B60H

ARRANGEMENTS OF HEATING, COOLING, VENTILATING OR OTHER AIR-TREATING DEVICES SPECIALLY ADAPTED FOR PASSENGER OR GOODS SPACES OF VEHICLES

Definition statement

This place covers:

Arrangements or adaptations of heating, cooling, ventilating or other air-treating devices specially for passengers or goods in spaces of vehicles.

Only inventions that relate exclusively to vehicles are covered by this subclass.

References

Informative references

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

Professional, industrial or sporting protective garments with controlled internal environment	A41D 13/002
Filters in general	B01D
Heating or ventilating devices for vehicle seats independent from the vehicle HVAC	B60N
Window or windscreen cleaners using air, e.g. defrosters	B60S
HVAC for railway vehicles	B61D
HVAC for boats or ships	B63J
Arrangements or adaptations of air-treatment apparatus for aircraft crew or passengers, or freight space	B64D 13/00
Compressors in general	F04B
Heat exchangers comprising heat-generating means	F24H
HVAC for buildings	F25B
Heat-exchange apparatus, not provided for in another subclass, in which the heat-exchange media do not come into direct contact	F28D
Details of heat-exchange and heat-transfer apparatus, of general application	F28F
Heating, cooling or ventilating batteries or accumulators and independent from the cabin HVAC	H01M 10/60

Special rules of classification

For refrigerated goods vehicles, classify under subclass B60P (e.g. group B60P 3/20) for pertinent vehicle aspects.

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

HVAC	Heating, ventilation and air conditioning

B60H 1/00

Heating, cooling or ventilating devices

Definition statement

This place covers:

Heating, cooling or ventilating [HVAC] devices for the air inside vehicle cabins or load areas.

References

Informative references

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

Air-treating devices other than for heating, cooling or ventilating	B60H 3/00
Windows, windscreens, non-fixed roofs, doors or similar devices for vehicles	B60J
Heating or ventilating devices for vehicle seats	B60N 2/56
Cleaning of vehicles	B60S 1/00
Vehicle window or windscreen cleaners using air, e.g. defrosters	B60S 1/54

Special rules of classification

B60H 1/00 and subgroups: vehicle specific documents

B60H 1/32 and subgroups: refrigerant circuit and component specific documents

B60H 1/00014

{for load cargos on load transporting vehicles}

Definition statement

This place covers:

Structure of HVAC units the vehicle, air ducts.

References

Limiting references

This place does not cover:

If refrigeration circuit features are characterizing	B60H 1/3232

Informative references

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

Refrigerated goods vehicles in general	B60P 3/20

B60H 1/00271

{HVAC devices specially adapted for particular vehicle parts or components and being connected to the vehicle HVAC unit}

Relationships with other classification places

Heating/cooling liquid urea for exhaust gas treatment:

F01N 3/2066 and Indexing Code F01N 2610/11 cool, F01N 2610/10 heat.

B60H 1/00278

{for the battery}

Definition statement

This place covers:

Battery cooling or heating linked to the vehicle interior air conditioning circuit.

References

Informative references

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

Arrangement or mounting of electric storage means for propulsion in vehicles	B60K 1/04
Hybrid electric vehicles characterised by the electric energy storing means, e.g. batteries or capacitors	B60K 6/28
Controlling the temperature of electric vehicle batteries	B60L 58/24
Arrangement of vehicle batteries not otherwise provided for	B60R 16/04
Heating or cooling of primary cells or batteries	H01M 6/5038
Heating or cooling of secondary cells	H01M 10/60
Energy storage using batteries for indirect contribution to greenhouse gas emissions mitigation	Y02E 60/10

Special rules of classification

If there is an additional evaporator for cooling the battery in an airstream, also classify in B60H 1/323.

