

CPC**COOPERATIVE PATENT CLASSIFICATION****F25D**

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](#) to [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)

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](#).

Devices not associated with refrigerating machinery**F25D 1/00****Devices using naturally cold air or cold water**

F25D 1/02

- using naturally cold water, e.g. household tap water

F25D 3/00**Devices using other cold materials; Devices using cold-storage bodies**

F25D 3/005

- {combined with heat exchangers}

F25D 3/02

- using ice, e.g. ice-boxes

F25D 3/04

- . Stationary cabinets

F25D 3/045

- . . {Details}

F25D 3/06

- . Movable containers

F25D 3/08

- . . portable, i.e. adapted to be carried personally

F25D 3/10

- using liquefied gases, e.g. liquid air {(for cooling semiconductor devices [H01L 23/445](#))}

F25D 3/102

- . {Stationary cabinets}

F25D 3/105

- . {Movable containers}

F25D 3/107

- . {portable, i.e. adapted to be carried personally}

F25D 3/11

- . with conveyers carrying articles to be cooled through the cooling space

F25D 3/12

- using solidified gases, e.g. carbon-dioxide snow

F25D 3/122

- . {Stationary cabinets}

F25D 3/125

- . {Movable containers}

- F25D 3/127 . . {Stationary devices with conveyers carrying articles to be cooled through the cooling space}
- F25D 3/14 . . portable, i.e. adapted to be carried personally
- F25D 5/00** **Devices using endothermic chemical reactions, e.g. using frigorific mixtures**
- F25D 5/02 . . portable, i.e. adapted to be carried personally
- F25D 7/00** **Devices using evaporation effects without recovery of the vapour (butter or cheese dishes with cooling devices [A47G 19/26](#))**
- F25D 9/00** **Devices not covered by groups [F25D 1/00](#) to [F25D 7/00](#); Combinations of devices covered by two or more of the groups [F25D 1/00](#) to [F25D 7/00](#)**
- F25D 9/005 . . {using fluorinated halogenous hydrocarbons}

Devices associated with refrigerating machinery

- F25D 11/00** **Self-contained movable devices, e.g. domestic refrigerator**
- F25D 11/003 . . {Transport containers}
- F25D 11/006 . . {with cold storage accumulators}
- F25D 11/02 . . with cooling compartments at different temperatures
- F25D 11/022 . . {with two or more evaporators}
- F25D 11/025 . . {using primary and secondary refrigeration systems}
- F25D 11/027 . . {of the sorption cycle type}
- F25D 11/04 . . specially adapted for storing deep-frozen articles ([F25D 11/02](#) takes precedence)
- F25D 13/00** **Stationary devices, e.g. cold-rooms**
- F25D 13/02 . . with several cooling compartments, e.g. refrigerated locker systems
- F25D 13/04 . . the compartments being at different temperatures
- F25D 13/06 . . with conveyers carrying articles to be cooled through the cooling space
- F25D 13/062 . . {with refrigerated conveyers}
- F25D 13/065 . . {Articles being submerged in liquid coolant}
- F25D 13/067 . . {with circulation of gaseous cooling fluid}
- F25D 15/00** **Devices not covered by group [F25D 11/00](#) or [F25D 13/00](#), e.g. non-self-contained movable devices**
- F25D 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](#) to [F25D 16/00](#)

- F25D 17/00** **Arrangements for circulating cooling fluids; Arrangements for circulating gas, e.g. air, within refrigerated spaces**
- F25D 17/005 . . {in cold rooms}

- F25D 17/02
 - for circulating liquids, e.g. brine
- F25D 17/04
 - for circulating air, e.g. by convection
- F25D 17/042
 - . {Air treating means within refrigerated spaces (air conditioning in general [F24F](#))}
- F25D 17/045
 - . . {Air flow control arrangements}
- F25D 17/047
 - . . {Pressure equalising devices}
- F25D 17/06
 - . by forced circulation
- F25D 17/062
 - . . {in household refrigerators}
- F25D 17/065
 - . . . {with compartments at different temperatures}
- F25D 17/067
 - . . {Evaporator fan units}
- F25D 17/08
 - . . using ducts

F25D 19/00 **Arrangement or mounting of refrigeration units with respect to devices {or objects to be refrigerated, e.g. infra-red detectors}**

