

# CPC COOPERATIVE PATENT CLASSIFICATION

## F MECHANICAL ENGINEERING; LIGHTING; HEATING; WEAPONS; BLASTING (NOTE omitted)

### LIGHTING; HEATING

#### F24 HEATING; RANGES; VENTILATING (NOTE omitted)

#### F24F AIR-CONDITIONING; AIR-HUMIDIFICATION; VENTILATION; USE OF AIR CURRENTS FOR SCREENING (removing dirt or fumes from areas where they are produced [B08B 15/00](#); vertical ducts for carrying away waste gases from buildings [E04F 17/02](#); tops for chimneys or ventilating shafts, terminals for flues [F23L 17/02](#))

##### NOTES

1. This subclass covers treatment, e.g. purification, of air supplied to human living or working spaces in air conditioning systems or in room units.
2. In this subclass:
  - air-humidification as auxiliary treatment in air-conditioning, i.e. in units wherein the air is also either cooled or heated, is covered by groups [F24F 1/00](#) or [F24F 3/14](#);
  - air-humidification per se, e.g. "room humidifiers", is covered by group [F24F 6/00](#).
3. In this subclass, the following terms or expressions are used with the meanings indicated:
  - "air-conditioning" means the supply of air to or the treatment of air in rooms or spaces by means of cooling or a combination of cooling and a further kind of air treatment, e.g. humidification, heating or air purification;
  - "ventilation" means the supply of air to, or its extraction from, rooms or spaces, and systems for circulating air within rooms or spaces, but does not cover the mere treatment of air being supplied to, extracted from, or circulated within, rooms or spaces.
4. In this subclass, control or safety arrangements are classified in group [F24F 11/00](#). In order to indicate the type of air-treatment system in which these arrangements are used, further classification may be made in groups [F24F 1/00](#) - [F24F 9/00](#).

##### 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 Room units for air-conditioning, e.g. separate or self-contained units or units receiving primary air from a central station**

- 1/0003
- characterised by a split arrangement, wherein parts of the air-conditioning system, e.g. evaporator and condenser, are in separately located units

- 1/0007
- Indoor units, e.g. fan coil units ([self-contained units F24F 1/02](#))

##### WARNING

Group [F24F 1/0007](#) is impacted by reclassification into groups [F24F 1/00073](#), [F24F 1/00075](#), [F24F 1/00077](#), [F24F 1/0035](#), [F24F 1/0038](#), [F24F 1/0041](#), [F24F 1/0043](#), [F24F 1/0047](#), [F24F 1/005](#), [F24F 1/0053](#), [F24F 1/0057](#), [F24F 1/0059](#), [F24F 1/0063](#), [F24F 1/0067](#), [F24F 1/0068](#), [F24F 1/0071](#), [F24F 1/0073](#), [F24F 1/0076](#), [F24F 1/008](#), [F24F 1/0083](#), [F24F 1/0087](#), [F24F 1/009](#), [F24F 1/0093](#), [F24F 1/0097](#), [F24F 1/032](#), [F24F 1/0323](#), [F24F 1/0325](#), [F24F 1/0326](#), [F24F 1/0328](#), [F24F 1/035](#), [F24F 1/0353](#) and [F24F 1/037](#).

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

- 1/00073 . . {comprising a compressor in the indoor unit housing}

**WARNING**

Group [F24F 1/00073](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/00073](#) should be considered in order to perform a complete search.

- 1/00075 . . {receiving air from a central station}

**WARNING**

Group [F24F 1/00075](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/00075](#) should be considered in order to perform a complete search.

- 1/00077 . . {receiving heat exchange fluid entering and leaving the unit as a liquid}

**WARNING**

Group [F24F 1/00077](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/00077](#) should be considered in order to perform a complete search.

- 1/0011 . . characterised by air outlets

- 1/0014 . . . having two or more outlet openings

- 1/0018 . . characterised by fans (with secondary air induced by injector action of the primary air [F24F 1/01](#))

- 1/0022 . . . Centrifugal or radial fans

- 1/0025 . . . Cross-flow or tangential fans

- 1/0029 . . . Axial fans

- 1/0033 . . . having two or more fans

- 1/0035 . . characterised by introduction of outside air to the room

**WARNING**

Group [F24F 1/0035](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#). Group [F24F 1/0035](#) is also impacted by reclassification into group [F24F 1/0038](#).

Groups [F24F 1/0035](#), [F24F 1/0007](#) and [F24F 1/0038](#) should be considered in order to perform a complete search.

- 1/0038 . . . in combination with simultaneous exhaustion of inside air

**WARNING**

Group [F24F 1/0038](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0035](#) and [F24F 1/0041](#).

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

- 1/0041 . . characterised by exhaustion of inside air from the room (in combination with simultaneous introduction of outside air [F24F 1/0038](#))

**WARNING**

Group [F24F 1/0041](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Group [F24F 1/0041](#) is also impacted by reclassification into group [F24F 1/0038](#).

Groups [F24F 1/0041](#), [F24F 1/0007](#) and [F24F 1/0038](#) should be considered in order to perform a complete search.

