

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

### F25 REFRIGERATION OR COOLING; COMBINED HEATING AND REFRIGERATION SYSTEMS; HEAT PUMP SYSTEMS; MANUFACTURE OR STORAGE OF ICE; LIQUEFACTION OR SOLIDIFICATION OF GASES

**F25D REFRIGERATORS; COLD ROOMS; ICE-BOXES; COOLING OR FREEZING APPARATUS NOT COVERED BY ANY OTHER SUBCLASS** (refrigerated showcases A47F 3/04; thermally-insulated vessels for domestic use A47J 41/00; refrigerated vehicles, see the appropriate subclasses of classes B60-B64; containers with thermal insulation in general B65D 81/38; heat-transfer, heat-exchange or heat-storage materials, e.g. refrigerants, or materials for the production of heat or cold by chemical reactions other than by combustion C09K 5/00; thermally-insulated vessels for liquefied or solidified gases F17C; air-conditioning or air-humidification F24F; refrigeration machines, plants, or systems F25B; cooling of instruments or comparable apparatus without refrigeration G12B; cooling of engines or pumps, see the relevant classes)

#### Note(s) [5, 2009.01]

1. Devices associated with refrigerating machinery are classified in groups F25D 11/00-F25D 16/00.
2. In this subclass, the following term is used with the meaning indicated:
  - "device" means an enclosed space to be cooled; such devices being associated either with refrigerating machinery, e.g. in a refrigerator, or with other cold sources, e.g. in an ice-box.
3. Attention is drawn to Note (2) following the title of subclass F24F.

#### Subclass index

##### DEVICES NOT ASSOCIATED WITH REFRIGERATING MACHINERY

- Using cold air or water; other cold materials or bodies.....1/00, 3/00
- Using endothermic chemical reactions, or evaporation without recovery.....5/00, 7/00
- Other devices, combinations.....9/00

##### DEVICES ASSOCIATED WITH REFRIGERATING MACHINERY: SELF-CONTAINED MOVABLE;

STATIONARY; OTHER.....11/00, 13/00, 15/00

In combination with a cooling mode not associated with refrigerating machinery.....16/00

##### STRUCTURAL PARTS OR ARRANGEMENTS, OF GENERAL APPLICATION: DEFROSTING;

GENERAL FEATURES; HANDLING OF ARTICLES TO BE COOLED.....21/00, 23/00, 25/00

CIRCULATING COOLING FLUID OR GAS; LIGHTING.....17/00, 27/00

##### ARRANGEMENT OR MOUNTING: OF REFRIGERATION UNITS; OF CONTROL OR SAFETY

DEVICES.....19/00, 29/00

OTHER APPARATUS.....31/00

#### Devices not associated with refrigerating machinery

##### **1/00 Devices using naturally-cold air or water [1, 2006.01]**

- 1/02 • using naturally-cold water, e.g. household-tap water [1, 2006.01]

##### **3/00 Devices using other cold materials; Devices using cold-storage bodies [1, 2006.01]**

- 3/02 • using ice, e.g. ice-boxes [1, 2006.01]
- 3/04 • • Stationary cabinets [1, 2006.01]
- 3/06 • • Movable containers [1, 2006.01]
- 3/08 • • • portable, i.e. adapted to be carried personally [1, 2006.01]
- 3/10 • using liquefied gases, e.g. liquid air [1, 2006.01]
- 3/11 • • with conveyors carrying articles to be cooled through the cooling space [4, 2006.01]
- 3/12 • using solidified gases, e.g. carbon-dioxide snow [1, 2006.01]

- 3/14 • • portable, i.e. adapted to be carried personally [1, 2006.01]

##### **5/00 Devices using endothermic chemical reactions, e.g. using frigorific mixtures [1, 2006.01]**

- 5/02 • portable, i.e. adapted to be carried personally [1, 2006.01]

##### **7/00 Devices using evaporation effects without recovery of the vapour (butter or cheese dishes with cooling devices A47G 19/26) [1, 2006.01]**

