CPC COOPERATIVE PATENT CLASSIFICATION

B PERFORMING OPERATIONS; TRANSPORTING
(NOTES omitted)

TRANSPORTING

B60 VEHICLES IN GENERAL
(NOTE omitted)

B60H ARRANGEMENTS OR ADAPTATIONS OF HEATING, COOLING, VENTILATING, OR OTHER AIR-TREATING DEVICES SPECIALLY FOR PASSENGER OR GOODS SPACES OF VEHICLES

NOTE
Attention is drawn to the Note following the title of class B60

WARNING
In this subclass non-limiting references (in the sense of paragraph 39 of the Guide to the IPC) may still be displayed in the scheme.

1/00 Heating, cooling or ventilating ([HVAC]) devices
(heating, cooling or ventilating devices providing other air treatment, the other treatment being relevant, B60H 3/00; ventilating solely by opening windows, doors, roof parts, or the like B60J; heating or ventilating devices for vehicle seats B60N 2/56; vehicle window or windscreens cleaners using air, e.g. defrosters, B60S 1/54)

NOTE
In this group and its subgroups, as well as in patent documents, the following abbreviation is used:
• HVAC Heating, Ventilating and Air Conditioning

1/0007 . . . [Combined heating, ventilating, or cooling devices (control systems or mechanisms B60H 1/00642)]
1/0014 . . . [for load cargos on load transporting vehicles]
1/0021 . . . [Air flow details of HVAC devices]
1/0028 . . . [Constructional lay-out of the devices in the vehicle]
1/0035 . . . [for sending an air stream of uniform temperature into the passenger compartment]
1/0042 . . . . [the air passing only one heat exchanger]
1/0005 . . . . [the air being firstly cooled and subsequently heated or vice versa]
1/0057 . . . . [the air being heated and cooled simultaneously, e.g. using parallel heat exchangers]
1/0064 . . . . [for sending air streams of different temperatures into the passenger compartment]
1/0071 . . . . [the air passing only one heat exchanger]
2001/00078 . . . [Assembling, manufacturing or layout details]
2001/00085 . . . [of air intake]
2001/00092 . . . [of air deflecting or air directing means inside the device]
2001/00099 . . . [comprising additional ventilating means]
2001/00107 . . . [characterised by the relative position of the heat exchangers, e.g. arrangements leading to a curved airflow]

2001/00114 . . . [Heating or cooling details]
2001/00121 . . . . [More than one heat exchanger in parallel]
2001/00128 . . . . [Electric heaters]
2001/00135 . . . . [Dividing walls for separate air flows]
2001/00142 . . . . [first heating and then cooling]
2001/0015 . . . . [Temperature regulation]
2001/00157 . . . . [without by-pass]
2001/00164 . . . . [with more than one by-pass]
2001/00171 . . . . [Valves on heaters for modulated liquid flow]
2001/00178 . . . . [comprising an air passage from the HVAC box to the exterior of the cabin]
2001/00185 . . . . [Distribution of conditioned air]
2001/00192 . . . . [to left and right part of passenger compartment]
2001/002 . . . . . [to front and rear part of passenger compartment]
1/00207 . . . . [characterised by the position of the HVAC devices with respect to the passenger compartment (B60H 1/00021 takes precedence)]
2001/00214 . . . . [Devices in front of the passenger compartment]
2001/00221 . . . . [Devices in the floor or side wall area of the passenger compartment]
2001/00228 . . . . [Devices in the interior of the passenger compartment]
2001/00235 . . . . [Devices in the roof area of the passenger compartment]
2001/00242 . . . . [Devices in the rear area of the passenger compartment]
1/0025 . . . . [the devices being independent of the vehicle]
1/00257 . . . . [Non-transportable devices, disposed outside the vehicle, e.g. on a parking]
1/00264 . . . . [Transportable devices]
B60H

1/00271 . [HVAC devices specially adapted for particular vehicle parts or components and being connected to the vehicle HVAC unit]

WARNING

Group B60H 1/00271 is impacted by reclassification into group B60H 1/00295.

Groups B60H 1/00271 and B60H 1/00295 should be considered in order to perform a complete search.

