SECTION F — MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING

F27 FURNACES; KILNS; OVENS; RETORTS

F27B FURNACES, KILNS, OVENS, OR RETORTS IN GENERAL; OPEN SINTERING OR LIKE APPARATUS (combustion apparatus F23; electric heating H05B)

Note(s)

Attention is drawn to the references and Notes following the title of class F27 and the Note (3) of section H.

Subclass index

FURNACES WITH STATIONARY CHARGE
Shaft furnaces....1/00
Horizontal furnaces....3/00, 5/00
Bell-type furnaces....11/00
With progression of heating....13/00
Crucible furnaces, tank furnaces....14/00
STATIONARY FURNACES WITH MECHANICALLY-MOVED CHARGE....9/00
ROTARY FURNACES....7/00, 13/00
OTHER FURNACES; COMBINATIONS....15/00, 17/00, 19/00
OPEN SINTERING OR LIKE APPARATUS....21/00

1/00 Shaft or like vertical or substantially vertical furnaces (for preheating, burning, calcining or cooling lime, magnesia or dolomite C04B 2/12) **[1, 2006.01]**

1/02 • with two or more shafts or chambers, e.g. multi-storey **[1, 2006.01]**

1/04 • • Combinations or arrangements of shafts **[1, 2006.01]**

1/06 • of other than up-draught type **[1, 2006.01]**

1/08 • heated otherwise than by solid fuel mixed with charge **[1, 2006.01]**

1/09 • • heated electrically **[4, 2006.01]**

1/10 • Details, accessories, or equipment peculiar to furnaces of these types **[1, 2006.01]**

1/12 • • Shells or casings; Supports therefor **[1, 2006.01]**

1/14 • • • Arrangements of linings (linings in general F27D 1/00) **[1, 2006.01]**

1/16 • • Arrangements of tuyères **[1, 2006.01]**

1/18 • • Arrangements of dust collectors **[1, 2006.01]**

1/20 • • Arrangement of devices for charging **[1, 4, 2006.01]**

1/21 • • Arrangement of devices for discharging **[4, 2006.01]**

1/22 • • Arrangements of heat-exchange apparatus (heat-exchangers in general F28C, F28D) **[1, 2006.01]**

1/24 • • Cooling arrangements **[1, 2006.01]**

1/26 • • Arrangements of controlling devices **[1, 2006.01]**

1/28 • • Arrangements of monitoring devices, of indicators, of alarm devices **[1, 2006.01]**

3/00 Hearth-type furnaces, e.g. of reverberatory type (F27B 9/00-F27B 15/00, F27B 21/00 take precedence)**; Electric arc furnaces [1, 4, 2006.01]**

3/02 • of single-chamber fixed-hearth type **[1, 2006.01]**

3/04 • of multiple-hearth type; of multiple-chamber type; Combinations of hearth-type furnaces **[1, 2006.01]**

3/06 • with movable working chambers or hearths, e.g. tiltable **[1, 2006.01]**

3/08 • heated electrically, e.g. electric arc furnaces, with or without any other source of heat **[1, 2006.01]**

3/10 • Details, accessories, or equipment, e.g. dust-collectors, peculiar to hearth-type furnaces **[1, 2006.01]**

3/12 • • Working chambers or casings; Supports therefor **[1, 2006.01]**

3/14 • • • Arrangements of linings **[1, 2006.01]**

3/16 • • • Walls; Roofs **[1, 2006.01]**

3/18 • • Arrangement of devices for charging **[1, 4, 2006.01]**

3/19 • • Arrangement of devices for discharging **[4, 2006.01]**

3/20 • • Arrangements of heating devices **[1, 2006.01]**

3/22 • • Arrangements of air or gas supply devices **[1, 2006.01]**

3/24 • • Cooling arrangements **[1, 2006.01]**

3/26 • • Arrangements of heat-exchange apparatus **[1, 2006.01]**

3/28 • • Arrangement of controlling, monitoring, alarm or like devices **[4, 2006.01]**

5/00 Muffle furnaces; Retort furnaces; Other furnaces in which the charge is held completely isolated (F27B 9/00 takes precedence) **[1, 2006.01]**

5/02 • of multiple-chamber type **[1, 2006.01]**

5/04 • adapted for treating the charge in vacuum or special atmosphere **[1, 2006.01]**

