

F25B

REFRIGERATION MACHINES, PLANTS OR SYSTEMS; COMBINED HEATING AND REFRIGERATION SYSTEMS; HEAT-PUMP SYSTEMS (evaporation or evaporation apparatus for physical or chemical purposes, e.g. evaporation of liquids for gas phase reactions [B01B 1/005](#)); 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](#); pumps, compressors [F04](#); use of heat-pumps for domestic- or space-heating or for domestic hot-water supply [F24D](#); air-conditioning, air-humidification [F24F](#); fluid heaters using heat pumps [F24H](#))

Definition statement

This place covers:

Refrigeration machines, plants or systems; combined heating and refrigeration systems; heat-pump systems.

Cold production at temperatures below ambient, not transportation of heat.

Relationships with other classification places

Evaporation or evaporation apparatus for physical or chemical purposes, e.g. evaporation of liquids for gas phase reactions:	B01B 1/005
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
Pumps, compressors:	F04
Use of heat-pumps for domestic- or space-heating or for domestic hot-water supply:	F24D
Air-conditioning, air-humidification:	F24F
Fluid heaters using heat pumps:	F24H

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Cooling of a manufacturing process	B23Q 11/00
Arrangements or adaptations of heating, cooling, ventilating or other air-treating devices specially for passenger or goods spaces of vehicles	B60H
Air plane air-conditioning	B64D 13/00
Mechanical-power-producing mechanisms	F03G
Piston compressors	F04B
Rotary compressors	F04C
Centrifugal compressors	F04D
Valves	F16K
Liquefaction, solidification, or separation of gases or gaseous mixtures by pressure and cold treatment	F25J

Details of heat-exchange or heat-transfer apparatus, of general application	F28F
Cooling of personal computers	G06F 1/20
Cooling of superconducting magnets	H01F 6/04
Modifications to facilitate cooling, ventilating or heating of different types of electric apparatus	H05K 7/20

Special rules of classification

When classifying heat pump circuits or systems, groups [F25B 1/00](#) - [F25B 25/00](#) and [F25B 29/00](#) take precedence over group [F25B 30/00](#).

Classification in [F25B](#) when refrigeration cycle of air-conditioner is claimed, except for reheat circuits: circulate to [F24F 3/153](#).

[F24F](#), when focus is on air side of refrigeration cycle.

[B60H](#), when focus on refrigeration cycle is specific for a car (e.g. car speed, sunlight).

[F24D 11/00](#), when focus is on heat water/heating heat pumps.

[F25D](#), when a cold room is cooled.

F25B 1/00

Compression machines, plant, or systems with non-reversible cycle
([F25B 3/00](#), [F25B 5/00](#), [F25B 6/00](#), [F25B 7/00](#), [F25B 9/00](#) take precedence)

Definition statement

This place covers:

Compression machines, plant, or systems with non-reversible cycle

Special rules of classification

[F25B 3/00](#), [F25B 5/00](#), [F25B 6/00](#), [F25B 7/00](#), [F25B 9/00](#) take precedence

F25B 1/04

with compressor of rotary type ({[F25B 1/005](#),} [F25B 1/10](#) take precedence)

Special rules of classification

[F25B 1/005](#), [F25B 1/10](#) take precedence.

F25B 1/06

with compressor of jet type, e.g. using liquid under pressure ({[F25B 1/005](#),} [F25B 1/10](#) take precedence)

Definition statement

This place covers:

Ejectors operating as compressor.

References

Limiting references

This place does not cover:

Ejectors used as expansion device	F25B 41/00
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Special rules of classification

[F25B 1/005](#), [F25B 1/10](#) take precedence.

F25B 5/00

Compression machines, plant, or systems, with several evaporator circuits, e.g. for varying refrigerating capacity (with cascade operation [F25B 7/00](#))

References

Limiting references

This place does not cover:

With cascade operation	F25B 7/00
Compression machines, plant, or systems with reversible cycle	F25B 13/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Multi-stage operation	F25B 1/10
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Special rules of classification

The refrigerant flow determines if the evaporators are in series or in parallel, not the air flow.

[F25B 5/00](#) classification of documents having parallel and series evaporators combined in one embodiment.

[F25B 5/02](#) classification of documents having only evaporators in parallel in one document.

[F25B 5/04](#) classification of documents having only evaporators in series in one document.