1/00278 . . . [for the battery (arrangement of batteries B60R 16/04)]
1/00285 . . . [for vehicle seats (vehicle seats with heating or ventilation means independent from the HVAC system of the vehicle B60N 2/56)]
1/00292 . . . [for steering wheels (steering wheels with heating or ventilation means independent from the HVAC system of the vehicle B62D 1/065)]
1/00295 . . . [for trim components, e.g. panels, dashboards, liners]

WARNING

Group B60H 1/00295 is incomplete pending reclassification of documents from group B60H 1/00271.

Groups B60H 1/00295 and B60H 1/00271 should be considered in order to perform a complete search.

2001/003 . . . [Component temperature regulation using an air flow]
2001/00307 . . . [Component temperature regulation using a liquid flow]
1/00314 . . . [Arrangements permitting a rapid heating of the heating liquid (B60H 1/00492, B60H 1/03 take precedence: aiding engine start by heating of engine coolants F02N 19/10)]
1/00321 . . . [Heat exchangers for air-conditioning devices (B60H 1/3227 takes precedence)]
1/00328 . . . [of the liquid-air type]
1/00335 . . . [of the gas-air type (B60H 1/18 takes precedence)]
1/00342 . . . [of the liquid-liquid type]
2001/0035 . . . [movable in and out of the air stream]
1/00357 . . . [Air-conditioning arrangements specially adapted for particular vehicles]
1/00364 . . . [for caravans or trailers]
1/00371 . . . [for vehicles carrying large numbers of passengers, e.g. buses]
1/00378 . . . [for tractor or load vehicle cabins]
1/00385 . . . [for vehicles having an electrical drive, e.g. hybrid or fuel cell]
1/00392 . . . [for electric vehicles having only electric drive means]
1/004 . . . [for vehicles having a combustion engine and electric drive means, e.g. hybrid electric vehicles]
1/00407 . . . [for open or convertible vehicles]
1/00414 . . . [for military, emergency, safety or security vehicles]
1/00421 . . . [Driving arrangements for parts of a vehicle air-conditioning (B60H 1/322 takes precedence; auxiliary drives per se for vehicles B60K 25/00)]
1/00428 . . . [electric]

1/00435 . . . [fluid or pneumatic]
1/00442 . . . [using a vacuum]
1/0045 . . . [mechanical power take-offs from the vehicle propulsion unit]
1/00457 . . . [Ventilation unit, e.g. combined with a radiator (control systems for ventilators B60H 1/00828)]
1/00464 . . . [The ventilator being of the axial type]
1/00471 . . . [The ventilator being of the radial type, i.e. with radial expulsion of the air]
1/00478 . . . [Air-conditioning devices using the Peltier effect (for air-conditioning in general F24F 5/0042; for refrigeration F25B 21/02; electric devices exhibiting the Peltier effect H01L 35/00)]
1/00485 . . . [Valves for air-conditioning devices, e.g. thermostatic valves (valves per se F16K; thermostatic valves per se G05D 23/02)]
1/00492 . . . [comprising regenerative heating or cooling means, e.g. heat accumulators]

WARNING

Group B60H 1/00492 is impacted by reclassification into group B60H 1/00499.

Groups B60H 1/00492 and B60H 1/00499 should be considered in order to perform a complete search.

1/00499 . . . [Heat or cold storage without phase change including solid bodies, e.g. batteries]

WARNING

Group B60H 1/00499 is incomplete pending reclassification of documents from groups B60H 1/00492 and B60H 1/005.

Groups B60H 1/00492, B60H 1/005 and B60H 1/00499 should be considered in order to perform a complete search.

1/005 . . . [Regenerative cooling means, e.g. cold accumulators]

WARNING

Group B60H 1/005 is impacted by reclassification into group B60H 1/00499.

Groups B60H 1/005 and B60H 1/00499 should be considered in order to perform a complete search.

1/00507 . . . [Details, e.g. mounting arrangements, desaeration devices (B60H 1/32 takes precedence)]
1/00514 . . . [Details of air conditioning housings]
1/00521 . . . [Mounting or fastening of components in housings, e.g. heat exchangers, fans, electronic regulators]
1/00528 . . . [Connections between housing parts]
1/00535 . . . [Mounting or fastening of the housing to the vehicle]
1/00542 . . . [Modular assemblies]
1/0055 . . . [the housing or parts thereof being integrated in other devices, e.g. dashboard]
1/00557 . . . [Details of ducts or cables]
1/00564 . . . [of air ducts]
1/00571 . . . [of liquid ducts, e.g. for coolant liquids or refrigerants]
1/00578 . . . [of bowden wires]

WARNING
should be considered in order to perform a complete search.