- 1/0043 . . characterised by mounting arrangements

**WARNING**

Group [F24F 1/0043](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/0043](#) should be considered in order to perform a complete search.

- 1/0047 . . . mounted in the ceiling or at the ceiling

**WARNING**

Group [F24F 1/0047](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/0047](#) should be considered in order to perform a complete search.

- 1/005 . . . mounted on the floor; standing on the floor

**WARNING**

Group [F24F 1/005](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/005](#) should be considered in order to perform a complete search.

- 1/0053 . . . mounted at least partially below the floor; with air distribution below the floor

**WARNING**

Group [F24F 1/0053](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/0053](#) should be considered in order to perform a complete search.

- 1/0057 . . . mounted in or on a wall

**WARNING**

Group [F24F 1/0057](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/0057](#) should be considered in order to perform a complete search.

- 1/0059 . . characterised by heat exchangers

**WARNING**

Group [F24F 1/0059](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Group [F24F 1/0059](#) is also impacted by reclassification into groups [F24F 1/0063](#), [F24F 1/0067](#), [F24F 1/0068](#), [F24F 1/032](#), [F24F 1/0323](#), [F24F 1/0325](#) and [F24F 1/0326](#).

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

- 1/0063 . . . by the mounting or arrangement of the heat exchangers

**WARNING**

Group [F24F 1/0063](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0059](#).

Groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/0063](#) should be considered in order to perform a complete search.

- 1/0067 . . . by the shape of the heat exchangers or of parts thereof, e.g. of their fins

**WARNING**

Group [F24F 1/0067](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0059](#).

Groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/0067](#) should be considered in order to perform a complete search.

- 1/0068 . . characterised by the arrangement of refrigerant piping outside the heat exchanger within the unit casing

**WARNING**

Group [F24F 1/0068](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0059](#).

Groups [F24F 1/0007](#) and [F24F 1/0059](#) and [F24F 1/0068](#) should be considered in order to perform a complete search.

- 1/0071 . . with means for purifying supplied air (perfuming or deodorising means [F24F 1/008](#))

**WARNING**

Group [F24F 1/0071](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Group [F24F 1/0071](#) is also impacted by reclassification into groups [F24F 1/0073](#), [F24F 1/0076](#), [F24F 1/0328](#), [F24F 1/035](#) and [F24F 1/0353](#).

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

- 1/0073 . . . characterised by the mounting or arrangement of filters

**WARNING**

Group [F24F 1/0073](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0071](#).

Groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/0073](#) should be considered in order to perform a complete search.

- 1/0076 . . . by electric means, e.g. ionisers or electrostatic separators

**WARNING**

Group [F24F 1/0076](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/0071](#).

Groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/0076](#) should be considered in order to perform a complete search.

- 1/008 . . with perfuming or deodorising means

**WARNING**

Group [F24F 1/008](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/008](#) should be considered in order to perform a complete search.

- 1/0083 . . with dehumidification means

**WARNING**

Group [F24F 1/0083](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/0083](#) should be considered in order to perform a complete search.

- 1/0087 . . with humidification means

**WARNING**

Group [F24F 1/0087](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/0087](#) should be considered in order to perform a complete search.

- 1/009 . . characterised by heating arrangements (characterised by heat exchangers [F24F 1/0059](#))

**WARNING**

Group [F24F 1/009](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/009](#) should be considered in order to perform a complete search.

- 1/0093 . . . with additional radiant heat-discharging elements, e.g. electric heaters

**WARNING**

Group [F24F 1/0093](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/0093](#) should be considered in order to perform a complete search.

- 1/0097 . . . using thermoelectric or thermomagnetic means, e.g. Peltier elements

**WARNING**

Group [F24F 1/0097](#) is incomplete pending reclassification of documents from group [F24F 1/0007](#).

Groups [F24F 1/0007](#) and [F24F 1/0097](#) should be considered in order to perform a complete search.

- 1/01 . . in which secondary air is induced by injector action of the primary air

- 1/02 . Self-contained room units for air-conditioning, i.e. with all apparatus for treatment installed in a common casing

**WARNING**

Group [F24F 1/02](#) is impacted by reclassification into groups [F24F 1/028](#), [F24F 1/0284](#), [F24F 1/0287](#), [F24F 1/029](#), [F24F 1/03](#), [F24F 1/031](#), [F24F 1/0314](#), [F24F 1/0317](#), [F24F 1/032](#), [F24F 1/0323](#), [F24F 1/0325](#), [F24F 1/0326](#), [F24F 1/0328](#), [F24F 1/035](#), [F24F 1/0353](#), [F24F 1/0355](#), [F24F 1/0358](#), [F24F 1/037](#), [F24F 1/0373](#), [F24F 1/0375](#), [F24F 1/0378](#) and [F24F 1/039](#).

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

- 1/022 . . comprising a compressor cycle
- 1/027 . . . mounted in wall openings, e.g. in windows
- 1/028 . . characterised by air supply means, e.g. fan casings, internal dampers or ducts (with secondary air induced by injector action of the primary air [F24F 1/01](#))

**WARNING**

Group [F24F 1/028](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/028](#) should be considered in order to perform a complete search.

