### CPC - COOPERATIVE PATENT CLASSIFICATION

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING</td>
</tr>
</tbody>
</table>

#### LIGHTING; HEATING

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F25</td>
<td>REFRIGERATION OR COOLING; COMBINED HEATING AND REFRIGERATION SYSTEMS; HEAT PUMP SYSTEMS; MANUFACTURE OR STORAGE OF ICE; LIQUEFACTION SOLIDIFICATION OF GASES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>F25D</td>
<td>REFRIGERATORS; COLD ROOMS; ICE-BOXES; COOLING OR FREEZING APPARATUS NOT COVERED BY ANY OTHER SUBCLASS (refrigerated show cases 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 and comparable apparatus without refrigeration G12B; cooling of engines or pumps, see the relevant classes)</td>
</tr>
</tbody>
</table>

#### NOTES

1. 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.
2. Attention is drawn to Note (2) following the title of subclass F24F.

#### 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.

### Devices not associated with refrigerating machinery

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/00</td>
<td>Devices using naturally cold air or cold water</td>
</tr>
<tr>
<td>1/02</td>
<td>. using naturally cold water, e.g. household tap water</td>
</tr>
<tr>
<td>3/00</td>
<td>Devices using other cold materials; Devices using cold-storage bodies</td>
</tr>
<tr>
<td>3/005</td>
<td>. [combined with heat exchangers]</td>
</tr>
<tr>
<td>3/02</td>
<td>. using ice, e.g. ice-boxes</td>
</tr>
<tr>
<td>3/04</td>
<td>. . Stationary cabinets</td>
</tr>
<tr>
<td>3/045</td>
<td>. . . {Details}</td>
</tr>
<tr>
<td>3/06</td>
<td>. . Movable containers</td>
</tr>
<tr>
<td>3/08</td>
<td>. . . portable, i.e. adapted to be carried personally</td>
</tr>
<tr>
<td>3/10</td>
<td>. using liquefied gases, e.g. liquid air {for cooling semiconductor devices H01L 23/445}</td>
</tr>
<tr>
<td>3/102</td>
<td>. . {Stationary cabinets}</td>
</tr>
<tr>
<td>3/105</td>
<td>. . {Movable containers}</td>
</tr>
<tr>
<td>3/107</td>
<td>. . {portable, i.e. adapted to be carried personally}</td>
</tr>
<tr>
<td>3/11</td>
<td>. with conveyors carrying articles to be cooled through the cooling space</td>
</tr>
<tr>
<td>3/12</td>
<td>. using solidified gases, e.g. carbon-dioxide snow</td>
</tr>
<tr>
<td>3/122</td>
<td>. . {Stationary cabinets}</td>
</tr>
<tr>
<td>3/125</td>
<td>. . {Movable containers}</td>
</tr>
<tr>
<td>3/127</td>
<td>. . {Stationary devices with conveyors carrying articles to be cooled through the cooling space}</td>
</tr>
<tr>
<td>3/14</td>
<td>. . portable, i.e. adapted to be carried personally</td>
</tr>
<tr>
<td>5/00</td>
<td>Devices using endothermic chemical reactions, e.g. using frigorific mixtures</td>
</tr>
<tr>
<td>5/02</td>
<td>. portable, i.e. adapted to be carried personally</td>
</tr>
<tr>
<td>7/00</td>
<td>Devices using evaporation effects without recovery of the vapour {butter or cheese dishes with cooling devices A47G 19/26}</td>
</tr>
<tr>
<td>9/00</td>
<td>Devices 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</td>
</tr>
<tr>
<td>9/005</td>
<td>. {using fluorinated halogenous hydrocarbons}</td>
</tr>
</tbody>
</table>