B60H 1/00285

{for vehicle seats}

References

Informative references

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

Vehicle seats with heating or ventilating devices	B60N 2/56
Aircraft seats with individual temperature or ventilation control	B64D 11/0626

B60H 1/00292

{for steering wheels}

References

Informative references

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

Steering wheels with heating or ventilating means	B62D 1/065

B60H 1/00314

{Arrangements permitting a rapid heating of the heating liquid (B60H 1/00492, B60H 1/03 take precedence)}

References

Limiting references

This place does not cover:

Heating devices comprising regenerative heating or cooling means, e.g. heat accumulators	B60H 1/00492
Heating devices using heat derived from both the propulsion plant and a source other than the propulsion plant	B60H 1/03

Informative references

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

Electric control of combustion engines by supply of combustible mixture or its constituents	F02D 41/00
Aiding engine start by heating of fluids used in engines	F02N 19/04

B60H 1/00321

{Heat exchangers for air-conditioning devices (B60H 1/3227 takes precedence)}

Relationships with other classification places

Heat exchangers per se: F28D, F28F

B60H 1/00328

{of the liquid-air type}

Definition statement

This place covers:

Coolant / air heat exchangers are classified here.

Special rules of classification

In general: F28D 1/0233, F28D 1/024, F28D 1/0246.

Convectors: F28F 1/14, F28F 1/16, F28F 1/18

In houses: F24D 19/04

B60H 1/00335

{of the gas-air type (B60H 1/18 takes precedence)}

Definition statement

This place covers:

Refrigerant / air heat exchangers are classified here

References

Limiting references

This place does not cover:

Air / Air heat exchangers	B60H 1/00321

B60H 1/00342

{of the liquid-liquid type}

Definition statement

This place covers:

Refrigerant / water or refrigerant / refrigerant or water/water heat exchangers, e.g. stacked plates.

B60H 1/00357

{Air-conditioning arrangements specially adapted for particular vehicles}

Definition statement

This place covers:

HVAC characterized by features related to the type of vehicle are classified here and in the subclasses.

References

Informative references

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

Vehicle bodies	B62D 29/00, B62D 31/00, B62D 39/00

B60H 1/00364

{for caravans or trailers}

Definition statement

This place covers:

HVAC for camping trailers, recreational vehicles and other trailers.

References

Limiting references

This place does not cover:

HVAC for load transport vehicle trailers (aspects of the trailer)	B60H 1/00014
HVAC for load transport vehicle trailers (aspects of the refrigeration unit itself)	B60H 1/3232

Informative references

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

Animal transport vehicles as such	B60P 3/04
Refrigerated goods vehicles as such	B60P 3/20

B60H 1/00371

{for vehicles carrying large numbers of passengers, e.g. buses}

Definition statement

This place covers:

HVAC specific to all road vehicles carrying more passengers than a standard passenger car.

References

Limiting references

This place does not cover:

Railway vehicles,	B61D 27/00
Aircrafts	B64D 13/00

B60H 1/00378

{for tractor or load vehicle cabins}

References

Informative references

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

Truck cabins with sleeping accommodations	B62D 33/0612
Tractor and off-road vehicle cabins	B62D 33/0617

B60H 1/00385

{for vehicles having an electrical drive, e.g. hybrid or fuel cell}

Relationships with other classification places

When batteries or fuel cells are cooled or heated: B60H 1/00278

References

Limiting references

This place does not cover:

When the fuel cell is used for driving the AC components only	B60H 1/00428

Informative references

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

Hybrid vehicles	B60K 6/00
Electric vehicles with batteries or fuel cells	B60L 50/50
Series hybrid vehicles	B60L 50/61
Control	B60W 20/00
Heating a fuel cell	H01M 8/04022
Cooling a fuel cell	H01M 8/04059
For electric or hybrid cars	FI:B60H1/22&671

B60H 1/00392

{for electric vehicles having only electric drive means}

Definition statement

This place covers:

Vehicles driven by an electric motor. Includes fuel cell vehicles and vehicles having a combustion motor only for generating electric power ("range extender").

References

Limiting references

This place does not cover:

When electric and hybrid vehicles are mentioned equally	B60H 1/00385
If a fuel cell is used only for driving a HVAC	B60H 1/00428

B60H 1/004

{for vehicles having a combustion engine and electric drive means, e.g. hybrid electric vehicles}

Definition statement

This place covers:

All hybrid vehicles where the combustion engine can be mechanically coupled to the wheels for vehicle propulsion.