Documents combining embodiments with only evaporators in parallel with embodiments with only evaporators in series should be classified in [F25B 5/02](#) and [F25B 5/04/CCA](#) or [F25B 5/04](#) and [F25B 5/02/CCA](#).

Evaporators exchanging heat at different pressure levels are additionally classified in [F25B 1/10/CCA](#).

F25B 6/00

Compression machines, plant, or systems, with several condenser circuits

References

Limiting references

This place does not cover:

Compression machines, plant, or systems with reversible cycle	F25B 13/00
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Special rules of classification

The refrigerant flow determines if the condensers are in series or in parallel, not the air flow.

[F25B 6/00](#) classification of documents having parallel and series condensers combined in one embodiment.

[F25B 6/02](#) classification of documents having only condensers in parallel in one document.

[F25B 6/04](#) classification of documents having only condensers in series in one document.

Documents combining embodiments with only condensers in parallel with embodiments with only condensers in series should be classified in [F25B 6/02](#) and [F25B 6/04/CCA](#) or [F25B 6/04](#) and [F25B 6/02/CCA](#).

F25B 7/00

Compression machines, plant, or systems, with cascade operation, i.e. with two or more circuits, the heat from the condenser of one circuit being absorbed by the evaporator of the next circuit ([F25B 9/00](#) takes precedence)

References

Limiting references

This place does not cover:

Primary and secondary systems	F25B 25/005
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Special rules of classification

[F25B 9/00](#) takes precedence.

F25B 9/00

Compression machines, plant, or systems, in which the refrigerant is air or other gas of low boiling point

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Refrigerants	C09K 5/00
Arrangement or mounting of refrigeration units with respect to device	F25D 19/00
Thermal coupling structure or interface	F25D 19/006

F25B 9/006

{the refrigerant containing more than one component ([F25B 9/004](#) takes precedence; refrigerant materials per se [C09K 5/00](#))}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Special arrangements or features of compression machines, plant or systems characterised by the refrigerant being carbon dioxide	F25B 2309/06
Special arrangements or features of compression machines, plant or systems characterised by the refrigerant being carbon dioxide with the cycle highest pressure above the supercritical pressure	F25B 2309/061

Special rules of classification

Special arrangements or features of compression machines, plant or systems characterised by the refrigerant being carbon dioxide are additionally classified in [F25B 2309/06](#) and [F25B 2309/061](#) when the cycle highest pressure is above the supercritical pressure.

F25B 9/06

using expanders ([F25B 9/10](#) takes precedence)

Special rules of classification

[F25B 9/10](#) takes precedence, however in case of multi-stage expander classify also in [F25B 9/06/CCA](#). Only gas cycle and CO₂ expanders are classified in [F25B 9/06](#), other expanders are classified in [F25B 11/02](#) or in [F25B 2400/14](#)

F25B 9/08

using ejectors ([F25B 9/10](#) takes precedence)

Special rules of classification

[F25B 9/10](#) takes precedence, however in case of multi-stage ejector classify also in [F25B 9/06/CCA](#).

F25B 9/14

characterised by the cycle used, e.g. Stirling cycle {(engine plants with Vuilleumier-type cycles [F02G 1/0445](#))}

References**Limiting references**

This place does not cover:

Stirling motors	F02G 1/043
Engine plants with Vuilleumier-type cycles	F02G 1/0445

Informative references

Attention is drawn to the following places, which may be of interest for search:

Special arrangements or features of Ericsson cycles	F25B 2309/1401
Control of a Stirling refrigeration machine	F25B 2309/1428

Special rules of classification

Special arrangements or features of Ericsson cycles are additionally classified in [F25B 2309/1401](#).

Control of Stirling refrigeration machines is classified in [F25B 2309/1428](#).

F25B 9/145

{pulse-tube cycle}

References**Limiting references**

This place does not cover:

Thermoacoustic engines	F03G 7/002
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Special arrangements or features of pulse-tube cycles	F25B 2309/1402
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Special rules of classification

Special arrangements or features of pulse -tube cycles are additionally classified in [F25B 2309/1402](#) and lower.

F25B 11/00

Compression machines, plant, or systems, using turbines, e.g. gas turbines

Definition statement

This place covers:

Compression machines, plant, or systems, using turbines, e.g. gas turbines.