### Devices associated with refrigerating machinery

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/00</td>
<td>Self-contained movable devices, e.g. domestic refrigerators</td>
</tr>
<tr>
<td>11/003</td>
<td>. {Transport containers}</td>
</tr>
<tr>
<td>11/006</td>
<td>. {with cold storage accumulators}</td>
</tr>
<tr>
<td>11/02</td>
<td>. with cooling compartments at different temperatures</td>
</tr>
<tr>
<td>11/022</td>
<td>. . {with two or more evaporators}</td>
</tr>
<tr>
<td>11/025</td>
<td>. . {using primary and secondary refrigeration systems}</td>
</tr>
<tr>
<td>11/027</td>
<td>. . {of the sorption cycle type}</td>
</tr>
</tbody>
</table>
Devices associated with refrigerating machinery

11/04 . specially adapted for storing deep-frozen articles (F25D 11/02 takes precedence)

13/00 Stationary devices, e.g. cold-rooms
13/02 . with several cooling compartments, e.g. refrigerated locker systems
13/04 . the compartments being at different temperatures
13/06 . with conveyors carrying articles to be cooled through the cooling space
13/062 . [with refrigerated conveyors]
13/065 . [Articles being submerged in liquid coolant]
13/067 . [with circulation of gaseous cooling fluid]

15/00 Devices not covered by group 11/00 or 13/00, e.g. non-self-contained movable devices

16/00 Devices using a combination of a cooling mode associated with refrigerating machinery with a cooling mode not associated with refrigerating machinery

Details or features of the devices covered by groups F25D 1/00 - F25D 16/00

17/00 Arrangements for circulating cooling fluids;
Arrangements for circulating gas, e.g. air, within refrigerated spaces
17/005 . [in cold rooms]
17/02 . for circulating liquids, e.g. brine
17/04 . for circulating air, e.g. by convection
17/042 . [Air treating means within refrigerated spaces (air conditioning in general F24F)]
17/045 . [Air flow control arrangements]
17/047 . [Pressure equalising devices]
17/06 . by forced circulation
17/062 . [in household refrigerators]
17/065 . . . . [with compartments at different temperatures]
17/067 . . . . [Evaporator fan units]
17/08 . . using ducts

19/00 Arrangement or mounting of refrigeration units with respect to devices or objects to be refrigerated, e.g. infra-red detectors
19/003 . [with respect to movable containers]
19/006 . [Thermal coupling structure or interface]
19/02 . plug-in type
19/04 . with more than one refrigeration unit

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)
21/002 . [Defroster control]
21/004 . [Control mechanisms (F25D 21/006 takes precedence)]
21/006 . [with electronic control circuits]
21/008 . [by timer]
21/02 . Detecting the presence of frost or condensate
21/025 . [using air pressure differential detectors]
21/04 . Preventing the formation of frost or condensate
21/06 . Removing frost (defrosting cycles F25B 47/02)
21/065 . [by mechanical means]
21/08 . [by electric heating]

21/10 . by spraying with fluid
21/12 . by hot-fluid circulating system separate from the refrigerant system
21/125 . . . . [the hot fluid being ambient air]
21/14 . Collecting or removing condensed and defrost water; Drip trays

23/00 General constructional features (F25D 21/00 takes precedence)
23/003 . [for cooling refrigerating machinery]
23/006 . [for mounting refrigerating machinery components]
23/02 . Doors; Covers (F25D 23/08 takes precedence (locks or fastenings E05B 65/0042))
23/021 . . . . [Sliding doors]
23/023 . . . . [Air curtain closures]
23/025 . . . . [Secondary closures]
23/026 . . . . [for open-top cabinets]
23/028 . . . . [Details]
23/04 . . with special compartments, e.g. butter conditioners
23/06 . . Walls (F25D 23/08 takes precedence; containers with thermal insulation B65D 81/38)
23/061 . . . . [with conduit means]
23/062 . . . . [defining a cabinet]
23/063 . . . . [formed by an assembly of panels]
23/064 . . . . [formed by moulding, e.g. moulding in situ]
23/065 . . . . [Details]
23/066 . . . . [Liners]
23/067 . . . . [Supporting elements]
23/068 . . . . [Arrangements for circulating fluids through the insulating material]
23/069 . . . . [Cooling space dividing partitions]
23/08 . . . . [Parts formed wholly or mainly of plastics materials]
23/082 . . . . [Strips]

NOTE
When a document describes both breaking and sealing strips it is classified in group F25D 23/082 only.