**WARNING**

Group B60H 1/00642 is impacted by reclassification into groups B60H 1/0073 and B60H 2001/0073:

- Groups B60H 1/00642, B60H 1/0073 and B60H 2001/0073 should be considered in order to perform a complete search.

1/0065 . . . [Control members, e.g. levers or knobs (B60H 1/00985 takes precedence)]

1/00657 . . . [Remote control devices]

1/00664 . . . [Construction or arrangement of damper doors (control systems or circuits for damper doors B60H 1/00835)]

1/00671 . . . [Damper doors moved by rotation; Grilles]

1/00678 . . . [the axis of rotation being in the door plane, e.g. butterfly doors]

1/00685 . . . [the door being a rotating disc or cylinder or part thereof (B60H 1/00678 takes precedence)]

1/00692 . . . [Damper doors moved by translation, e.g. curtain doors]

2001/007 . . . [Manufacturing or assembling]

2001/00707 . . . [Details of pivots of damper doors]

2001/00714 . . . [Details of seals of damper doors]

2001/00721 . . . [Air deflecting or air directing means]

2001/00728 . . . [Film doors]

1/0073 . . . [Control systems or circuits characterised by particular algorithms or computational models, e.g. fuzzy logic or dynamic models]

**WARNING**

Group B60H 1/0073 is incomplete pending reclassification of documents from groups B60H 1/00642, B60H 1/00735 and B60H 1/00964.

All groups listed in this Warning should be considered in order to perform a complete search.

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]

**WARNING**

Group B60H 1/00735 is impacted by reclassification into groups B60H 1/0073 and B60H 2001/0073:

- Groups B60H 1/00735, B60H 1/0073 and B60H 2001/0073 should be considered in order to perform a complete search.

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]

1/0075 . . . [the input being solar radiation]

1/00757 . . . [by the input of sound, e.g. by using a voice synthesizer]

1/00764 . . . [the input being a vehicle driving condition, e.g. speed (B60H 1/00828, B60H 1/00864 take precedence)]

1/00771 . . . [the input being a vehicle position or surrounding, e.g. GPS-based position or tunnel]

1/00777 . . . [the input being a stationary vehicle position, e.g. parking or stopping]

1/00785 . . . [by the detection of humidity or frost]

1/00792 . . . [Arrangement of detectors (B60H 1/00742, B60H 1/0075, B60H 1/00785 take precedence)]

1/008 . . . [the input being air quality]

1/00807 . . . [the input being a specific way of measuring or calculating an air or coolant temperature]

1/00814 . . . [Control systems or circuits characterised by their output, for controlling particular components of the heating, cooling or ventilating installation]

1/00821 . . . [the components being ventilating, air admitting or air distributing devices]

1/00828 . . . [Ventilators, e.g. speed control (B60H 1/00864 takes precedence)]

1/00835 . . . [Damper doors, e.g. position control (construction or arrangement of damper doors B60H 1/00664; B60H 1/00864 takes precedence)]

1/00842 . . . . [the system comprising a plurality of damper doors; Air distribution between several outlets]

1/00849 . . . . [for selectively commanding the induction of outside or inside air (B60H 1/00842 takes precedence)]
characterised by the means connecting the initiating means, e.g. control lever, to the damper door

Ventilators and damper doors

Air directing means, e.g. blades in an air outlet (construction of nozzles or air diffusers B60H 1/34)

the components being temperature regulating devices

WARNING
Group B60H 1/00878 is impacted by reclassification into group B60H 2001/00961.
Groups B60H 1/00878 and B60H 2001/00961 should be considered in order to perform a complete search.

