitoring linings for wear}	2099/0025	. . . . {Currents through the charge}
21/0028	. {Devices for monitoring the level of the melt}	2099/0026	. . . . {with a generator of electromagnetic radiations}
21/0035	. {Devices for monitoring the weight of quantities added to the charge}	2099/0028	. . . . {Microwave heating}
2021/0042	. . {Monitoring the level of the solid charge}	2099/003	. . . . {Bombardment heating, e.g. with ions or electrons}
2021/005	. {Devices for monitoring thermal expansion}	2099/0031	. . . . {Plasma-torch heating}
2021/0057	. {Security or safety devices, e.g. for protection against heat, noise, pollution or too much duress; Ergonomic aspects}	99/0033	. . {using burners (manufacture of steel in an electric arc furnace equipped with burners C21C 5/5217)}
		99/0035	. . . . {Heating indirectly through a radiant surface}
		2099/0036	. . . . {immersed in the charge}

F27D

- 2099/0038 . . . {removable}
- 2099/004 . . . {directed upon the charge, e.g. vertically}
- 2099/0041 {with a small angle, e.g. almost tangentially}
- 2099/0043 . . . {Impulse burner}
- 2099/0045 . . . {Radiant burner}
- 2099/0046 . . . {with incomplete combustion, e.g. reducing atmosphere}
- 2099/0048 {Post- combustion}
- 2099/005 . . . {Catalytic burner}
- 2099/0051 . . . {Burning waste as a fuel}
- 2099/0053 . . . {Burner fed with preheated gases}
- 2099/0055 {Fuel}
- 2099/0056 {Oxidant}
- 2099/0058 . . {Means for heating the charge locally}
- 2099/006 . . {Auxiliary heating, e.g. in special conditions or at special times}
- 2099/0061 . . {Indirect heating}
- 2099/0063 . . . {Liquid}
- 2099/0065 . . . {Gas}
- 2099/0066 . . . {Particles or solid bodies, e.g. bed of particles}
- 2099/0068 . . {Heating directly by circulation of a fluid other than a gas or by particles}
- 99/007 . {Partitions}
- 2099/0071 . . {Partitions used as registers}
- 99/0073 . {Seals}
- 99/0075 . . {Gas curtain seals}
- 99/0076 . . {Furnace car seals, i.e. seals used in continuous furnaces or kilns for preventing gas or heat exchange between heating chamber and the area comprising driving means}
- 2099/0078 . . {Means to minimize the leakage of the furnace atmosphere during charging or discharging}
- 2099/008 . . . {Using an air-lock}
- 2099/0081 . . {Joint}
- 2099/0083 . {Drives; Auxiliary drives}
- 2099/0085 . {Accessories}
- 2099/0086 . . {Filters, e.g. for molten metals}
- 2099/0088 . . {Apparatus to cut metal, e.g. logs, in billets}
- 2099/009 . . {Bumpers}
- 2099/0091 . . {Means to grease or oil}
- 2099/0093 . . {Means to collect ashes or dust, e.g. vessels}
- 2099/0095 . . {Means to collect the slag or spilled metal, e.g. vessels}
- 2099/0096 . . {Presses}
- 2099/0098 . . {Means for moving the furnace}

2201/00 Manipulation of furnace parts

NOTE

Indexing code [F27D 2201/00](#) can be followed by additional indexing codes preceded by a + sign. These additional indexing codes are chosen from codes of subclass [F27D](#) describing similar manipulations of furnace charges.

Example: [F27D 2201/00](#) + [F27D 2003/0036](#)