References

Limiting references

This place does not cover:

When electric and hybrid vehicles are mentioned equally	B60H 1/00385

B60H 1/00407

{for open or convertible vehicles}

Definition statement

This place covers:

Vehicles having body parts that can be opened (e.g. convertibles, golf carts) and this affects the air conditioning system.

Relationships with other classification places

Seats: B60H 1/00285

References

Informative references

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

Convertibles in general	B60J 7/00
Seats having "air scarfs"	B60N 2/5671

B60H 1/00414

{for military, emergency, safety or security vehicles}

Definition statement

This place covers:

Vehicles like ambulances, tanks, anti bacteriological warfare vehicles etc. where the air conditioning system is specially adapted to the use of the vehicle (e.g. germ filters, pressurized cabin).

References

Informative references

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

Ambulances	A61G 3/008
Armored vehicles in general.	F41H 7/00

B60H 1/00421

{Driving arrangements for parts of a vehicle air-conditioning (B60H 1/3222 takes precedence)}

References

Limiting references

This place does not cover:

Compressor driving arrangements for cooling devices using compression	B60H 1/3222

Informative references

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

Auxiliary drives for vehicles	B60K 25/00

B60H 1/00428

{electric}

Definition statement

This place covers:

Aspects of power supply (e.g. use of converters / inverters) to drive components (e.g. compressors) of the HVAC.

Solar power and fuel cell power used for air conditioning when the vehicle drive is not electric.

Relationships with other classification places

Domestic air conditioning using natural energy, see F24F 5/0046

Semiconductor Solar Cells per se: Photovoltaic modules H10F 19/00

References

Limiting references

This place does not cover:

DC-DC converters	H02M 3/00
AC-AC converters	H02M 5/00
AC/DC converters	H02M 7/00

B60H 1/00457

{Ventilation unit, e.g. combined with a radiator (control systems for ventilators B60H 1/00828)}

Definition statement

This place covers:

Fans in combination with other components of the HVAC unit, e.g. with heat exchangers.

Relationships with other classification places

Ventilators in general: F04D 15/0005, F04D 25/08

Electrical motors: H02K

References

Informative references

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

Fan casings	F04D 29/40
For radial fans:	F04D 29/4226
For axial fans:	F04D 29/526
Assembly / disassembly of fans:	F04D 29/626
Heaters & casing details & integrated fans	F24D 19/06

B60H 1/00478

{Air-conditioning devices using the Peltier effect}

Definition statement

This place covers:

Thermoelectric modules based on the Peltier or Seebeck effect in HVAC units.

References

Informative references

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

HVAC devices using thermoelectric converters for generating electrical energy, with heat derived from a source other than the propulsion plant	B60H 2001/2275
Air-conditioning systems or apparatus characterised by the use of thermoelectric units or the Peltier effect	F24F 5/0042
Refrigeration machines, plants or systems using the Peltier effect	F25B 21/02
Thermoelectric devices comprising a junction of dissimilar materials, i.e. devices exhibiting Seebeck or Peltier effects	H10N 10/00

B60H 1/00485

{Valves for air-conditioning devices, e.g. thermostatic valves}

Definition statement

This place covers:

Vehicle HVAC characterised by specially adapted valves for refrigerant or coolant.

References

Informative references

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

Valves in general	F16K
Expansion valves used in refrigeration systems	F25B 41/31
Flow control using electric means by acting on throttling devices	G05D 7/0635
Temperature control using sensing elements that expand or contract in response to temperature changes, e.g. thermostatic valves	G05D 23/02

B60H 1/00492

{comprising regenerative heating or cooling means, e.g. heat accumulators}

Definition statement

This place covers:

HVAC units comprising accumulators storing heat or both heat and cold are classified here.