- 1/0284 . . . with horizontally arranged fan axis

**WARNING**

Group [F24F 1/0284](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0284](#) should be considered in order to perform a complete search.

- 1/0287 . . . with vertically arranged fan axis

**WARNING**

Group [F24F 1/0287](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0287](#) should be considered in order to perform a complete search.

- 1/029 . . characterised by the layout or mutual arrangement of components, e.g. of compressors or fans

**WARNING**

Group [F24F 1/029](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/029](#) should be considered in order to perform a complete search.

- 1/03 . . characterised by mounting arrangements

**WARNING**

Group [F24F 1/03](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/03](#) should be considered in order to perform a complete search.

- 1/031 . . . penetrating a wall or window

**WARNING**

Group [F24F 1/031](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/031](#) should be considered in order to perform a complete search.

- 1/0314 . . . mounted on a wall

**WARNING**

Group [F24F 1/0314](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0314](#) should be considered in order to perform a complete search.

- 1/0317 . . . suspended from the ceiling

**WARNING**

Group [F24F 1/0317](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0317](#) should be considered in order to perform a complete search.

- 1/032 . . . characterised by heat exchangers

**WARNING**

Group [F24F 1/032](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/02](#).

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

- 1/0323 . . . by the mounting or arrangement of the heat exchangers

**WARNING**

Group [F24F 1/0323](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/02](#).

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

- 1/0325 . . . by the shape of the heat exchangers or of parts thereof, e.g. of their fins

**WARNING**

Group [F24F 1/0325](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/02](#).

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

- 1/0326 . . . characterised by the arrangement of refrigerant piping outside the heat exchanger within the unit casing

**WARNING**

Group [F24F 1/0326](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0059](#) and [F24F 1/02](#).

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

- 1/0328 . . . with means for purifying supplied air (perfuming or deodorising means [F24F 1/0355](#))

**WARNING**

Group [F24F 1/0328](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/02](#).

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

- 1/035 . . . characterised by the mounting or arrangement of filters

**WARNING**

Group [F24F 1/035](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/02](#).

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

- 1/0353 . . . by electric means, e.g. ionisers or electrostatic separators

**WARNING**

Group [F24F 1/0353](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#), [F24F 1/0071](#) and [F24F 1/02](#).

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

- 1/0355 . . . with perfuming or deodorising means

**WARNING**

Group [F24F 1/0355](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0355](#) should be considered in order to perform a complete search.

- 1/0358 . . . with dehumidification means

**WARNING**

Group [F24F 1/0358](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0358](#) should be considered in order to perform a complete search.

- 1/037 . . . with humidification means

**WARNING**

Group [F24F 1/037](#) is incomplete pending reclassification of documents from groups [F24F 1/0007](#) and [F24F 1/02](#).

Groups [F24F 1/0007](#) and [F24F 1/02](#) and [F24F 1/037](#) should be considered in order to perform a complete search.

- 1/0373 . . . characterised by heating arrangements (characterised by heat exchangers [F24F 1/032](#))

**WARNING**

Group [F24F 1/0373](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0373](#) should be considered in order to perform a complete search.

- 1/0375 . . . with additional radiant heat-discharging elements, e.g. electric heaters

**WARNING**

Group [F24F 1/0375](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0375](#) should be considered in order to perform a complete search.

- 1/0378 . . . using thermoelectric or thermomagnetic means, e.g. Peltier elements

**WARNING**

Group [F24F 1/0378](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/0378](#) should be considered in order to perform a complete search.

- 1/039 . . using water to enhance cooling, e.g. spraying onto condensers

**WARNING**

Group [F24F 1/039](#) is incomplete pending reclassification of documents from group [F24F 1/02](#).

Groups [F24F 1/02](#) and [F24F 1/039](#) should be considered in order to perform a complete search.

- 1/04 . . Arrangements for portability
- 1/06 . Separate outdoor units, e.g. outdoor unit to be linked to a separate room comprising a compressor and a heat exchanger

**NOTE**

In this group, the first place priority rule is applied, i.e. at each hierarchical level, in the absence of an indication to the contrary, classification is made in the first appropriate place.

- 1/08 . . Compressors specially adapted for separate outdoor units
- 1/10 . . . Arrangement or mounting thereof
- 1/12 . . . Vibration or noise prevention thereof
- 1/14 . . Heat exchangers specially adapted for separate outdoor units
- 1/16 . . . Arrangement or mounting thereof
- 1/18 . . . characterised by their shape
- 1/20 . . Electric components for separate outdoor units
- 1/22 . . . Arrangement or mounting thereof
- 1/24 . . . Cooling of electric components
- 1/26 . . Refrigerant piping
- 1/28 . . . for connecting several separate outdoor units
- 1/30 . . . for use inside the separate outdoor units
- 1/32 . . . for connecting the separate outdoor units to indoor units
- 1/34 . . . Protection means thereof, e.g. covers for refrigerant pipes
- 1/36 . . Drip trays for outdoor units
- 1/38 . . Fan details of outdoor units, e.g. bell-mouth shaped inlets or fan mountings
- 1/40 . . Vibration or noise prevention at outdoor units (for outdoor units compressors [F24F 1/12](#))
- 1/42 . . characterised by the use of the condensate, e.g. for enhanced cooling
- 1/44 . . characterised by the use of internal combustion engines
- 1/46 . . Component arrangements in separate outdoor units
- 1/48 . . . characterised by air airflow, e.g. inlet or outlet airflow