Controlling the flow of heating or cooling liquid, e.g. valves or pumps (B60H 1/00899 takes precedence; constructions of valves B60H 1/00485)

Devices specially adapted for avoiding uncomfortable feeling, e.g. sudden temperature changes (B60H 1/00885 takes precedence)

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)

where the flow direction of the refrigerant changes and an evaporator becomes condenser

where the flow direction of the refrigerant does not change and there is a bypass of the condenser

where the flow direction of the refrigerant does not change and there is an extra subcondenser, e.g. in an air duct

comprising a secondary circuit

WARNING
Group B60H 2001/00928 is impacted by reclassification into group B60H 2001/00961.
All groups listed in this Warning should be considered in order to perform a complete search.

comprising four way valves for controlling the fluid direction

WARNING
Group B60H 2001/00935 is impacted by reclassification into group B60H 2001/00961.
All groups listed in this Warning should be considered in order to perform a complete search.

comprising a plurality of heat exchangers, e.g. for multi zone heating or cooling

comprising additional heating/cooling sources, e.g. second evaporator

comprising locations with heat exchange within the refrigerant circuit itself, e.g. cross-, counter-, or parallel heat exchange

WARNING
Group B60H 2001/00957 is impacted by reclassification into group B60H 2001/00961.
All groups listed in this Warning should be considered in order to perform a complete search.

comprising means for defrosting outside heat exchangers

WARNING
Group B60H 2001/00961 is incomplete pending reclassification of documents from groups B60H 1/00878, B60H 2001/00928, B60H 2001/00935, B60H 2001/00942, B60H 2001/00949 and B60H 2001/00957.
All groups listed in this Warning should be considered in order to perform a complete search.

Control systems or circuits characterised by including features for automatic and non-automatic control, e.g. for changing from automatic to manual control

WARNING
Group B60H 2001/00964 is impacted by reclassification into groups B60H 1/0073 and B60H 2001/00733.
Groups B60H 1/00964, B60H 1/0073 and B60H 2001/00733 should be considered in order to perform a complete search.

Control systems or circuits characterised by including features for locking or memorising of control modes

Control systems or circuits characterised by failure of detection or safety means; Diagnostic methods
and B60H 1/039.

**WARNING**

Group B60H 1/039 is impacted pending reclassification of documents from group B60H 1/03.

Groups B60H 1/03 and B60H 1/039 should be considered in order to perform a complete search.

1/039 . . . [from air leaving the interior of the vehicle, i.e. heat recovery]

**WARNING**

Group B60H 1/039 is impacted pending reclassification of documents from group B60H 1/03.

Groups B60H 1/03 and B60H 1/039 should be considered in order to perform a complete search.

1/04 . . . from cooling liquid of the plant (B60H 1/025, B60H 1/03 take precedence)

1/06 . . . directly from main radiator

1/08 . . . from other radiator than main radiator

1/10 . . . the other radiator being situated in a duct capable of being connected to atmosphere outside vehicle

1/12 . . . using an air blower

1/14 . . . otherwise than from cooling liquid of the plant (.e.g. heat from the grease oil, the brakes, the transmission unit (B60H 1/03 takes precedence))

1/143 . . . [the heat being derived from cooling an electric component, e.g. electric motors, electric circuits, fuel cells or batteries]

2001/146 . . . [from a viscous fluid heater]

1/16 . . . the air being heated by direct contact with the plant, e.g. air-cooled motor

1/18 . . . the air being heated from the plant exhaust gases (B60H 1/025 takes precedence; exhaust or silencing apparatus associated with devices profiting by exhaust energy F01N 5/00)

1/20 . . . using an intermediate heat-transferring medium

1/22 . . . the heat being derived otherwise than from the propulsion plant (B60H 1/0025, B60H 1/00492 and B60H 1/03 take precedence)

1/2203 . . . [the heat being derived from burners (burners in general F23C, F23D, F24H 9/18)]

1/2206 . . . [controlling the operation of burners (control of burners in general F23N 5/00)]

1/2209 . . . [arrangements of burners for heating an intermediate liquid (B60H 1/032 takes precedence)]

1/2212 . . . [arrangements of burners for heating air]

1/2215 . . . [the heat being derived from electric heaters]

**WARNING**

Group B60H 1/2215 is impacted by reclassification into groups B60H 1/2226 and B60H 1/2227.

Groups B60H 1/2215, B60H 1/2226 and B60H 1/2227 should be considered in order to perform a complete search.

1/2218 . . . [controlling the operation of electric heaters]

1/2221 . . . [arrangements of electric heaters for heating an intermediate liquid (B60H 1/034 takes precedence)]

1/2225 . . . [arrangements of electric heaters for heating air]

1/2226 . . . [Electric heaters using radiation]

**WARNING**

Group B60H 1/2226 is incomplete pending reclassification of documents from group B60H 1/2215.