References

Informative references

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

If only cold storage is included in the HVAC	B60H 1/005
Cold storages used in domestic HVAC	F28D 20/00

B60H 1/00521

{Mounting or fastening of components in housings, e.g. heat exchangers, fans, electronic regulators}

References

Informative references

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

Mounting heat exchangers in vehicle bodies	B60K 11/04
Front end modules	B62D 25/085
Sealings	F16J 15/00
Fastening elements on heat exchangers	F28F 9/002

B60H 1/0055

{the housing or parts thereof being integrated in other devices, e.g. dashboard}

References

Informative references

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

Dashboards	B60K 37/00
Dashboards having incorporated ventilation channels	B62D 25/142

B60H 1/00564

{of air ducts}

References

Informative references

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

Dashboards, e.g. with integrated air ducts	B60K 37/00
Ducts, integrated guide vanes	F15D 1/04
Ducting arrangements for domestic air treatment	F24F 13/02

B60H 1/00571

{of liquid ducts, e.g. for coolant liquids or refrigerants}

References

Informative references

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

Pipes, joints of fittings per se	F16L
Flexible pipes with four or more layers, e.g. for refrigerants	F16L 11/045
Couplings with fluid cut-off means using two valves	F16L 37/36
Fluid-circulation arrangements for domestic cooling	F25B 41/00

B60H 1/00585

{Means for monitoring, testing or servicing the air-conditioning}

Definition statement

This place covers:

Service units for servicing the vehicle HVAC.

Includes units for purging, evacuating, filling and testing such an HVAC.

References

Informative references

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

For filling	F25B 45/00
For testing	F25B 49/005

B60H 1/00592

{Add-on devices, e.g. heat/cooling boxes, compartment dividers, upgrade sets}

Definition statement

This place covers:

Receptacles connected to the vehicle HVAC for cooling or heating.

Partition elements used inside the vehicle cabin for separating a cooled or heated compartment.

References

Limiting references

This place does not cover:

Receptacles for food or beverages with refrigerating or warming systems:	B60N 3/104

B60H 1/0065

{Control members, e.g. levers or knobs (B60H 1/00985 takes precedence)}

References

Informative references

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

Remote control devices	G07C 5/008
Switches per se	H03K 17/00
Touch switches per se	H03K 17/96
Capacitive switches	H03K 17/962

B60H 1/00664

{Construction or arrangement of damper doors (control systems or circuits for damper doors B60H 1/00835)}

References

Informative references

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

Air flow control members for domestic air-conditioning	F24F 13/08

B60H 1/00735

{Control systems or circuits characterised by their input, i.e. by the detection, measurement or calculation of particular conditions, e.g. signal treatment, dynamic models}

References

Informative references

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

Monitoring multiple temperatures	G01K 1/026

B60H 1/00742

{by detection of the vehicle occupants' presence; by detection of conditions relating to the body of occupants, e.g. using radiant heat detectors}

References

Informative references

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

Sensors in seats	B60N 2/002

B60H 1/0075

{the input being solar radiation}

References

Informative references

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

Solar sensors	G01J

B60H 1/00764

{the input being a vehicle driving condition, e.g. speed (B60H 1/00828, B60H 1/00864 take precedence)}

Definition statement

This place covers:

Control systems using vehicle speed as input.

Relationships with other classification places

B60H 1/3208 if control of the compressor is based on the vehicle speed.

References

Limiting references

This place does not cover:

If the vehicle position is characterizing	B60H 1/00771
Stop/Idle related control methods	B60H 1/00778

B60H 1/00771

{the input being a vehicle position or surrounding, e.g. GPS-based position or tunnel}

References

Informative references

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

Specially adapted for navigation in a road network	G01C 21/26

B60H 1/008

{the input being air quality}

References

Informative references

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

Air quality sensors per se	G01D

B60H 1/00835

{Damper doors, e.g. position control (construction or arrangement of damper doors B60H 1/00664; B60H 1/00864 takes precedence)}

Relationships with other classification places

Means (levers, gears...) for moving doors see B60H 1/00857

B60H 1/00857

{characterised by the means connecting the initiating means, e.g. control lever, to the damper door}

Definition statement

This place covers:

Drive means for doors etc are classified here.

References

Informative references

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

Gears	F16H
Domestic use	F24F 13/1426

B60H 1/00899

{Controlling the flow of liquid in a heat pump system (controlling the properties of the refrigerant liquid, e.g. pressure or temperature, B60H 1/3204)}

References

Informative references

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

The system uses a heat pump	F24D 19/1039
Heat pumps	F25B 30/00

B60H 1/00978

{Control systems or circuits characterised by failure of detection or safety means; Diagnostic methods}

Definition statement

This place covers:

Methods for detection of insufficient refrigerant charge (when performed by the vehicle itself) are classified here.