- 1/50 . . . . with outlet air in upward direction
- 1/52 . . . . with inlet and outlet arranged on the same side, e.g. for mounting in a wall opening
- 1/54 . . . . Inlet and outlet arranged on opposite sides
- 1/56 . . Casing or covers of separate outdoor units, e.g. fan guards
- 1/58 . . . Separate protective covers for outdoor units, e.g. solar guards, snow shields or camouflage
- 1/60 . . Arrangement or mounting of the outdoor unit
- 1/62 . . . Wall-mounted
- 1/64 . . . Ceiling-mounted, e.g. below a balcony
- 1/66 . . . under the floor level
- 1/68 . . . Arrangement of multiple separate outdoor units

**3/00 Air-conditioning systems in which conditioned primary air is supplied from one or more central stations to distributing units in the rooms or spaces where it may receive secondary treatment; Apparatus specially designed for such systems (room units [F24F 1/00](#))**

- 3/001 . {in which the air treatment in the central station takes place by means of a heat-pump or by means of a reversible cycle (regulation of heat-pump circuit in air treatment systems [F25B 29/00](#); heat pumps [F25B 13/00](#), [F25B 29/00](#); reversible cycle for humidifying and drying air [F24F 3/147](#))}
- 2003/003 . {with primary air treatment in the central station and subsequent secondary air treatment in air treatment units located in or near the rooms}
- 2003/005 . . {with a single air duct for transporting treated primary air from the central station to air treatment units located in or near the rooms}
- 2003/006 . . {with two air ducts for separately transporting treated hot and cold primary air from the central station to air treatment units located in or near the rooms}
- 2003/008 . {Supplying highly filtered air to a room or to a limited area within a room}
- 3/02 . characterised by the pressure or velocity of the primary air
- 3/04 . . operating with high pressure or high velocity
- 3/044 . Systems in which all treatment is given in the central station, i.e. all-air systems
- 3/0442 . . {with volume control at a constant temperature}
- 3/0444 . . . {in which two airstreams are conducted from the central station via independent conduits to the space to be treated, of which one has a constant volume and a season-adapted temperature to compensate for the fluctuating heat transfer losses of the building, while the other varies in volume and is always cold in order to compensate for the interior fluctuations and variable solar heating effects, i.e. so-called "Dual Conduit System"; this system is similar to a high-pressure air-water system}
- 2003/0446 . . {with a single air duct for transporting treated air from the central station to the rooms}
- 2003/0448 . . {with two air ducts for separately transporting treated hot and cold air from the central station to the rooms}
- 3/048 . . with temperature control at constant rate of air-flow