Special rules of classification

With CO₂ as refrigerant classify in [F25B 9/06](#).

F25B 13/00**Compression machines, plant or systems with reversible cycle (defrosting cycles [F25B 47/02](#))****Definition statement**

This place covers:

Compression machines, plant, or systems with reversible cycle: both condenser and evaporator change function when reversing the reversing valve.

References**Limiting references**

This place does not cover:

Defrosting cycles:	F25B 47/02
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Special arrangements or features of compression machines, plant, or systems with reversible cycle not otherwise provided for	F25B 2313/00
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Special rules of classification

Special arrangements or features of compression machines, plant, or systems with reversible cycle not otherwise provided for are additionally classified in [F25B 2313/00](#).

F25B 15/00**Sorption machines, plant, or systems, operating continuously, e.g. absorption type****Definition statement**

This place covers:

Sorption machines, plant, or systems, operating continuously, e.g. absorption type. A refrigeration system in which the process is as follows:

vaporization of the refrigerant; absorption of the vapour by an absorbing liquid; extraction of the refrigerant vapour by heating this liquid; condensation of the refrigerant; expansion of the refrigerant.

References**Limiting references**

This place does not cover:

Sorption machines, plant, or systems, operating intermittently	F25B 17/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Boilers, Analysers, Rectifiers	F25B 33/00
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Boiler-absorbers, i.e. boilers usable for absorption or adsorption	F25B 35/00
Absorbers, Adsorbers	F25B 37/00
Special arrangements or features of sorption refrigeration cycles	F25B 2315/00

Special rules of classification

Special arrangements or features of sorption refrigeration cycles are additionally classified in [F25B 2315/00](#).

F25B 15/10

with inert gas ([F25B 15/004](#), [F25B 15/006](#), [F25B 15/008](#)}, [F25B 15/12](#), [F25B 15/14](#), [F25B 15/16](#) take precedence)

Definition statement

This place covers:

Absorption systems which, in addition to refrigerant and absorbent, also employs an inert medium (such as hydrogen) in order to balance pressure in the various parts of the refrigerating circuit

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Special arrangements or features of inert heat-exchangers	F25B 2315/004
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Special rules of classification

Special arrangements or features of inert heat-exchangers are additionally classified in [F25B 2315/004](#).

F25B 17/00

Sorption machines, plant, or systems, operating intermittently, e.g. absorption or adsorption type

Definition statement

This place covers:

Sorption machines, plant, or systems with alternating periods of vaporization and condensation.

References

Limiting references

This place does not cover:

Sorption machines, plant, or systems, operating continuously	F25B 15/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Boilers, analysers, rectifiers	F25B 33/00
Boiler-absorbers, i.e. usable for absorption or adsorption	F25B 35/00

Absorbers, Adsorbers	F25B 37/00
Special arrangements or features of sorption refrigeration cycles	F25B 2315/00

F25B 19/00

Machines, plant, or systems, using evaporation of a refrigerant but without recovery of the vapour

Special rules of classification

Devices using liquefied gases were historically classified in [F25D 3/10](#).

Only to be classified in [F25D 3/10](#) in case of a cold room.

F25B 21/00

Machines, plant, or systems, using electric or magnetic effects {(magnetic refrigerating material [H01F 1/012](#) and [H01F 1/017](#))}

Definition statement

This place covers:

Machines, plant, or systems, using electric or magnetic effects.

References

Limiting references

This place does not cover:

Magnets, Selection of materials for their magnetic properties	H01F
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of machines, plants, or systems using electro-caloric effects	F25B 2321/001
Details of machines, plants, or systems using magneto-caloric effects	F25B 2321/002
Details of machines, plants, or systems using thermionic electron cooling effects	F25B 2321/003

Special rules of classification

Additional classification of details of machines, plants, or systems using

electro-caloric effects in [F25B 2321/001](#);

magneto-caloric effects in [F25B 2321/002](#);

thermionic electron cooling effects in [F25B 2321/003](#)

F25B 21/02

using Peltier effect; using Nernst-Ettinghausen effect (thermo-electric elements [H01L 35/00](#), [H01L 37/00](#))

References

Limiting references

This place does not cover:

Peltier energy production	H01L 35/00
Thermo-electric elements	H01L 35/00 , H01L 37/00

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details of machines, plants, or systems using Peltier effects	F25B 2321/02
Semiconductor devices	H01L

F25B 23/003

{using selective radiation effect}

Definition statement

This place covers:

Cooling by radiation to the night sky, e.g. by selective coating on a (night sky) radiator.