- F25D 19/003
 - {with respect to movable containers}
- F25D 19/006
 - {Thermal coupling structure or interface}
- F25D 19/02
 - plug-in type
- F25D 19/04
 - with more than one refrigeration unit

F25D 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](#))

- F25D 21/002
 - {Defroster control}
- F25D 21/004
 - . {Control mechanisms ([F25D 21/006](#) takes precedence)}
- F25D 21/006
 - . {with electronic control circuits}
- F25D 21/008
 - . {by timer}
- F25D 21/02
 - Detecting the presence of frost or condensate
- F25D 21/025
 - . {using air pressure differential detectors}
- F25D 21/04
 - Preventing the formation of frost or condensate
- F25D 21/06
 - Removing frost ([defrosting cycles F25B 47/02](#))
- F25D 21/065
 - . {by mechanical means}
- F25D 21/08
 - . by electric heating
- F25D 21/10
 - . by spraying with fluid
- F25D 21/12
 - . by hot-fluid circulating system separate from the refrigerant system
- F25D 21/125
 - . . {the hot fluid being ambient air}
- F25D 21/14
 - Collecting or removing condensed and defrost water; Drip trays

F25D 23/00 **General constructional features ([F25D 21/00](#) takes precedence)**

- F25D 23/003
 - {for cooling refrigerating machinery}
- F25D 23/006
 - {for mounting refrigerating machinery components}
- F25D 23/02
 - Doors; Covers ([F25D 23/08](#) takes precedence {locks or fastenings [E05B 65/0042](#)})

- F25D 23/021
 - . . {Sliding doors}
- F25D 23/023
 - . . {Air curtain closures}
- F25D 23/025
 - . . {Secondary closures}
- F25D 23/026
 - . . {for open-top cabinets}
- F25D 23/028
 - . . {Details}
- F25D 23/04
 - . . with special compartments, e.g. butter conditioners
- F25D 23/06
 - . Walls ([F25D 23/08](#) takes precedence; containers with thermal insulation [B65D 81/38](#))
- F25D 23/061
 - . . {with conduit means}
- F25D 23/062
 - . . {defining a cabinet}
- F25D 23/063
 - . . . {formed by an assembly of panels}
- F25D 23/064
 - . . . {formed by moulding, e.g. moulding in situ}
- F25D 23/065
 - . . {Details}
- F25D 23/066
 - . . . {Liners}
- F25D 23/067
 - . . . {Supporting elements}
- F25D 23/068
 - . . . {Arrangements for circulating fluids through the insulating material}
- F25D 23/069
 - . . {Cooling space dividing partitions}
- F25D 23/08
 - . Parts formed wholly or mainly of plastics materials
- F25D 23/082
 - . . {Strips}

NOTE

When a document describes both breaking and sealing strips it is classified in group [F25D 23/082](#) only.

- F25D 23/085
 - . . . {Breaking strips}
- F25D 23/087
 - . . . {Sealing strips}
- F25D 23/10
 - . Arrangements for mounting in particular locations, e.g. for built-in type, for corner type
- F25D 23/12
 - . Arrangements of compartments additional to cooling compartments; Combinations of refrigerators with other equipment, e.g. stove
- F25D 23/123
 - . . {Butter compartment}
- F25D 23/126
 - . . {Water cooler}

F25D 25/00

Charging, supporting, and discharging the articles to be cooled

- F25D 25/005
 - . {using containers}
- F25D 25/02
 - . by shelves
- F25D 25/021
 - . . {combined with trays}
- F25D 25/022
 - . . {Baskets}
- F25D 25/024
 - . . {Slidable shelves}
- F25D 25/025
 - . . . {Drawers}
- F25D 25/027
 - . . {Rotatable shelves}
- F25D 25/028
 - . . {Cooled supporting means}
- F25D 25/04
 - . by conveyers ([in general B65G](#))

F25D 27/00 **Lighting arrangements** (in general [F21](#))

- F25D 27/005 . {combined with control means}

F25D 29/00 **Arrangement or mounting of control or safety devices**

- F25D 29/001 . {for cryogenic fluid systems}
- F25D 29/003 . {for movable devices}
- F25D 29/005 . {Mounting of control devices}
- F25D 29/006 . {Safety devices}
- F25D 29/008 . {Alarm devices}