3/052	. . . Multiple duct systems, e.g. systems in which hot and cold air are supplied by separate circuits from the central station to mixing chambers in the spaces to be conditioned	3/153	. . . with subsequent heating, i.e. with the air, given the required humidity in the central station, passing a heating element to achieve the required temperature
3/0522	. . . {in which warm or cold air from the central station is delivered via individual pipes to mixing chambers in the space to be treated, the cold air/warm air ratio being controlled by a thermostat in the space concerned, i.e. so-called Dual-duct System}	3/16	. . by purification, e.g. by filtering; by sterilisation; by ozonisation
3/0525	. . . {in which the air treated in the central station is reheated; this may take place near the central station upon arrival, in the space to be treated, in a branch pipe to zone in a multi-zone system or in the warm pipe in a system having separate supply conduits for warm and cold air}	<b>WARNING</b> Group <a href="#">F24F 3/16</a> is impacted by reclassification into groups <a href="#">F24F 8/00</a> , <a href="#">F24F 8/20</a> , <a href="#">F24F 8/22</a> , <a href="#">F24F 8/24</a> , <a href="#">F24F 8/26</a> , <a href="#">F24F 8/28</a> , <a href="#">F24F 8/30</a> , <a href="#">F24F 8/40</a> , <a href="#">F24F 8/50</a> , <a href="#">F24F 8/60</a> , <a href="#">F24F 8/70</a> , <a href="#">F24F 8/80</a> , and <a href="#">F24F 8/95</a> . All groups listed in this Warning should be considered in order to perform a complete search.	
3/0527	. . . {in which treated air having differing temperatures is conducted through independent conduits from the central station to various spaces to be treated, i.e. so-called "multi-Zone" system; ( <a href="#">F24F 3/0525</a> takes precedence)}	3/163	. . . Clean air work stations, i.e. selected areas within a space which filtered air is passed
3/056	. . the air at least partially flowing over lighting fixtures, the heat of which is dissipated or used (outlets for directing or distributing air into rooms or spaces combined with lighting fixtures <a href="#">F24F 13/078</a> )	3/167	. . . Clean rooms, i.e. enclosed spaces in which a uniform flow of filtered air is distributed (air distribution by perforated walls <a href="#">F24F 7/10</a> )
3/06	. characterised by the arrangements for the supply of heat-exchange fluid for the subsequent treatment of primary air in the room units	<b>5/00</b>	<b>Air-conditioning systems or apparatus not covered by <a href="#">F24F 1/00</a> or <a href="#">F24F 3/00</a> {, e.g. using solar heat or combined with household units such as an oven or water heater}</b>
3/065	. . {with a plurality of evaporators or condensers}	5/0003	. {Exclusively-fluid systems}
3/08	. . with separate supply and return lines for hot and cold heat-exchange fluids {i.e. so-called "4-conduit" system}	5/0007	. {cooling apparatus specially adapted for use in air-conditioning (self-contained room units <a href="#">F24F 1/02</a> ; <a href="#">F24F 5/0046</a> takes precedence; air-humidification <a href="#">F24F 6/00</a> )}
3/10	. . with separate supply lines and common return line for hot and cold heat-exchange fluids {i.e. so-called "3-conduit" system}	5/001	. . {Compression cycle type}
3/12	. characterised by the treatment of the air otherwise than by heating and cooling	5/0014	. . {using absorption or desorption}
3/14	. . by humidification; by dehumidification	5/0017	. . {using cold storage bodies, e.g. ice}
3/1405	. . . {in which the humidity of the air is exclusively affected by contact with the evaporator of a closed-circuit cooling system or heat pump circuit}	5/0021	. . . {using phase change material [PCM] for storage}
3/1411	. . . {by absorbing or adsorbing water, e.g. using an hygroscopic desiccant}	2005/0025	. . . {using heat exchange fluid storage tanks}
3/1417	. . . {with liquid hygroscopic desiccants}	2005/0028	. . . {using hydridable metals as energy storage media}
3/1423	. . . {with a moving bed of solid desiccants, e.g. a rotary wheel supporting solid desiccants}	2005/0032	. . . {Systems storing energy during the night}
3/1429	. . . {alternatively operating a heat exchanger in an absorbing/adsorbing mode and a heat exchanger in a regeneration mode}	5/0035	. . {using evaporation}
2003/1435	. . . {comprising semi-permeable membrane}	2005/0039	. . {using a cryogen, e.g. CO <sub>2</sub> liquid or N <sub>2</sub> liquid}
2003/144	. . . {by dehumidification only}	5/0042	. {characterised by the application of thermo-electric units or the Peltier effect (refrigerators and cooling systems using magnetic or electrical effects in general <a href="#">F25B 21/02</a> ; for semi-conductors <a href="#">H01L 23/38</a> ; thermobatteries or thermogenerators <a href="#">H01L 35/00</a> )}
2003/1446	. . . {by condensing}	5/0046	. {using natural energy, e.g. solar energy, energy from the ground}
2003/1452	. . . {heat extracted from the humid air for condensing is returned to the dried air}	5/005	. . {using energy from the ground by air circulation, e.g. "Canadian well"}
2003/1458	. . . {using regenerators}	2005/0053	. . {receiving heat-exchange fluid from a well}
2003/1464	. . . {using rotating regenerators}	2005/0057	. . {receiving heat-exchange fluid from a closed circuit in the ground}
3/147	. . with both heat and humidity transfer between supplied and exhausted air	2005/006	. . {receiving heat-exchange fluid from the drinking or sanitary water supply circuit}
		2005/0064	. . {using solar energy}
		2005/0067	. . . {with photovoltaic panels}
		5/0071	. {adapted for use in covered swimming pools}
		5/0075	. {Systems using thermal walls, e.g. double window (double windows per se <a href="#">E06B</a> )}
		2005/0078	. . {Double windows}

- 2005/0082 . . {Facades}
- 5/0085 . {Systems using a compressed air circuit  
([B64D 13/00](#), [B60H](#) take precedence)}
- 5/0089 . {Systems using radiation from walls or panels}
- 5/0092 . . {ceilings, e.g. cool ceilings}
- 5/0096 . {combined with domestic apparatus}
- 6/00 Air-humidification {, e.g. cooling by humidification}**
- 2006/001 . {using a water curtain}
- 2006/003 . {using a decorative fountain}
- 2006/005 . {using plants}
- 2006/006 . {with water treatment}
- 2006/008 . {Air-humidifier with water reservoir}
- 6/02 . by evaporation of water in the air {(humidifiers specially adapted for radiators see [F24D 19/008](#))}
- 6/025 . . {using electrical heating means ([F24F 6/105](#) takes precedence)}
- 6/04 . . using stationary unheated wet elements
- 6/043 . . . {with self-sucking action, e.g. wicks (humidifiers for radiators [F24D 19/008](#))}
- 2006/046 . . . {with a water pump}
- 6/06 . . using moving unheated wet elements
- 2006/065 . . . {using slowly rotating discs for evaporation}
- 6/08 . . using heated wet elements
- 6/10 . . . heated electrically
- 6/105 . . . . {using the heat of lamps}
- 6/12 . by forming water dispersions in the air
- 6/14 . . using nozzles
- 2006/143 . . . {using pressurised air for spraying}
- 2006/146 . . . {using pressurised water for spraying}
- 6/16 . . using rotating elements
- 6/18 . by injection of steam into the air

**7/00 Ventilation****WARNING**

Group [F24F 7/00](#) is impacted by reclassification into group [F24F 7/003](#).  
Groups [F24F 7/00](#) and [F24F 7/003](#) should be considered in order to perform a complete search.