Relationships with other classification places

See B60H 1/3233 for compressor saving methods.

F25B 2700/04 (B60H): detecting the charge level of refrigerant

References

Limiting references

This place does not cover:

Devices for Testing HVAC are classified in	B60H 1/00585

Informative references

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

Safety devices for refrigeration machines, e.g. level control of refrigerant	F25B 49/005

Synonyms and Keywords

In patent documents, the following abbreviations are often used:

DE	Füllstandserkennung

B60H 1/00985

{Control systems or circuits characterised by display or indicating devices, e.g. voice simulators (characterised by the input of sound using a voice synthesizer B60H 1/00757; B60H 1/00978 takes precedence)}

References

Informative references

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

Instruments in dashboards	B60K 35/00
Display or monitoring for domestic air-conditioning	F24F 11/50

B60H 1/02

the heat being derived from the propulsion plant

References

Informative references

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

Heating, cooling or ventilating devices comprising regenerative heating or cooling means, e.g. heat accumulators	B60H 1/00492
Heating devices using heat being derived from cooling an electric component, e.g. electric motors, electric circuits, fuel cells or batteries	B60H 1/143

B60H 1/038

{from the cooling liquid of the propulsion plant and from a viscous fluid heater}

Relationships with other classification places

If no cooling water of the engine is used, then classify in B60H 2001/146

References

Informative references

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

Viscous fluid heaters	F24V 40/00

B60H 1/14

other than from cooling liquid of the plant

Definition statement

This place covers:

Heating devices for vehicles where the heat is derived from sources other than the cooling liquid of the propulsion plant, e.g. from lubrication oil, brakes or the transmission.

References

Informative references

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

Liquid cooled brakes	F16D 65/853

B60H 1/143

{the heat being derived from cooling an electric component, e.g. electric motors, electric circuits, fuel cells or batteries}

Definition statement

This place covers:

The source of heat is waste heat from electric components.

Relationships with other classification places

If an electric heater is provided: B60H 1/2215

B60H 1/18

the air being heated from the plant exhaust gases {(B60H 1/025 takes precedence)}

References

Limiting references

This place does not cover:

Heating devices using both cooling liquid and exhaust gases of the propulsion plant	B60H 1/025

Informative references

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

Exhaust or silencing apparatus combined or associated with devices profiting by exhaust energy	F01N 5/00

B60H 1/22

the heat source being other than the propulsion plant {(B60H 1/00492 takes precedence)}

References

Limiting references

This place does not cover:

Heating devices comprising regenerative heating means	B60H 1/00492

Informative references

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

HVAC devices being independent of the vehicle	B60H 1/0025
Water heaters	F24H 1/00
Air heaters	F24H 3/00
Details of fluid heaters having heat-generating means in general	F24H 9/00

B60H 1/2203

{the heat being derived from burners}

References

Informative references

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

Methods or apparatus for combustion using fluid fuel or solid fuel suspended in air	F23C
Burners	F23D
Burners using capillary action	F23D 3/00
Exhaust systems for conducting smoke or fumes from combustion	F23J 11/00
Feeding fuel to combustion apparatus	F23K
Controlling combustion	F23N
Controlling combustion for vehicle heating	F23N 2241/14
Ignition means	F23Q
Water heaters with helically or spirally coiled tubes using fluid fuel	F24H 1/165
Arrangement or mounting of grates or heating means in fluid heaters	F24H 9/18

B60H 1/2206

{controlling the operation of burners}

References

Informative references

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

Systems for controlling combustion	F23N 5/00

B60H 1/2215

{the heat being derived from electric heaters}

References

Informative references

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

Supply of electric power to heating circuits in electric vehicles	B60L 1/02
Electric resistance heating for domestic use	F24D 13/02
Electric water heaters in general	F24H 1/162
Electric heating for vehicles	H05B 1/0236

B60H 1/2218

{controlling the operation of electric heaters}

References

Informative references

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

Helically or spirally coiled water heaters with electrical energy supply	F24H 1/162

B60H 1/2221

{arrangements of electric heaters for heating an intermediate liquid (B60H 1/034 takes precedence)}

References

Informative references

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

Heating means for windscreen-cleaning liquid	B60S 1/488
Water heaters specially adapted for vehicle systems	F24H 1/009
Air heaters using electric energy supply	F24H 3/0429

B60H 1/241

{characterised by the location of ventilation devices in the vehicle}

Definition statement

This place covers:

Ventilating systems in a vehicle characterized by the position of the nozzles relative to the vehicle.