F25D 31/00 **Other cooling or freezing apparatus**

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

F25D 2201/00 **Insulation**

- F25D 2201/10 . with respect to heat
- F25D 2201/12 . . using an insulating packing material
- F25D 2201/122 . . . of loose fill type
- F25D 2201/124 . . . of fibrous type
- F25D 2201/126 . . . of cellular type
- F25D 2201/1262 with open cells
- F25D 2201/128 . . . of foil type
- F25D 2201/1282 with reflective foils
- F25D 2201/14 . . using subatmospheric pressure
- F25D 2201/30 . with respect to sound

F25D 2300/00 **Special arrangements or features for refrigerators; cold rooms; ice-boxes; Cooling or freezing apparatus not covered by any other subclass**

F25D 2303/00 **{Details of devices using other cold materials; Details of devices using cold-storage bodies}**

- F25D 2303/08 . Devices using cold storage material, i.e. ice or other freezable liquid
- F25D 2303/081 . . using ice cubes or crushed ice
- F25D 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
- F25D 2303/0821 . . . the element placed in a compartment which can be opened without the need of opening the container itself

- F25D 2303/0822 . . . Details of the element
- F25D 2303/08221 Fasteners or fixing means for the element
- F25D 2303/08222 Shape of the element
- F25D 2303/08223 having the shape of an ice cube
- F25D 2303/083 . . using cold storage material disposed in closed wall forming part of a container for products to be cooled
- F25D 2303/0831 . . . the liquid is disposed in the space between the walls of the container
- F25D 2303/0832 . . . the liquid is disposed in an accumulator pack locked in a closable wall forming part of the container
- F25D 2303/084 . . Position of the cold storage material in relationship to a product to be cooled
- F25D 2303/0841 . . . external to the container for a beverage, e.g. a bottle, can, drinking glass or pitcher
- F25D 2303/0842 . . . inside the beverage contained in a bottle, can, drinking glass, pitcher or dispenser
- F25D 2303/0843 . . . on the side of the product
- F25D 2303/0844 . . . above the product
- F25D 2303/0845 . . . below the product
- F25D 2303/0846 . . . around the neck of a bottle
- F25D 2303/085 . . Compositions of cold storage materials

- F25D 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}**
- F25D 2317/04 . Treating air flowing to refrigeration compartments
- F25D 2317/041 . . by purification
- F25D 2317/0411 . . . by dehumidification
- F25D 2317/04111 Control means therefor
- F25D 2317/0413 . . . by humidification
- F25D 2317/04131 Control means therefor
- F25D 2317/0415 . . . by deodorizing
- F25D 2317/0416 . . . using an ozone generator
- F25D 2317/0417 . . . using an UV-lamp
- F25D 2317/043 . . by creating a vacuum in a storage compartment
- F25D 2317/06 . with forced air circulation
- F25D 2317/061 . . through special compartments
- F25D 2317/062 . . along the inside of doors
- F25D 2317/063 . . with air guides
- F25D 2317/065 . . characterised by the air return
- F25D 2317/0651 . . . through the bottom
- F25D 2317/0652 . . . through the corner
- F25D 2317/0653 . . . through the mullion
- F25D 2317/0654 . . . through the side

- F25D 2317/0655 . . . through the top
- F25D 2317/066 . . characterised by the air supply
- F25D 2317/0661 . . . from the bottom
- F25D 2317/0662 . . . from the corner
- F25D 2317/0663 . . . from the mullion
- F25D 2317/0664 . . . from the side
- F25D 2317/0665 . . . from the top
- F25D 2317/0666 . . . from the freezer
- F25D 2317/0667 . . . from the refrigerator
- F25D 2317/067 . . characterised by air ducts
- F25D 2317/0671 . . . Inlet ducts
- F25D 2317/0672 . . . Outlet ducts
- F25D 2317/068 . . characterised by the fans
- F25D 2317/0681 . . . Details thereof
- F25D 2317/0682 . . . Two or more fans
- F25D 2317/0683 . . . the fans not of the axial type
- F25D 2317/0684 . . . the fans allowing rotation in reverse direction