F25B 23/006

{boiling cooling systems}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Heat-exchange apparatus in which the medium condenses and evaporates, e.g. heat pipes	F28D 15/02
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F25B 25/00

Machines, plant, or systems, using a combination of modes of operation covered by two or more of the groups [F25B 1/00](#) - [F25B 23/00](#) (combinations of two or more modes of operation covered by a single main group, see the relevant group)

Definition statement

This place covers:

Machines, plant, or systems, using a combination of modes of operation covered by two or more of the groups [F25B 1/00](#) - [F25B 23/00](#).

Special rules of classification

Combinations of two or more modes of operation covered by a single main group, see the relevant group.

F25B 25/005

{using primary and secondary systems}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Pump speed control	F25B 2600/13
Arrangements for circulating liquids	F25D 17/02

Special rules of classification

Classification in [F25B 25/005](#) when focus is on primary side of refrigeration cycle. However classification in [F25D 17/02](#) when focus is on secondary side of the refrigeration cycle.

F25B 27/00

Machines, plant, or systems, using particular sources of energy ([F25B 30/06](#) takes precedence)

Definition statement

This place covers:

Machines, plant, or systems, using particular sources of energy should be read as driven by particular sources of energy.

References

Limiting references

This place does not cover:

Use of solar heat	F24J 2/00
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Refrigeration system using an engine for driving a compressor	F25B 2327/00
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Special rules of classification

[F25B 30/06](#) takes precedence.

Refrigeration system using an engine for driving a compressor are additionally classified in [F25B 2327/00](#).

F25B 29/00

Combined heating and refrigeration systems, e.g. operating alternately or simultaneously

Definition statement

This place covers:

Combined heating and refrigeration systems, e.g. operating alternately or simultaneously should be read as operating simultaneously.

Special rules of classification

Only classify in [F25B 29/00](#) when cooling and heating is used simultaneously.

[F25B 13/00](#) takes precedence.

F25B 30/00

Heat pumps

Definition statement

This place covers:

Refrigeration systems employed for heating, by using the heat given off by the condenser.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Water-cooled condensers	F25B 2339/047
Central heating systems using heat pumps	F24D 11/02

Special rules of classification

When classifying heat pump circuits or systems, groups [F25B 1/00](#) - [F25B 25/00](#) and [F25B 29/00](#) take precedence over group [F25B 30/00](#). Classification in [F25B 30/00](#) when heat of condenser is used for a specific purpose, e.g. hot tap water.

F25B 31/00

Compressor arrangements (compressors per se [F04](#))

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Machines or engines in general	F01M
Compressors (lubrication of)	F04
Cooling of compressors	F04B 39/06
Cooling of compressors by injecting a liquid in the gas to be compressed	F04B 39/062

F25B 33/00

Boilers; Analysers; Rectifiers (boiler-absorbers [F25B 35/00](#))

Definition statement

This place covers:

Boilers/generators: that part of an absorption machine in which the refrigerant vapour is driven off by heat.

Analysers: a small fractionating column, in an absorption machine between generator and rectifier or condenser.

Rectifiers: that part of an absorption machine in which entrained absorbent is removed from the refrigerant vapour before condensation.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Boilers, Analysers, Rectifiers	F25B 35/00
Special arrangements of details of boilers; Analysers; Rectifiers	F25B 2333/00

F25B 35/00

Boiler-absorbers, i.e. boilers usable for absorption or adsorption

Definition statement

This place covers:

Boiler-absorbers, i.e. boilers usable for absorption or adsorption

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Sorption machines, plant, or systems, operating continuously, e.g. absorption type	F25B 15/00
Sorption machines, plant, or systems, operating intermittently, e.g. absorption or adsorption type	F25B 17/00