B60H 1/247

{Disposition of several air-diffusers in a vehicle for ventilation-air circulation in a vehicle cabin}

References

Informative references

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

Dashboards having incorporated ventilation channels	B62D 25/142

B60H 1/249

{using one-way valves}

References

Informative references

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

Check valves	F16K 15/00
Air-flow control members with movable members for domestic air-conditioning	F24F 13/14

B60H 1/26

Ventilating openings in vehicle exterior; Ducts for conveying ventilating air

References

Informative references

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

Radiator guards	B60R 19/52

B60H 1/262

{Openings in or on the vehicle roof}

References

Informative references

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

Roof Hatches per se	B60J 7/1635

B60H 1/265

{Openings in window or door posts or pillars (B60H 1/248 takes precedence)}

References

Limiting references

This place does not cover:

Air-extractors, air-evacuation from the vehicle interior	B60H 1/248

Informative references

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

Door pillars as part of the vehicle superstructure	B62D 25/04

B60H 1/267

{Openings in or near to vehicle windows}

References

Informative references

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

Adjustable vehicle side windows with pivotal or rotary movement	B60J 1/14
Vehicle window accessories, e.g. wind deflectors	B60J 1/20

B60H 1/28

the openings being situated directly in front of vehicle front window

References

Informative references

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

Cowls for vehicles	B62D 25/081

B60H 1/32

Cooling devices {(B60H 1/00478, B60H 1/005 take precedence)}

References

Limiting references

This place does not cover:

Air-conditioning devices using the Peltier effect	B60H 1/00478
Cooling devices comprising regenerative cooling means, e.g. cold accumulators	B60H 1/005

Informative references

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

Vehicles adapted to transport refrigerated goods	B60P 3/20

B60H 1/3201

{using absorption or adsorption}

References

Informative references

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

Liquids for absorption type circuits	C09K 5/047
Sorbtion machines in general	F25B 15/00, F25B 17/00

B60H 1/3202

{using evaporation, i.e. not including a compressor, e.g. involving fuel or water evaporation}

References

Informative references

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

Cooling devices using sublimation, e.g. dry ice cooling or melting ice	B60H 1/3235
Domestic air-conditioning systems or apparatus using evaporation	F24F 5/0035
Machines using evaporation of refrigerant without recovery of the vapour	F25B 19/00
Devices using evaporation without recovery of the vapour	F25D 7/00
Heat-exchange apparatus having stationary conduit assemblies for one heat-exchange medium only, the media being in contact with different sides of the conduit wall, using the cooling effect of natural or forced evaporation	F28D 5/00

B60H 1/3204

{using compression (B60H 1/3233 takes precedence)}

References

Limiting references

This place does not cover:

Cooling devices characterised by condensed liquid drainage means	B60H 1/3233

Informative references

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

Refrigerant liquids	C09K 5/041
Cooling devices using compression, in general	F25B, F25D

B60H 1/3222

{characterised by the compressor driving arrangements, e.g. clutches, transmissions or multiple drives (B60H 1/3208, B60H 1/3226 take precedence)}

Definition statement

This place covers:

Hybrid compressor drives (mechanic and electric) are classified here

References

Limiting references

This place does not cover:

Vehicle drive related control of the compressor drive means	B60H 1/3208
Self-contained devices	B60H 1/3226

B60H 1/323

{characterised by comprising auxiliary or multiple systems, e.g. plurality of evaporators, or by involving auxiliary cooling devices}

Relationships with other classification places

If batteries are cooled, use B60H 1/00278.

B60H 1/3232

{particularly adapted for load transporting vehicles (B60H 1/3226 takes precedence)}

Definition statement

This place covers:

Refrigerant units for truck cargo space

Relationships with other classification places

B60H 1/00014 if the aspects of the vehicle are characterizing.