23/085 . . . . [Breaking strips]
23/087 . . . . [Sealing strips]
23/10 . . Arrangements for mounting in particular locations, e.g. for built-in type, for corner type
23/12 . . Arrangements of compartments additional to cooling compartments; Combinations of refrigerators with other equipment, e.g. stove
23/123 . . . . [Butter compartment]
23/126 . . . . [Water cooler]

25/00 Charging, supporting, and discharging the articles to be cooled
25/005 . . [using containers]
25/02 . by shelves
25/021 . . . . [combined with trays]
25/022 . . . . [Baskets]
25/024 . . . . [Slidable shelves]
25/025 . . . . [Drawers]
25/027 . . . . [Rotatable shelves]
25/028 . . . . [Cooled supporting means]
25/04 . by conveyors (in general B65G)

27/00 Lighting arrangements (in general F21)
27/005 . . [combined with control means]
Details or features of the devices covered by groups F25D1/00 - F25D16/00

29/00 Arrangement or mounting of control or safety devices

29/001 . . (for cryogenic fluid systems)
29/003 . . (for movable devices)
29/005 . . (Mounting of control devices)
29/006 . . (Safety devices)
29/008 . . (Alarm devices)

31/00 Other cooling or freezing apparatus

31/001 . . [Plate freezers]
31/002 . . (Liquid coolers, e.g. beverage cooler (receptacle coolers F25D 31/006))
31/003 . . . with immersed cooling element
31/005 . . (Combined cooling and heating devices)
31/006 . . (specially adapted for cooling receptacles, e.g. tanks)
31/007 . . . [Bottles or cans]
31/008 . . . [Drinking glasses]

2201/00 Insulation

2201/10 . . with respect to heat
2201/12 . . using an insulating packing material
2201/122 . . . of loose fill type
2201/124 . . . of fibrous type
2201/126 . . . of cellular type
2201/1262 . . . . with open cells
2201/128 . . . of foil type
2201/1282 . . . . with reflective foils
2201/14 . . using subatmospheric pressure
2201/30 . . with respect to sound

2300/00 Special arrangements or features for refrigerators; cold rooms; ice-boxes; Cooling or freezing apparatus not covered by any other subclass

2303/00 Details of devices using other cold materials; Details of devices using cold-storage bodies

2303/08 . . Devices using cold storage material, i.e. ice or other freezable liquid
2303/081 . . using ice cubes or crushed ice
2303/082 . . disposed in a cold storage element not forming part of a container for products to be cooled, e.g. ice pack or gel accumulator
2303/0821 . . the element placed in a compartment which can be opened without the need of opening the container itself
2303/0822 . . Details of the element
2303/08221 . . . . Fasteners or fixing means for the element
2303/08222 . . Shape of the element
2303/08223 . . . . . having the shape of an ice cube
2303/083 . . using cold storage material disposed in closed wall forming part of a container for products to be cooled
2303/0831 . . . . the liquid is disposed in the space between the walls of the container
2303/0832 . . . the liquid is disposed in an accumulator pack locked in a closable wall forming part of the container
2303/084 . . Position of the cold storage material in relationship to a product to be cooled
2303/0841 . . . . external to the container for a beverage, e.g. a bottle, can, drinking glass or pitcher
2303/0842 . . . . . inside the beverage contained in a bottle, can, drinking glass, pitcher or dispenser
2303/0843 . . . . on the side of the product
2303/0844 . . . . above the product
2303/0845 . . . . below the product
2303/0846 . . . . around the neck of a bottle
2303/0845 . . . . Compositions of cold storage materials

2317/00 Details or arrangements for circulating cooling fluids; Details or arrangements for circulating gas, e.g. air, within refrigerated spaces, not provided for in other groups of this subclass