5/05 • • in vacuum **[5, 2006.01]**
5/06 • Details, accessories, or equipment peculiar to furnaces of these types **[1, 2006.01]**
5/08 • • Arrangements of linings **[1, 2006.01]**
5/10 • • Muffles **[1, 2006.01]**
5/12 • • Arrangement of devices for charging **[1, 4, 2006.01]**
5/13 • • Arrangement of devices for discharging **[4, 2006.01]**
5/14 • • Arrangements of heating devices **[1, 2006.01]**
5/16 • • Arrangements of air or gas supply devices **[1, 2006.01]**
5/18 • • Arrangement of controlling, monitoring, alarm or like devices **[4, 2006.01]**

7/00 Rotary-drum furnaces, i.e. horizontal or slightly inclined [1, 2006.01]
7/02 • of multiple-chamber or multiple-drum type **[1, 2006.01]**
7/04 • • with longitudinal divisions **[1, 2006.01]**
7/06 • adapted for treating the charge in vacuum or special atmosphere **[1, 2006.01]**
7/08 • externally heated **[1, 2006.01]**
7/10 • internally heated, e.g. by means of passages in the wall **[1, 2006.01]**
7/12 • tiltable **[1, 2006.01]**
7/14 • with means for agitating or moving the charge **[1, 2006.01]**
7/16 • • the means being fixed relatively to the drum (F27B 7/04 takes precedence) **[1, 2006.01]**
7/18 • • the means being movable within the drum **[1, 2006.01]**
7/20 • Details, accessories, or equipment peculiar to rotary-drum furnaces **[1, 2006.01]**
7/22 • • Rotary drums; Supports therefor **[1, 2006.01]**
7/24 • • • Seals between rotary and stationary parts **[1, 2006.01]**
7/26 • • Drives **[1, 2006.01]**
7/28 • • Arrangements of linings **[1, 2006.01]**
7/30 • • Arrangements of partitions **[1, 2006.01]**
7/32 • • Arrangement of devices for charging **[1, 4, 2006.01]**
7/33 • • Arrangement of devices for discharging **[4, 2006.01]**
7/34 • • Arrangements of heating devices **[1, 2006.01]**
7/36 • • Arrangements of air or gas supply devices **[1, 2006.01]**
7/38 • • Arrangements of cooling devices **[1, 2006.01]**
7/40 • • • Planetary coolers **[4, 2006.01]**
7/42 • • Arrangement of controlling, monitoring, alarm or like devices **[4, 2006.01]**

9/00 Furnaces through which the charge is moved mechanically, e.g. of tunnel type (F27B 7/14 takes precedence)**; Similar furnaces in which the charge moves by gravity [1, 2006.01]**
9/02 • of multiple-track type; of multiple-chamber type; Combinations of furnaces **[1, 2006.01]**
9/04 • adapted for treating the charge in vacuum or special atmosphere **[1, 2006.01]**
9/06 • heated without contact between combustion gases and charge; electrically heated **[1, 2006.01]**
9/08 • • heated through chamber walls **[1, 2006.01]**
9/10 • • heated by hot air or gas **[1, 2006.01]**
9/12 • with special arrangements for preheating or cooling the charge **[1, 2006.01]**
9/14 • characterised by the path of the charge during treatment; characterised by the means by which the charge is moved during treatment (F27B 9/28 takes precedence; travelling or movable supports or containers for the charge F27D 3/12) **[1, 2006.01]**
9/16 • • the charge moving in a circular or arcuate path **[1, 2006.01]**
9/18 • • • under the action of scrapers or pushers **[1, 2006.01]**
9/20 • • the charge moving in a substantially straight path **[1, 2006.01]**
9/22 • • • under the action of scrapers or pushers (F27B 9/26 takes precedence) **[1, 2006.01]**
9/24 • • • being carried by a conveyor **[1, 2006.01]**
9/26 • • • on or in trucks, sleds, or containers **[1, 2006.01]**
9/28 • for treating continuous lengths of work **[1, 2006.01]**
9/30 • Details, accessories, or equipment peculiar to furnaces of these types **[1, 2006.01]**
9/32 • • Casings **[1, 2006.01]**
9/34 • • • Arrangements of linings **[1, 2006.01]**
9/36 • • Arrangements of heating devices **[1, 2006.01]**
9/38 • • Arrangement of devices for charging **[1, 4, 2006.01]**
9/39 • • Arrangement of devices for discharging **[4, 2006.01]**
9/40 • • Arrangements of controlling or monitoring devices **[1, 2006.01]**