F25B 37/00

Absorbers; Adsorbers (boiler-absorbers [F25B 35/00](#); separating processes involving the treatment of liquids with adsorbents [B01D 15/00](#); separation of gases or vapours by adsorption [B01D 53/02](#); separation of gases or vapours by absorption [B01D 53/14](#); investigating using adsorption or absorption [G01N 30/00](#)); {(absorption or adsorption in general [B01J 20/00](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Boiler-adsorbers	F25B 35/00
Separating processes involving the treatment of liquids with adsorbents	B01D 15/00
Separation of gases or vapours by adsorption	B01D 53/02
Separation of gases or vapours by absorption	B01D 53/14
Liquid distributor absorbing units	B01D 53/18
Absorption or adsorption in general	B01J1/22
Investigating using adsorption or absorption	G01N 30/00

F25B 39/00

Evaporators; Condensers

Definition statement

This place covers:

Evaporators: heat exchangers in which liquid refrigerant is vaporized to produce refrigeration;

Condensers: heat exchangers in which refrigerant vapour is liquefied by removal of heat.

References

Limiting references

This place does not cover:

CO2 radiators/gas coolers	F28
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Informative references

Attention is drawn to the following places, which may be of interest for search:

Special arrangements or details of evaporators	F25B 2339/02
Special arrangements or details of condensers	F25B 2339/04
Heat-exchange apparatus not provided for in another subclass	F28D
Details of heat-exchange or heat-transfer apparatus of general application	F28F
Elements constructed in the shape of a hollow panel, e.g. with channels	F28F 3/12

Special rules of classification

Classification in [F25B 39/00](#) when both evaporator and condenser are claimed.

When a heat exchanger, e.g. evaporator is claimed, classify in [F25B 39/00](#) and [F25B 39/02/CCA](#).

When a heat exchanger, e.g. condenser is claimed classify in [F25B 39/00](#) and [F25B 39/04/CCA](#).

Special arrangements or details of evaporators are additionally classified in [F25B 2339/02](#).

Special arrangements or details of condensers are additionally classified in [F25B 2339/04](#).

F25B 40/00

Subcoolers, desuperheaters or superheaters

Definition statement

This place covers:

Subcoolers: Heat exchangers, after the condenser, for subcooling the condensed refrigerant. Sometimes also called supercooler.

Desuperheaters: Heat exchangers, preceding the condenser for removing all or part of the superheat.

Superheaters: Heat exchanger in which wet vapour leaving an evaporator is dried and superheated.

Special rules of classification

When heat-exchanger is a combination of heat-exchangers of sub-groups [F25B 40/02](#), [F25B 40/04](#) or [F25B 40/06](#) classify in [F25B 40/00](#) and two out of three of [F25B 40/02/CCA](#), [F25B 40/04/CCA](#) or [F25B 40/06/CCA](#).

F25B 41/00

Fluid-circulation arrangements, e.g. for transferring liquid from evaporator to boiler (pumps per se, sealings therefor [F04](#))

Definition statement

This place covers:

Fluid-circulation arrangements, e.g. for transferring liquid from evaporator to boiler.

Ejector refrigeration cycle with the ejector used as expansion device.

Free or natural cooling.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Special arrangements or details of ejectors not being used as compression device	F25B 2341/001
Pumps, sealings therefor	F04
Valves	F16K
Regulating valves	G05D

Special rules of classification

Ejectors used as expansion device are classified in [F25B 41/00](#) and [F25B 2341/001](#)

Ejectors operating as compressor are classified in [F25B 1/06](#) or [F25B 1/08](#).

A compression cycle with natural or free cooling mode is classified in [F25B 41/00](#) in combination with [F25B 2400/0401](#) and [F25B 2400/0411](#).

F25B 41/003**{fluid line arrangements}****Definition statement**

This place covers:

Pipe structures: connections, fittings, joints.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Arrangements for charging or discharging refrigerant	F25B 45/00
Pipes; Joints or fittings for pipes; supports for pipes cables or protective tubing; Means for thermal insulation in general	F16L

F25B 41/062**{Expansion valves (regulating valves per se [G05D](#))}****References****Informative references**

Attention is drawn to the following places, which may be of interest for search:

Special arrangements or details of flow restrictors or expansion valves	F25B 2341/06
Control of expansion valves	F25B 2600/2513

Special rules of classification

Additionally classify special arrangements or details of flow restrictors or expansion valves in [F25B 2341/06](#).

Additional classification of control of expansion valves in [F25B 2600/2513](#).

Regulating valves per se [G05D](#).

F25B 41/067**{capillary tubes}****Definition statement**

This place covers:

Flow restrictor with fixed opening.