Groups B60H 1/2215 and B60H 1/2226 should be considered in order to perform a complete search.

1/2227 . . . [Electric heaters incorporated in vehicle trim components, e.g. panels or linings]

**WARNING**

Group B60H 1/2227 is incomplete pending reclassification of documents from group B60H 1/2215.

Groups B60H 1/2215 and B60H 1/2227 should be considered in order to perform a complete search.
B60H

2001/2268 . . . [Constructional features]
2001/2271 . . . [Heat exchangers, burners, ignition devices]
2001/2275 . . . [Thermoelectric converters for generating electrical energy]
2001/2278 . . . [Connectors, water supply, housing, mounting brackets]
2001/2281 . . . [Air supply, exhaust systems]
2001/2284 . . . [Fuel supply]
2001/2287 . . . [Integration into a vehicle HVAC system or vehicle dashboard (B60H 2001/00128 takes precedence)]
2001/229 . . . [Integration into an air outlet]
2001/2293 . . . [Integration into other parts of a vehicle]
2001/2296 . . . [integration into fluid/air heat exchangers]
1/24 . . . Devices purely for ventilating or where the heating or cooling is irrelevant (nozzles, air-diffusers B60H 1/34)
1/241 . . . [characterised by the location of ventilation devices in the vehicle]
1/242 . . . [located in the front area]
1/243 . . . [located in the lateral area (e.g. doors, pillars)]
1/244 . . . [located in the rear area]
1/245 . . . [located in the roof]
1/246 . . . [located in the interior of the vehicle or in or below the floor]
1/247 . . . [Disposition of several air-diffusers in a vehicle for ventilation-air circulation in a vehicle cabin]
1/248 . . . [Air-extractors, air-evacuation from the vehicle interior]
1/249 . . . [using one-way valves]
1/26 . . . [Ventilating openings in vehicle exterior; Ducts for conveying ventilating air]
1/262 . . . [Openings in or on the vehicle roof]
1/265 . . . [Openings in window or door past or pillars (door pasts per se B62D 25/14; B60H 1/248 takes precedence)]
1/267 . . . [Openings in or near to vehicle windows (pivoting side windows B60J 1/14; wind deflectors associated with windows for ventilating B60H 1/20)]
1/28 . . . [the openings being situated directly in front of vehicle front window]
1/30 . . . [Air scoops]
1/32 . . . [Cooling devices (B60H 1/00478, B60H 1/005 take precedence);] vehicles adapted to transport refrigerated goods B60P 3/20]
1/3201 . . . [using absorption or adsorption]

WARNING
Group B60H 1/3201 is impacted by reclassification into groups B60H 1/3201 and B60H 1/32014.
Groups B60H 1/3201, B60H 1/3201 and B60H 1/32014 should be considered in order to perform a complete search.

1/32011 . . . [using absorption, e.g. using Li-Br and water]

WARNING
Group B60H 1/32011 is incomplete pending reclassification of documents from group B60H 1/3201.
Groups B60H 1/3201 and B60H 1/32011 should be considered in order to perform a complete search.

1/32014 . . . [using adsorption, e.g. using Zeolite and water]

WARNING
Group B60H 1/32014 is incomplete pending reclassification of documents from group B60H 1/3201.
Groups B60H 1/3201 and B60H 1/32014 should be considered in order to perform a complete search.

1/3202 . . . [using evaporation, i.e. not including a compressor, e.g. involving fuel or water evaporation (B60H 1/3235 takes precedence; in general F25B 19/00, F25D 7/00)]
1/3204 . . . [using compression (B60H 1/3233 takes precedence)]

WARNING
Group B60H 1/3204 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.
All groups listed in this Warning should be considered in order to perform a complete search.

1/3205 . . . [Control means therefor]

WARNING
Group B60H 1/3205 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.
All groups listed in this Warning should be considered in order to perform a complete search.