##### **9/00 Devices not associated with refrigerating machinery and not covered by groups F25D 1/00-F25D 7/00; Combinations of devices covered by two or more of the groups F25D 1/00-F25D 7/00 [1, 2006.01]**

**Devices associated with refrigerating machinery**

- 11/00 Self-contained movable devices associated with refrigerating machinery, e.g. domestic refrigerators [1, 2006.01]**
- 11/02 • with cooling compartments at different temperatures [1, 2006.01]
- 11/04 • specially adapted for storing deep-frozen articles (F25D 11/02 takes precedence) [1, 2006.01]
- 13/00 Stationary devices associated with refrigerating machinery, e.g. cold rooms [1, 2006.01]**
- 13/02 • with several cooling compartments, e.g. refrigerated locker systems [1, 2006.01]
- 13/04 • • the compartments being at different temperatures [1, 2006.01]
- 13/06 • with conveyors carrying articles to be cooled through the cooling space [1, 2006.01]
- 15/00 Devices associated with refrigerating machinery not covered by group F25D 11/00 or F25D 13/00, e.g. non-self-contained movable devices [1, 2006.01]**
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- 16/00 Devices using a combination of a cooling mode associated with refrigerating machinery with a cooling mode not associated with refrigerating machinery [5, 2006.01]**

**Details or features of the devices covered by groups F25D 1/00-F25D 16/00 [5]**

- 17/00 Arrangements for circulating cooling fluids; Arrangements for circulating gas, e.g. air, within refrigerated spaces [1, 3, 2006.01]**
- 17/02 • for circulating liquids, e.g. brine [1, 2006.01]
- 17/04 • for circulating gas, e.g. by natural convection [1, 3, 2006.01]
- 17/06 • • by forced circulation [1, 2006.01]
- 17/08 • • • using ducts [1, 2006.01]
- 19/00 Arrangement or mounting of refrigeration units with respect to devices [1, 2006.01]**
- 19/02 • plug-in type [1, 2006.01]
- 19/04 • with more than one refrigeration unit [1, 2006.01]

- 21/00 Defrosting; Preventing frosting; Removing condensed or defrost water** (removing ice or water from heat-exchange apparatus in general F28F 17/00; heating arrangements specially adapted for transparent or reflecting areas H05B 3/84) [1, 2006.01]
- 21/02 • Detecting the presence of frost or condensate [1, 2006.01]
- 21/04 • Preventing the formation of frost or condensate [1, 2006.01]
- 21/06 • Removing frost (defrosting cycles F25B 47/02) [1, 2006.01]
- 21/08 • • by electric heating [1, 2006.01]
- 21/10 • • by spraying with fluid [1, 2006.01]
- 21/12 • • by hot-fluid circulating system separate from the refrigerant system [1, 2006.01]
- 21/14 • Collecting or removing condensed and defrost water; Drip trays [1, 2006.01]
- 23/00 General constructional features** (F25D 21/00 takes precedence) [1, 2006.01]
- 23/02 • Doors; Covers (F25D 23/08 takes precedence) [1, 2006.01]
- 23/04 • • with special compartments, e.g. butter conditioners [1, 2006.01]
- 23/06 • Walls (F25D 23/08 takes precedence; containers with thermal insulation B65D 81/38) [1, 4, 2006.01]
- 23/08 • Parts formed wholly or mainly of plastics materials [1, 2006.01]
- 23/10 • Arrangements for mounting in particular locations, e.g. for built-in type, for corner type [1, 2006.01]
- 23/12 • Arrangements of compartments additional to cooling compartments; Combinations of refrigerators with other equipment, e.g. stove [1, 2006.01]
- 25/00 Charging, supporting, or discharging the articles to be cooled [1, 2006.01]**
- 25/02 • by shelves [1, 2006.01]
- 25/04 • by conveyors (in general B65G) [1, 2006.01]
- 27/00 Lighting arrangements** (in general F21) [1, 2006.01]
- 29/00 Arrangement or mounting of control or safety devices [1, 2006.01]**
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- 31/00 Other cooling or freezing apparatus [1, 2006.01]**