F25B 43/00

Arrangements for separating or purifying gases or liquids (in analysers or rectifiers [F25B 33/00](#)); Arrangements for vaporising the residuum of liquid refrigerant, e.g. by heat ([F25B 40/00](#) takes precedence)

Definition statement

This place covers:

Arrangements for separating or purifying gases or liquids

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Arrangements for separating or purifying gases or liquids in analysers or rectifiers	F25B 33/00
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Special rules of classification

[F25B 40/00](#) takes precedence.

F25B 43/003

{filters (in general [B01D](#))}

Definition statement

This place covers:

Filters and/or driers.

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Filters in general	B01D
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F25B 43/006

{accumulators}

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Suction acumulators with deflectors	F25B 2400/03
Receivers	F25B 2400/16

Special rules of classification

Additional classification of high pressure receivers in [F25B 2400/16](#).

F25B 45/00

Arrangements for charging or discharging refrigerant

Definition statement

This place covers:

Charging/discharging of refrigerant to/from a cycle from an external source.

Balancing of refrigerant within a cycle.

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Details for charging or discharging refrigerants; Service stations therefor	F25B 2345/00
Means for monitoring, testing or servicing the air-conditioning of vehicles	B60H 1/00585

Special rules of classification

Details for charging or discharging refrigerants and details of service stations are additionally classified in [F25B 2345/00](#) and lower.

F25B 47/006

{for preventing frost}

Definition statement

This place covers:

Preventing frost/condensation.

F25B 47/02

Defrosting cycles

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Alternate defrosting	F25B 2347/021
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Special rules of classification

Classification in [F25B 47/02](#) when heat for defrosting is extracted from refrigerating cycle itself, otherwise classify in [F25D 21/00](#). Details of defrosting cycles are additionally classified in [F25B 2347/02](#) and lower.

F25B 49/00

Arrangement or mounting of control or safety devices (testing refrigerators [G01M](#); control in general [G05](#))

References**Informative references**

Attention is drawn to the following places, which may be of interest for search:

Compressor control in general	F04B
Testing refrigerators	G01M
Control in general	G05
Motors	H02K

F25B 49/005

{of safety devices ([F25B 49/02](#) and [F25B 49/04](#) take precedence)}

Definition statement

This place covers:

Also classification of monitoring devices.

Special rules of classification

[F25B 49/02](#) and [F25B 49/04](#) take precedence.

F25B 49/02

for compression type machines, plant or systems

References**Limiting references**

This place does not cover:

Control of multiple evaporators	F25B 5/00
High pressure supercritical control the refrigerant being carbon dioxide	F25B 9/008
Control of expansion valve only	F25B 41/062
Defrost control	F25B 47/02 , F25D 21/00
Control of air-conditioning reheater	F24F 3/153

Informative references

Attention is drawn to the following places, which may be of interest for search:

Control of expansion valves	F25B 2600/2513
Sensing or detecting of parameters; Sensors therefor	F25B 2700/00
Compressor control in general	F04B
Testing refrigerators	G01M
Control in general	G05

Motors	H02K
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F25B 49/022

{Compressor control arrangements (in general [F04B](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compressor control	F25B 2600/02
Sensing or detecting of parameters; Sensors therefor	F25B 2700/00

Special rules of classification

Details of compressor control are additionally classified in [F25B 2600/02](#).

Details of sensing or detecting of parameters and sensors therefor are additionally classified in [F25B 2700/00](#).

F25B 49/025

{Motor control arrangements (motors per se [H02K](#))}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Compressor control inverters therefor	F25B 2600/021
Sensing or detecting of parameters; Sensors therefor	F25B 2700/00

Special rules of classification

Details of inverter compressor control are additionally classified in [F25B 2600/02](#).

Details of sensing or detecting of parameters and sensors therefor are additionally classified in [F25B 2700/00](#).

F25B 49/027

{Condenser control arrangements}

References

Informative references

Attention is drawn to the following places, which may be of interest for search:

Fan speed control of condenser fans	F25B 2600/111
Sensing or detecting of parameters; Sensors therefor	F25B 2700/00

Special rules of classification

Details of fan speed control of condenser fans are additionally classified in [F25B 2600/02](#).

Details of sensing or detecting of parameters and sensors therefor are additionally classified in [F25B 2700/00](#).