1/3207 . . . [for minimizing the humidity of the air]
1/3208 . . . [Vehicle drive related control of the compressor drive means, e.g. for fuel saving purposes]
1/321 . . . [for preventing the freezing of a heat exchanger]
1/3211 . . . [for increasing the efficiency of a vehicle refrigeration cycle]
1/3213 . . . [for increasing the efficiency of a vehicle heat pump]
1/3214 . . . [for improving the lubrication of a refrigerant compressor in a vehicle]
1/3216 . . . [for improving a change in operation duty of a compressor in a vehicle]
1/3217 . . . [for high pressure, inflammable or poisonous refrigerants causing danger in case of accidents]
1/3219 . . . [for improving the response time of a vehicle refrigeration cycle]
1/322 . . . [for improving the stop or idling operation of the engine]
1/3222  . .  [characterised by the compressor driving arrangements, e.g. clutches, transmissions or multiple drives (B60H 1/3208, B60H 1/3226 take precedence)]

**WARNING**

Group B60H 1/3222 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.

All groups listed in this Warning should be considered in order to perform a complete search.

1/3223  . .  [characterised by the arrangement or type of the compressor (B60H 1/3222 takes precedence)]

**WARNING**

Group B60H 1/3223 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.

All groups listed in this Warning should be considered in order to perform a complete search.

1/3225  . .  [characterised by safety arrangements, e.g. compressor anti-seizure means or by signalling devices]

**WARNING**

Group B60H 1/3225 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.

All groups listed in this Warning should be considered in order to perform a complete search.

1/3226  . .  [Self-contained devices, i.e. including own drive motor]

**WARNING**

Group B60H 1/3226 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.

All groups listed in this Warning should be considered in order to perform a complete search.

1/3227  . .  [characterised by the arrangement or the type of heat exchanger, e.g. condenser, evaporator (condensed liquid drainage means B60H 1/3233)]

**WARNING**

Group B60H 1/3227 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.

All groups listed in this Warning should be considered in order to perform a complete search.

1/3228  . .  [characterised by refrigerant circuit configurations]

**WARNING**

Group B60H 1/3228 is incomplete pending reclassification of documents from groups B60H 1/3204, B60H 1/3205, B60H 1/3222, B60H 1/3223, B60H 1/3225, B60H 1/3226, B60H 1/3227, B60H 1/3229, B60H 1/323 and B60H 1/3232.

All groups listed in this Warning should be considered in order to perform a complete search.

1/32281  . .  [comprising a single secondary circuit, e.g. at evaporator or condenser side]

**WARNING**

Group B60H 1/32281 is incomplete pending reclassification of documents from groups B60H 1/3204, B60H 1/3205, B60H 1/3222, B60H 1/3223, B60H 1/3225, B60H 1/3226, B60H 1/3227, B60H 1/3229, B60H 1/323 and B60H 1/3232.

All groups listed in this Warning should be considered in order to perform a complete search.

1/32284  . .  [comprising two or more secondary circuits, e.g. at evaporator and condenser side]

**WARNING**

Group B60H 1/32284 is incomplete pending reclassification of documents from groups B60H 1/3204, B60H 1/3205, B60H 1/3222, B60H 1/3223, B60H 1/3225, B60H 1/3226, B60H 1/3227, B60H 1/3229, B60H 1/323 and B60H 1/3232.

All groups listed in this Warning should be considered in order to perform a complete search.

1/3229  . .  [characterised by constructional features, e.g. housings, mountings, conversion systems (B60H 1/3227, B60H 1/3233 take precedence)]

**WARNING**

Group B60H 1/3229 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.

All groups listed in this Warning should be considered in order to perform a complete search.
1/323 . . . [characterised by comprising auxiliary or multiple systems, e.g. plurality of evaporators, or by involving auxiliary cooling devices]

**WARNING**

Group B60H 1/323 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.

All groups listed in this Warning should be considered in order to perform a complete search.

1/3232 . . . [particularly adapted for load transporting vehicles (B60H 1/3226 takes precedence)]

**WARNING**

Group B60H 1/3232 is impacted by reclassification into groups B60H 1/3228, B60H 1/32281 and B60H 1/32284.

All groups listed in this Warning should be considered in order to perform a complete search.

1/3233 . . . [characterised by condensed liquid drainage means]

**WARNING**

Group B60H 1/3233 is impacted by reclassification into group B60H 1/32331.

Groups B60H 1/3233 and B60H 1/32331 should be considered in order to perform a complete search.