- 2007/001 . {with exhausting air ducts}

**WARNING**

Group [F24F 2007/001](#) is impacted by reclassification into group [F24F 7/003](#).  
Groups [F24F 2007/001](#) and [F24F 7/003](#) should be considered in order to perform a complete search.

- 2007/002 . . {Junction box, e.g. for ducts from kitchen, toilet or bathroom}

**WARNING**

Group [F24F 2007/002](#) is impacted by reclassification into group [F24F 7/003](#).  
Groups [F24F 2007/002](#) and [F24F 7/003](#) should be considered in order to perform a complete search.

- 2007/0025 . {using vent ports in a wall}

**WARNING**

Group [F24F 2007/0025](#) is impacted by reclassification into group [F24F 7/003](#).

Groups [F24F 2007/0025](#) and [F24F 7/003](#) should be considered in order to perform a complete search.

- 7/003 . in combination with air cleaning

**WARNING**

Group [F24F 7/003](#) is incomplete pending reclassification of documents from groups [F24F 7/00](#), [F24F 2007/001](#), [F24F 2007/002](#), [F24F 2007/0025](#), [F24F 2007/004](#), and [F24F 2007/005](#).

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

- 2007/004 . {Natural ventilation using convection}

**WARNING**

Group [F24F 2007/004](#) is impacted by reclassification into group [F24F 7/003](#).

Groups [F24F 2007/004](#) and [F24F 7/003](#) should be considered in order to perform a complete search.

- 2007/005 . {Cyclic ventilation, e.g. alternating air supply volume or reversing flow direction}

**WARNING**

Group [F24F 2007/005](#) is impacted by reclassification into group [F24F 7/003](#).

Groups [F24F 2007/005](#) and [F24F 7/003](#) should be considered in order to perform a complete search.

- 7/007 . with forced flow (using ducting systems [F24F 7/06](#))
- 7/013 . . using wall or window fans, displacing air through the wall or window
- 7/02 . Roof ventilation (ventilation of roof coverings [E04D](#))
- 7/025 . . {with forced air circulation by means of a built-in ventilator}
- 7/04 . with ducting systems {also by double walls; with natural circulation ([F24F 7/02](#) takes precedence)}
- 7/06 . . with forced air circulation, e.g. by fan {positioning of a ventilator in or against a conduit}
- 7/065 . . . {fan combined with single duct; mounting arrangements of a fan in a duct}
- 7/08 . . . with separate ducts for supplied and exhausted air {with provisions for reversal of the input and output systems}
- 7/10 . . . with air supply, or exhaust, through perforated wall, floor or ceiling (outlet members for directing or distributing air {into rooms or spaces, e.g. ceiling air-diffusers} [F24F 13/06](#))



