

**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 )

**NOTE**

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.

Attention is drawn to Note (2) following the title of subclass [F24F](#) .

**Guidance heading:** 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 }
  
- Guidance heading:    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**

**Guidance heading:** 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 2230/00**

## **F25D 2240/00**

## **F25D 2250/00**

## **F25D 2260/00**

## **F25D 2270/00**

## **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
<b>F25D 2317/00</b>		{ 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	. Protection against refrigerant explosions
F25D 2400/26	. Refrigerating devices for cooling wearing apparel, e.g. garments, hats, shoes or gloves.
F25D 2400/28	. Quick cooling
F25D 2400/30	. Quick freezing
F25D 2400/32	. Removal, transportation or shipping of refrigerating devices from one location to another
F25D 2400/34	. Temperature balancing devices
F25D 2400/36	. Visual displays
F25D 2400/361	. . Interactive visual displays
F25D 2400/38	. Refrigerating devices characterised by wheels
F25D 2400/40	. Refrigerating devices characterised by electrical wiring
<b>F25D 2500/00</b>	<b>Problems to be solved</b>
F25D 2500/02	. Geometry problems
F25D 2500/04	. Calculation of parameters
F25D 2500/06	. Stock management
<b>F25D 2600/00</b>	<b>Control issues</b>
F25D 2600/02	. Timing
F25D 2600/04	. Controlling heat transfer
F25D 2600/06	. Controlling according to a predetermined profile
<b>F25D 2700/00</b>	<b>Means for sensing or measuring ; Sensors therefor</b>

- F25D 2700/02 . Sensors detecting door opening
- F25D 2700/04 . Sensors detecting the presence of a person
- F25D 2700/06 . Sensors detecting the presence of a product
- F25D 2700/08 . Sensors using Radio Frequency Identification (RFID)
- F25D 2700/10 . Sensors measuring the temperature of the evaporator
- F25D 2700/12 . Sensors measuring the inside temperature
- F25D 2700/121 . . of particular compartments
- F25D 2700/122 . . of freezer compartments
- F25D 2700/123 . . more than one sensor measuring the inside air temperature in a compartment
- F25D 2700/14 . Sensors measuring the temperature outside the refrigerator or freezer
- F25D 2700/16 . Sensors measuring the temperature of products