F25D 2321/00 {Details or arrangements for defrosting; Preventing frosting; Removing condensed or defrost water, not provided for in other groups of this subclass}

- F25D 2321/14 . Collecting condense or defrost water; Removing condense or defrost water
- F25D 2321/141 . . Removal by evaporation
- F25D 2321/1411 . . . using compressor heat
- F25D 2321/1412 . . . using condenser heat or heat of desuperheaters
- F25D 2321/1413 . . . using heat from electric elements or using an electric field for enhancing removal
- F25D 2321/142 . . characterised by droplet guides
- F25D 2321/143 . . characterised by means to fix, clamp, or connect water pipes or evaporation trays
- F25D 2321/144 . . characterised by the construction of drip water collection pans
- F25D 2321/1441 . . . inside a refrigerator
- F25D 2321/1442 . . . outside a refrigerator
- F25D 2321/145 . . characterised by multiple collecting pans
- F25D 2321/146 . . characterised by the pipes or pipe connections
- F25D 2321/147 . . characterised by capillary, wick, adsorbent, or evaporation elements

F25D 2323/00 {General constructional features not provided for in other groups of this subclass}

- F25D 2323/0011 . Means for leveling refrigerators
- F25D 2323/002 . Details for cooling refrigerating machinery
- F25D 2323/0021 . . using air guides

- F25D 2323/0022 . . . using multiple air flows
- F25D 2323/0023 . . . Control of the air flow cooling refrigerating machinery
- F25D 2323/0024 . . . Filters in the air flow cooling refrigerating machinery
- F25D 2323/0026 . . . characterised by the incoming air flow
- F25D 2323/00261 through the back bottom side
- F25D 2323/00262 through the back top side
- F25D 2323/00263 through the back corner side
- F25D 2323/00264 through the front bottom part
- F25D 2323/00265 through the front top part
- F25D 2323/00266 through the bottom
- F25D 2323/00267 through the side
- F25D 2323/00268 through the top
- F25D 2323/0027 . . . characterised by the out-flowing air
- F25D 2323/00271 from the back bottom
- F25D 2323/00272 from the back top
- F25D 2323/00273 from the back corner
- F25D 2323/00274 from the front bottom
- F25D 2323/00275 from the front top
- F25D 2323/00276 from the bottom
- F25D 2323/00277 from the side
- F25D 2323/00278 from the top
- F25D 2323/0028 . . . characterised by the fans
- F25D 2323/00281 Two or more fans
- F25D 2323/00282 the fans not of the axial type
- F25D 2323/00283 the fans allowing rotation in reverse direction
- F25D 2323/00284 Details thereof
- F25D 2323/02 . . Details of doors or covers not otherwise covered
- F25D 2323/021 . . . French doors
- F25D 2323/022 . . . Doors that can be pivoted either left-handed or right-handed
- F25D 2323/023 . . . Door in door constructions
- F25D 2323/024 . . . Door hinges
- F25D 2323/06 . . Details of walls not otherwise covered
- F25D 2323/061 . . . Collapsible walls
- F25D 2323/062 . . . Inflatable walls
- F25D 2323/121 . . the refrigerator is characterised by a water filter for the water/ice dispenser
- F25D 2323/122 . . the refrigerator is characterised by a water tank for the water/ice dispenser
- F25D 2325/00 {Charging, supporting or discharging the articles to be cooled, not provided for in other groups of this subclass}**
- F25D 2325/021 . . Shelves with several possible configurations
- F25D 2325/022 . . Shelves made of glass or ceramic