- 8/00 Treatment, e.g. purification, of air supplied to human living or working spaces otherwise than by heating, cooling, humidifying or drying**  
**WARNING**  
 Groups [F24F 8/00](#), [F24F 8/20](#), [F24F 8/22](#), [F24F 8/24](#), [F24F 8/26](#), [F24F 8/28](#), [F24F 8/30](#), [F24F 8/40](#), [F24F 8/50](#), [F24F 8/60](#), [F24F 8/70](#), [F24F 8/80](#), and [F24F 8/95](#) are incomplete pending reclassification of documents from group [F24F 3/16](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- 8/10 . by separation, e.g. by filtering  
**WARNING**  
 Group [F24F 8/10](#) is impacted by reclassification into groups [F24F 8/108](#), [F24F 8/117](#), [F24F 8/125](#), [F24F 8/133](#), [F24F 8/142](#), [F24F 8/15](#), [F24F 8/158](#), [F24F 8/167](#), [F24F 8/175](#), [F24F 8/183](#), [F24F 8/90](#), [F24F 8/96](#), [F24F 8/97](#), [F24F 8/98](#), and [F24F 8/99](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- 8/108 . . using dry filter elements  
**WARNING**  
 Group [F24F 8/108](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).  
 Groups [F24F 8/10](#) and [F24F 8/108](#) should be considered in order to perform a complete search.
- 8/117 . . using wet filtering  
**WARNING**  
 Group [F24F 8/117](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).  
 Group [F24F 8/117](#) is also impacted by reclassification into groups [F24F 8/125](#), [F24F 8/133](#), and [F24F 8/142](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- 8/125 . . . using wet filter elements  
**WARNING**  
 Group [F24F 8/125](#) is incomplete pending reclassification of documents from groups [F24F 8/10](#) and [F24F 8/117](#).  
 Groups [F24F 8/10](#), [F24F 8/117](#), and [F24F 8/125](#) should be considered in order to perform a complete search.
- 8/133 . . . by direct contact with liquid, e.g. with sprayed liquid  
**WARNING**  
 Group [F24F 8/133](#) is incomplete pending reclassification of documents from groups [F24F 8/10](#) and [F24F 8/117](#).  
 Groups [F24F 8/10](#), [F24F 8/117](#), and [F24F 8/133](#) should be considered in order to perform a complete search.
- 8/142 . . . Treatment of used liquid, e.g. cleaning for recycling  
**WARNING**  
 Group [F24F 8/142](#) is incomplete pending reclassification of documents from groups [F24F 8/10](#) and [F24F 8/117](#).  
 Groups [F24F 8/10](#), [F24F 8/117](#), and [F24F 8/142](#) should be considered in order to perform a complete search.
- 8/15 . . by chemical means  
**WARNING**  
 Groups [F24F 8/15](#) - [F24F 8/167](#) are incomplete pending reclassification of documents from group [F24F 8/10](#).  
 All groups listed in this Warning should be considered in order to perform a complete search.
- 8/158 . . . using active carbon  
 8/167 . . . using catalytic reactions  
 8/175 . . using biological materials, plants or microorganisms  
**WARNING**  
 Group [F24F 8/175](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).  
 Groups [F24F 8/10](#) and [F24F 8/175](#) should be considered in order to perform a complete search.
- 8/183 . . by centrifugal separation, e.g. using vortices  
**WARNING**  
 Group [F24F 8/183](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).  
 Groups [F24F 8/10](#) and [F24F 8/183](#) should be considered in order to perform a complete search.
- 8/192 . . by electrical means, e.g. by applying electrostatic fields or high voltages  
 8/194 . . . {by filtering using high voltage}  
 8/20 . by sterilisation  
 8/22 . . using UV light  
 8/24 . . using sterilising media  
 8/26 . . . using ozone  
 8/28 . . specially adapted for combatting or avoiding Legionella bacteria  
 8/30 . by ionisation  
 8/40 . by ozonisation (for sterilisation [F24F 8/26](#))

- 8/50 . by odourisation
- 8/60 . by adding oxygen
- 8/70 . by removing radon
- 8/80 . Self-contained air purifiers
- 8/90 . Cleaning of purification apparatus

**WARNING**

Group [F24F 8/90](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).

Groups [F24F 8/10](#) and [F24F 8/90](#) should be considered in order to perform a complete search.

- 8/95 . specially adapted for specific purposes
- 8/96 . . for removing pollen

**WARNING**

Group [F24F 8/96](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).

Groups [F24F 8/10](#) and [F24F 8/96](#) should be considered in order to perform a complete search.

- 8/97 . . for removing tobacco smoke

**WARNING**

Group [F24F 8/97](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).

Groups [F24F 8/10](#) and [F24F 8/97](#) should be considered in order to perform a complete search.

- 8/98 . . for removing ozone

**WARNING**

Group [F24F 8/98](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).

Groups [F24F 8/10](#) and [F24F 8/98](#) should be considered in order to perform a complete search.

- 8/99 . . for treating air sourced from urban areas, e.g. from streets

**WARNING**

Group [F24F 8/99](#) is incomplete pending reclassification of documents from group [F24F 8/10](#).

Groups [F24F 8/10](#) and [F24F 8/99](#) should be considered in order to perform a complete search.

**9/00 Use of air currents for screening, e.g. air curtains**

- 2009/002 . {Room dividers}
- 2009/005 . {combined with a door}
- 2009/007 . {using more than one jet or band in the air curtain}

**11/00 Control or safety arrangements****NOTE**

In this group, it is desirable to add the indexing codes of groups [F24F 2110/00](#) – [F24F 2140/00](#).

- 11/0001 . {for ventilation ([F24F 11/30](#) takes precedence)}
- 2011/0002 . . {for admittance of outside air}
- 2011/0004 . . . {to create overpressure in a room}
- 2011/0005 . . . {to create underpressure in a room, keeping contamination inside}

- 2011/0006 . . {using low temperature external supply air to assist cooling}

- 11/0008 . {for air-humidification ([F24F 11/30](#) takes precedence)}

- 11/30 . for purposes related to the operation of the system, e.g. for safety or monitoring

**WARNINGS**

1. Group [F24F 11/30](#) is impacted by reclassification into groups [F24F 11/32](#) – [F24F 11/88](#), [F24F 2120/00](#), and [F24F 2140/00](#).

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

2. Groups [F24F 11/32](#) – [F24F 11/49](#) are incomplete pending reclassification of documents from group [F24F 11/30](#).

Groups [F24F 11/30](#) and [F24F 11/32](#) – [F24F 11/49](#) should be considered in order to perform a complete search.