2317/04 . . Treatment air flowing to refrigeration compartments
2317/041 . . . by purification
2317/0411 . . . . by dehumidification
2317/04111 . . . . . Control means therefor
2317/0413 . . . by humidification
2317/04131 . . . . . Control means therefor
2317/0415 . . . by deodorizing
2317/0416 . . . using an ozone generator
2317/0417 . . . using an UV-lamp
2317/043 . . by creating a vacuum in a storage compartment
2317/06 . . with forced air circulation
2317/061 . . through special compartments
2317/062 . . along the inside of doors
2317/063 . . with air guides
2317/065 . . characterised by the air return
2317/0651 . . . through the bottom
2317/0652 . . . through the corner
2317/0653 . . . through the mullion
2317/0654 . . . through the side
2317/0655 . . . through the top
2317/066 . . characterised by the air supply
2317/0661 . . . from the bottom
2317/0662 . . . from the corner
2317/0663 . . . from the mullion
2317/0664 . . . from the side
2317/0665 . . . from the top
2317/0666 . . . . from the freezer
2317/0667 . . . . from the refrigerator
2317/067 . . characterised by air ducts
2317/0671 . . . . Inlet ducts
2317/0672 . . . . Outlet ducts
2317/068 . . characterised by the fans
2317/0681 . . . . Details thereof
2317/0682 . . . . Two or more fans
2317/0683 . . . . the fans not of the axial type
2317/0684 . . . . the fans allowing rotation in reverse direction

2321/00 Details or arrangements for defrosting; Preventing frosting; Removing condensed or defrost water, not provided for in other groups of this subclass

2321/14 . . Collecting condense or defrost water; Removing condense or defrost water
2321/141 . . . Removal by evaporation
2321/1411 . . . using compressor heat
2321/1412 . . . using condenser heat or heat of desuperheaters
2321/1413 . . . using heat from electric elements or using an electric field for enhancing removal
2321/142 . . . characterised by droplet guides
2321/143 . . . characterised by means to fix, clamp, or connect water pipes or evaporation trays
2323/00 General constructional features not provided for in other groups of this subclass
2323/0011 Means for leveling refrigerators
2323/002 Details for cooling refrigerating machinery
2323/0021 . . . . using air guides
2323/0022 . . . . using multiple air flows
2323/0023 . . . . Control of the air flow cooling refrigerating machinery
2323/0024 . . . . Filters in the air flow cooling refrigerating machinery
2323/0026 . . . . characterised by the incoming air flow
2323/00261 . . . . through the back bottom side
2323/00262 . . . . through the back top side
2323/00263 . . . . through the back corner side
2323/00264 . . . . through the front bottom part
2323/00265 . . . . through the front top part
2323/00266 . . . . through the bottom
2323/00267 . . . . through the side
2323/00268 . . . . through the top
2323/0027 . . . . characterised by the out-flowing air
2323/00271 . . . . from the back bottom
2323/00272 . . . . from the back top
2323/00273 . . . . from the back corner
2323/00274 . . . . from the front bottom
2323/00275 . . . . from the front top
2323/00276 . . . . from the bottom
2323/00277 . . . . from the side
2323/00278 . . . . from the top
2323/0028 . . . . characterised by the fans
2323/00281 . . . . Two or more fans
2323/00282 . . . . the fans not of the axial type
2323/00283 . . . . the fans allowing rotation in reverse direction
2323/00284 . . . . Details thereof
2323/002 . . . . Details of doors or covers not otherwise covered
2323/0021 . . . . French doors
2323/0022 . . . . Doors that can be pivoted either left-handed or right-handed
2323/0023 . . . . Door in door constructions
2323/0024 . . . . Door hinges
2323/006 . . . . Details of walls not otherwise covered
2323/0061 . . . . Collapsible walls
2323/0062 . . . . Inflatable walls
2323/121 . . . . the refrigerator is characterised by a water filter for the water/ice dispenser
2323/122 . . . . the refrigerator is characterised by a water tank for the water/ice dispenser
2325/00 Charging, supporting or discharging the articles to be cooled, not provided for in other groups of this subclass
2325/021 . . . . Shelves with several possible configurations
2325/022 . . . . Shelves made of glass or ceramic
2325/023 . . . . Shelves made of wires