- F25D 2325/023
 - . Shelves made of wires
- F25D 2327/00**
 - {Lighting arrangements not provided for in other groups of this subclass}**
- F25D 2327/001
 - . Lighting arrangements on the external side of the refrigerator, freezer or cooling box
- F25D 2331/00**
 - {Details or arrangements of other cooling or freezing apparatus not provided for in other groups of this subclass}**
- F25D 2331/80
 - . Type of cooled receptacles
- F25D 2331/801
 - . . Bags
- F25D 2331/8011
 - . . . to be carried on the back of a person
- F25D 2331/8012
 - . . . for cosmetics
- F25D 2331/8013
 - . . . for playing golf
- F25D 2331/8014
 - . . . for medical use
- F25D 2331/8015
 - . . . Pouches
- F25D 2331/802
 - . . Barrels
- F25D 2331/803
 - . . Bottles
- F25D 2331/804
 - . . Boxes
- F25D 2331/8041
 - . . . for drinking
- F25D 2331/805
 - . . Cans
- F25D 2331/8051
 - . . . for holding milk
- F25D 2331/806
 - . . Dispensers
- F25D 2331/807
 - . . Eggs
- F25D 2331/808
 - . . Glasses
- F25D 2331/809
 - . . Holders
- F25D 2331/81
 - . . Pitchers
- F25D 2331/811
 - . . Pour-throughs
- F25D 2331/812
 - . . Trays
- F25D 2400/00**
 - General features of, or devices for refrigerators, cold rooms, ice-boxes, or for cooling or freezing apparatus not covered by any other subclass**
- F25D 2400/02
 - . Refrigerators including a heater
- F25D 2400/04
 - . Refrigerators with a horizontal mullion
- F25D 2400/06
 - . Refrigerators with a vertical mullion
- F25D 2400/08
 - . Refrigerator tables
- F25D 2400/10
 - . Refrigerator top-coolers
- F25D 2400/12
 - . Portable refrigerators
- F25D 2400/14
 - . Refrigerator multi units
- F25D 2400/16
 - . Convertible refrigerators
- F25D 2400/18
 - . Aesthetic features
- F25D 2400/20
 - . Carts specially adapted for transporting objects to be cooled
- F25D 2400/22
 - . Cleaning means for refrigerating devices

F25D 2400/24	<ul style="list-style-type: none"> Protection against refrigerant explosions
F25D 2400/26	<ul style="list-style-type: none"> Refrigerating devices for cooling wearing apparel, e.g. garments, hats, shoes or gloves
F25D 2400/28	<ul style="list-style-type: none"> Quick cooling
F25D 2400/30	<ul style="list-style-type: none"> Quick freezing
F25D 2400/32	<ul style="list-style-type: none"> Removal, transportation or shipping of refrigerating devices from one location to another
F25D 2400/34	<ul style="list-style-type: none"> Temperature balancing devices
F25D 2400/36	<ul style="list-style-type: none"> Visual displays
F25D 2400/361	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Interactive visual displays
F25D 2400/38	<ul style="list-style-type: none"> Refrigerating devices characterised by wheels
F25D 2400/40	<ul style="list-style-type: none"> Refrigerating devices characterised by electrical wiring
F25D 2500/00	Problems to be solved
F25D 2500/02	<ul style="list-style-type: none"> Geometry problems
F25D 2500/04	<ul style="list-style-type: none"> Calculation of parameters
F25D 2500/06	<ul style="list-style-type: none"> Stock management
F25D 2600/00	Control issues
F25D 2600/02	<ul style="list-style-type: none"> Timing
F25D 2600/04	<ul style="list-style-type: none"> Controlling heat transfer
F25D 2600/06	<ul style="list-style-type: none"> Controlling according to a predetermined profile
F25D 2700/00	Means for sensing or measuring; Sensors therefor
F25D 2700/02	<ul style="list-style-type: none"> Sensors detecting door opening
F25D 2700/04	<ul style="list-style-type: none"> Sensors detecting the presence of a person
F25D 2700/06	<ul style="list-style-type: none"> Sensors detecting the presence of a product
F25D 2700/08	<ul style="list-style-type: none"> Sensors using Radio Frequency Identification [RFID]
F25D 2700/10	<ul style="list-style-type: none"> Sensors measuring the temperature of the evaporator
F25D 2700/12	<ul style="list-style-type: none"> Sensors measuring the inside temperature
F25D 2700/121	<ul style="list-style-type: none"> <ul style="list-style-type: none"> of particular compartments
F25D 2700/122	<ul style="list-style-type: none"> <ul style="list-style-type: none"> of freezer compartments
F25D 2700/123	<ul style="list-style-type: none"> <ul style="list-style-type: none"> more than one sensor measuring the inside temperature in a compartment
F25D 2700/14	<ul style="list-style-type: none"> Sensors measuring the temperature outside the refrigerator or freezer
F25D 2700/16	<ul style="list-style-type: none"> Sensors measuring the temperature of products