References

Limiting references

This place does not cover:

Self-contained devices	B60H 1/3226

Informative references

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

Refrigerated goods vehicles	B60P 3/20

B60H 1/3233

{characterised by condensed liquid drainage means}

References

Informative references

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

Evacuating condensate in domestic air-conditioning	F24F 13/222

B60H 1/34

Nozzles; Air-diffusers

References

Informative references

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

Arrangement of multiple air diffusers for cabin ventilation	B60H 1/247
Outlets for windshield defrosting	B60S 1/54
Outlets for directing or distributing air into rooms or spaces for domestic air conditioning or ventilation	F24F 13/06
Air-flow control members, e.g. louvres, grilles or flaps for domestic air conditioning	F24F 13/08

B60H 1/3457

{Outlets providing a vortex, i.e. a spirally wound air flow}

References

Informative references

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

Domestic air-conditioning	F24F

B60H 3/00

Other air-treating devices

Definition statement

This place covers:

Devices for treating air inside or flowing into a cabin or load area of a vehicle, characterised by other aspects than heating, cooling or ventilation, e.g. scenting, deodorising, ionising, humidity control or filtering.

References

References out of a residual place

Examples of places in relation to which this place is residual:

Control systems or circuits characterised by their input, i.e. by the detection, measurement or calculation of particular conditions, e.g. signal treatment, dynamic models	B60H 1/00735

B60H 3/0007

{Adding substances other than water to the air, e.g. perfume, oxygen}

References

Informative references

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

Human necessities	A61L 9/122
Air treatment other than cooling or heating in domestic air-conditioning systems	F24F 3/12, F24F 8/00

B60H 3/0071

{Electrically conditioning the air, e.g. by ionizing}

References

Informative references

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

Disinfection, sterilisation or deodorisation of air using ultraviolet radiation	A61L 9/20
Disinfection, sterilisation or deodorisation of air using ionisation	A61L 9/22
Applying ionised fluids for electrotherapy	A61N 1/44
Purification of air supplied to human living or working spaces by separation using electrical means	F24F 8/192
Sterilisation of air supplied to human living or working spaces using UV light	F24F 8/22
Ionising air supplied to human living or working spaces	F24F 8/30
Odorisation of air supplied to human living or working spaces	F24F 8/50

B60H 3/0085

{Smell or pollution preventing arrangements (B60H 3/0007, B60H 3/0071, B60H 3/02, B60H 3/06 take precedence)}

Definition statement

This place covers:

Cleaning or disinfecting of the interior of the HVAC for preventing or removing smell or malodour, e.g. malodour caused by fungi or accumulated dirt.

References

Informative references

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

Disinfection or sterilisation of materials or objects, in general; Accessories therefor	A61L 2/00
Cleaning internal surfaces in general	B08B 9/027
Cleaning substances	C11D
Cleaning by jets	F28G 1/163
Cleaning by using chemical substances	F28G 9/00

B60H 3/02

Moistening {; Humidity control}

Definition statement

This place covers:

- Means for reducing or increasing air humidity;
- Control of air humidity.

References

References out of a residual place

Examples of places in relation to which this place is residual:

Cooling devices using evaporation	B60H 1/3202
Control of compression-based cooling systems for dehumidification	B60H 1/3207

Informative references

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

Domestic air-conditioning systems with air treatment by humidification or dehumidification	F24F 3/14
Air-humidification of domestic rooms	F24F 6/00

B60H 3/06

Filtering

Definition statement

This place covers:

Cleaning outside or recirculated air entering the vehicle cabin by the use of filters.

References

Informative references

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

Air-treating devices comprising electric purifying means	B60H 3/0078
Filters with additional separating or treating functions	B01D 46/0027
Filters with additional adsorption or absorption functions	B01D 46/0036
Filter condition indicators	B01D 46/0086
Gas separation by adsorption using stationary adsorbents	B01D 53/04
Filters adapted for separating dispersed particles from gases or vapours specially modified for cleaning of environmental air, e.g. by filters installed on vehicles or on streets	B01D 2279/40
Arrangement or mounting of filters for domestic air-conditioning	F24F 13/28