11/00 Bell-type furnaces (for treating metal strips or wire C21D 9/663) **[1, 2006.01]**

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 [1, 2006.01]
13/02 • of multiple-chamber type with permanent partitions; Combinations of furnaces **[1, 2006.01]**
13/04 • of single-chamber type with temporary partitions **[1, 2006.01]**
13/06 • Details, accessories, or equipment peculiar to furnaces of this type **[1, 2006.01]**
13/08 • • Casings **[1, 2006.01]**
13/10 • • • Arrangements of linings **[1, 2006.01]**
13/12 • • Arrangements of heating devices **[1, 2006.01]**
13/14 • • Arrangement of controlling, monitoring, alarm or like devices **[4, 2006.01]**

14/00 Crucible or pot furnaces; Tank furnaces [1, 4, 2006.01]
14/02 • with tilting or rocking arrangements (F27B 14/04 takes precedence) **[1, 2006.01]**
14/04 • adapted for treating the charge in vacuum or special atmosphere **[1, 2006.01]**
14/06 • heated electrically, e.g. induction crucible furnaces, with or without any other source of heat (F27B 14/04 takes precedence) **[1, 2006.01]**
14/08 • Details peculiar to crucible, pot or tank furnaces **[1, 4, 2006.01]**
14/10 • • Crucibles **[1, 2006.01]**
14/12 • • • Covers therefor **[1, 2006.01]**
14/14 • • Arrangements of heating devices **[1, 2006.01]**
14/16 • • Arrangement of devices for charging **[4, 2006.01]**
14/18 • • Arrangement of devices for discharging **[4, 2006.01]**
14/20 • • Arrangement of controlling, monitoring, alarm or like devices **[4, 2006.01]**

15/00 Fluidised-bed furnaces; Other furnaces using or treating finely-divided materials in dispersion (combustion apparatus in which combustion takes place in a fluidised bed of fuel or other particles F23C 10/00) **[1, 2006.01]**

15/02 • Details, accessories, or equipment peculiar to furnaces of these types **[1, 2006.01]**

15/04 • • Casings; Supports therefor **[1, 2006.01]**

15/06 • • • Arrangements of linings **[1, 2006.01]**

15/08 • • Arrangement of devices for charging **[1, 4, 2006.01]**

15/09 • • Arrangement of devices for discharging **[4, 2006.01]**

15/10 • • Arrangements of air or gas supply devices **[1, 2006.01]**

15/12 • • Arrangements of dust collectors **[1, 2006.01]**

15/14 • • Arrangements of heating devices **[1, 2006.01]**

15/16 • • Arrangements of cooling devices **[1, 2006.01]**

15/18 • • Arrangements of controlling devices **[1, 2006.01]**

15/20 • • Arrangements of monitoring devices, of indicators, of alarm devices **[1, 2006.01]**

17/00 Furnaces of a kind not covered by any of groups F27B 1/00-F27B 15/00 (structural combinations of furnaces F27B 19/02) **[1, 2006.01]**

17/02 • specially designed for laboratory use **[1, 2006.01]**

19/00 Combinations of different kinds of furnaces that are not all covered by any single one of main groups F27B 1/00-F27B 17/00 [1, 2006.01]

19/02 • combined in one structure **[1, 2006.01]**

19/04 • arranged for associated working **[1, 2006.01]**

21/00 Open or uncovered sintering apparatus; Other heat-treatment apparatus of like construction [1, 2006.01]

21/02 • Sintering grates or tables **[1, 2006.01]**

21/04 • Sintering pots or sintering pans **[1, 2006.01]**

21/06 • Endless-strand sintering machines **[1, 2006.01]**

21/08 • Details, accessories, or equipment peculiar to sintering or like apparatus **[4, 2006.01]**

21/10 • • Arrangement of devices for charging **[4, 2006.01]**

21/12 • • Arrangement of devices for discharging **[4, 2006.01]**

21/14 • • Arrangement of controlling, monitoring, alarm or like devices **[4, 2006.01]**