1/32331 . . . [comprising means for the use of condensed liquid, e.g. for humidification or for improving condenser performance]

**WARNING**

Group B60H 1/32331 is incomplete pending reclassification of documents from group B60H 1/3233.

Groups B60H 1/3233 and B60H 1/32331 should be considered in order to perform a complete search.

1/3235 . . . [using sublimation, e.g. dry ice cooling or melting ice]

2001/3236 . . . [information from a variable is obtained]
2001/3238 . . . [related to the operation of the compressor]
2001/3239 . . . [related to flow]
2001/3241 . . . . [of air]
2001/3242 . . . . [of a refrigerant]
2001/3244 . . . [related to humidity]
2001/3245 . . . . [of air]
2001/3247 . . . . [of a refrigerant]
2001/3248 . . . [related to pressure]
2001/325 . . . [of the refrigerant at a compressing unit]
2001/3251 . . . [of the refrigerant at a condensing unit]
2001/3252 . . . [of the refrigerant at an evaporating unit]
2001/3254 . . . [of the refrigerant at an expansion unit]
2001/3255 . . . [related to temperature]
2001/3257 . . . [of the refrigerant at a compressing unit]
2001/3258 . . . [of the air at a condensing unit]
2001/326 . . . [of the refrigerant at a condensing unit]
2001/3261 . . . [of the air at an evaporating unit] 2001/3263 . . . . [of the refrigerant at an evaporating unit]
2001/3264 . . . . [of the refrigerant at an expansion unit]
2001/3266 . . . [related to the operation of the vehicle]
2001/3267 . . . [related to the operation of an expansion valve]
2001/3269 . . . [output of a control signal]
2001/327 . . . . [related to a compressing unit]
2001/3272 . . . . [to control the revolving speed of a compressor]
2001/3273 . . . [related to the operation of the vehicle, e.g. the compressor driving torque]
2001/3275 . . . . [to control the volume of a compressor]
2001/3276 . . . [related to a condensing unit]
2001/3277 . . . . [to control the air flow]
2001/3279 . . . [to control the refrigerant flow]
2001/328 . . . . [to an evaporating unit]
2001/3282 . . . . [to control the air flow]
2001/3283 . . . . [to control the refrigerant flow]
2001/3285 . . . [related to an expansion unit]
2001/3286 . . . [Constructional features]
2001/3288 . . . . [Additional heat source]
2001/3289 . . . [Additional cooling source]
2001/3291 . . . . [Locations with heat exchange within the refrigerant circuit itself]
2001/3292 . . . . [Compressor drive is electric only]
2001/3294 . . . . [Compressor drive is hybrid]
2001/3295 . . . [Compressing means other than compressor]
2001/3297 . . . [Expansion means other than expansion valve]
2001/3298 . . . [Ejector-type refrigerant circuits]

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**3/00 Other air-treating devices**

3/0007 . . . [Adding substances other than water to the air, e.g. perfume, oxygen]
3/0014 . . . [characterised by the location of the substance adding device]
3/0021 . . . [in the air-conditioning housing]
3/0028 . . . [on or near an air outlet]
3/0035 . . . [characterised by the control methods for adding the substance]
3/0042 . . . [with ventilating means for adding the substances]
3/005 . . . [with heating means for adding the substances]
3/0057 . . . [Servicing means therefor, e.g. for renewal of substances]
{adding more than one substance}

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

{comprising electric purifying means}

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

{in the interior of the HVAC unit, e.g. by
spraying substances inside the unit}

{Moistening \{ Devices influencing humidity levels,
i.e. humidity control (B60H 1/3202, B60H 1/3207
take precedence\}}

{for only humidifying the air}

{for only dehumidifying the air}

{the devices being located in the passenger
compartment}

{the devices comprising regeneration means}

{Filtering \{ (B60H 3/0078 takes precedence\}}

{Filter arrangements in the air stream}

{with provisions for replacing the filter
element}

{with provisions for by-passing the filter
element}

{with provisions for regenerating or cleaning
the filter element}

{near ventilating openings in the vehicle
exterior}

{Details for holding filter elements in position}

{Filter elements specially adapted for their
arrangement in vehicles (B60H 3/0608 takes
precedence)}

{the filter element having non-rectangular
shape}

{Photocatalytic filters}

{the quality of the filter or the air being checked}

{Adsorption filters, e.g. activated carbon}