2327/00 Lighting arrangements not provided for in other groups of this subclass
2327/001 . . . . Lighting arrangements on the external side of the refrigerator, freezer or cooling box

2331/00 Details or arrangements of other cooling or freezing apparatus not provided for in other groups of this subclass
2331/80 . . . . Type of cooled receptacles
2331/801 . . . . Bags
2331/8011 . . . . to be carried on the back of a person
2331/8012 . . . . for cosmetics
2331/8013 . . . . for playing golf
2331/8014 . . . . for medical use
2331/8015 . . . . Pouches
2331/802 . . . . Barrels
2331/803 . . . . Bottles
2331/804 . . . . Boxes
2331/8041 . . . . for drinking
2331/805 . . . . Cans
2331/8051 . . . . for holding milk
2331/806 . . . . Dispensers
2331/807 . . . . Eggs
2331/808 . . . . Glasses
2331/809 . . . . Holders
2331/81 . . . . Pitchers
2331/811 . . . . Pour-throughs
2331/812 . . . . Trays

2400/00 General features of, or devices for refrigerators, cold rooms, ice-boxes, or for cooling or freezing apparatus not provided for in other subclass
2400/02 . . . . Refrigerators including a heater
2400/04 . . . . Refrigerators with a horizontal mullion
2400/06 . . . . Refrigerators with a vertical mullion
2400/08 . . . . Refrigerator tables
2400/10 . . . . Refrigerator top-coolers
2400/12 . . . . Portable refrigerators
2400/14 . . . . Refrigerator multi units
2400/16 . . . . Convertible refrigerators
2400/18 . . . . Aesthetic features
2400/20 . . . . Carts specially adapted for transporting objects to be cooled
2400/22 . . . . Cleaning means for refrigerating devices
2400/24 . . . . Protection against refrigerant explosions
2400/26 . . . . Refrigerating devices for cooling wearing apparel, e.g. garments, hats, shoes or gloves
2400/28 . . . . Quick cooling
2400/30 . . . . Quick freezing
2400/32 . . . . Removal, transportation or shipping of refrigerating devices from one location to another
2400/34 . . . . Temperature balancing devices
2400/36 . . . . Visual displays
2400/361 . . . . Interactive visual displays
2400/38 . . . . Refrigerating devices characterised by wheels
2400/40 . . . . Refrigerating devices characterised by electrical wiring

2500/00 Problems to be solved
2500/02 . . . . Geometry problems
2500/04 . . . . Calculation of parameters
2500/06 . . . . Stock management

2600/00 Control issues
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2600/02</td>
<td>Timing</td>
</tr>
<tr>
<td>2600/04</td>
<td>Controlling heat transfer</td>
</tr>
<tr>
<td>2600/06</td>
<td>Controlling according to a predetermined profile</td>
</tr>
<tr>
<td>2700/00</td>
<td><strong>Means for sensing or measuring; Sensors therefor</strong></td>
</tr>
<tr>
<td>2700/02</td>
<td>Sensors detecting door opening</td>
</tr>
<tr>
<td>2700/04</td>
<td>Sensors detecting the presence of a person</td>
</tr>
<tr>
<td>2700/06</td>
<td>Sensors detecting the presence of a product</td>
</tr>
<tr>
<td>2700/08</td>
<td>Sensors using Radio Frequency Identification [RFID]</td>
</tr>
<tr>
<td>2700/10</td>
<td>Sensors measuring the temperature of the evaporator</td>
</tr>
<tr>
<td>2700/12</td>
<td>Sensors measuring the inside temperature of particular compartments</td>
</tr>
<tr>
<td>2700/121</td>
<td>of freezer compartments</td>
</tr>
<tr>
<td>2700/122</td>
<td>more than one sensor measuring the inside temperature in a compartment</td>
</tr>
<tr>
<td>2700/14</td>
<td>Sensors measuring the temperature outside the refrigerator or freezer</td>
</tr>
<tr>
<td>2700/16</td>
<td>Sensors measuring the temperature of products</td>
</tr>
</tbody>
</table>