- 11/32 . . Responding to malfunctions or emergencies
- 11/33 . . . to fire, excessive heat or smoke
- 11/34 . . . . by opening air passages
- 11/35 . . . . by closing air passages
- 11/36 . . . to leakage of heat-exchange fluid
- 11/37 . . . Resuming operation, e.g. after power outages; Emergency starting
- 11/38 . . . Failure diagnosis
- 11/39 . . . Monitoring filter performance
- 11/41 . . Defrosting; Preventing freezing
- 11/42 . . . of outdoor units
- 11/43 . . . of indoor units
- 11/46 . . Improving electric energy efficiency or saving
- 11/47 . . . Responding to energy costs
- 11/48 . . prior to normal operation, e.g. pre-heating or pre-cooling
- 11/49 . . ensuring correct operation, e.g. by trial operation or configuration checks
- 11/50 . characterised by user interfaces or communication

**WARNING**

Groups [F24F 11/50](#) – [F24F 11/61](#) are incomplete pending reclassification of documents from group [F24F 11/30](#).

Groups [F24F 11/50](#) – [F24F 11/61](#) and [F24F 11/30](#) should be considered in order to perform a complete search.

- 11/52 . . Indication arrangements, e.g. displays
- 11/523 . . . for displaying temperature data
- 11/526 . . . giving audible indications
- 11/54 . . using one central controller connected to several sub-controllers
- 11/56 . . Remote control
- 11/57 . . . using telephone networks
- 11/58 . . . using Internet communication
- 11/59 . . . for presetting
- 11/61 . . using timers

- 11/62 . characterised by the type of control or by internal processing, e.g. using fuzzy logic, adaptive control or estimation of values
- WARNING**
- Groups [F24F 11/62](#) – [F24F 11/67](#) are incomplete pending reclassification of documents from group [F24F 11/30](#).
- Groups [F24F 11/62](#) – [F24F 11/67](#) and [F24F 11/30](#) should be considered in order to perform a complete search.
- 11/63 . . Electronic processing
- 11/64 . . . using pre-stored data
- 11/65 . . . for selecting an operating mode
- WARNING**
- Group [F24F 11/65](#) is incomplete pending reclassification of documents from group [F24F 11/30](#).
- Group [F24F 11/65](#) is also impacted by reclassification into group [F24F 11/67](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 11/66 . . . . Sleep mode
- 11/67 . . . . Switching between heating and cooling modes
- WARNING**
- Group [F24F 11/67](#) is incomplete pending reclassification of documents from groups [F24F 11/30](#) and [F24F 11/65](#).
- Groups [F24F 11/30](#), [F24F 11/65](#), and [F24F 11/67](#) should be considered in order to perform a complete search.
- 11/70 . Control systems characterised by their outputs; Constructional details thereof
- WARNING**
- Groups [F24F 11/70](#) – [F24F 11/875](#) are incomplete pending reclassification of documents from group [F24F 11/30](#).
- Group [F24F 11/70](#) is also impacted by reclassification into groups [F24F 11/80](#) – [F24F 11/875](#).
- All groups listed in this warning should be considered in order to perform a complete search.
- 11/72 . . for controlling the supply of treated air, e.g. its pressure
- 11/74 . . . for controlling air flow rate or air velocity
- WARNING**
- Group [F24F 11/74](#) is incomplete pending reclassification of documents from group [F24F 11/30](#) and [F24F 11/70](#).
- Group [F24F 11/74](#) is also impacted by reclassification into group [F24F 11/755](#).
- All groups listed in this warning should be considered in order to perform a complete search
- 11/745 . . . . {the air flow rate increasing with an increase of air-current or wind pressure}
- 11/75 . . . . for maintaining constant air flow rate or air velocity
- 11/755 . . . . for cyclical variation of air flow rate or air velocity
- WARNING**
- Group [F24F 11/755](#) is incomplete pending reclassification of documents from groups [F24F 11/30](#), [F24F 11/70](#) and [F24F 11/74](#).
- All groups listed in this warning should be considered in order to perform a complete search.
- 11/76 . . . . by means responsive to temperature, e.g. bimetal springs
- 11/77 . . . . by controlling the speed of ventilators
- 11/79 . . . for controlling the direction of the supplied air
- 11/80 . . for controlling the temperature of the supplied air
- WARNING**
- Groups [F24F 11/80](#) – [F24F 11/875](#) are incomplete pending reclassification of documents from groups [F24F 11/30](#) and [F24F 11/70](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 11/81 . . . by controlling the air supply to heat-exchangers or bypass channels
- 11/83 . . . by controlling the supply of heat-exchange fluids to heat-exchangers
- WARNING**
- Group [F24F 11/83](#) is incomplete pending reclassification of documents from groups [F24F 11/30](#) and [F24F 11/70](#).
- Group [F24F 11/83](#) is also impacted by reclassification into groups [F24F 11/84](#) and [F24F 11/85](#).
- All groups listed in this Warning should be considered in order to perform a complete search.
- 11/84 . . . . using valves
- WARNING**
- Group [F24F 11/84](#) is incomplete pending reclassification of documents from groups [F24F 11/30](#), [F24F 11/70](#) and [F24F 11/83](#).
- All groups listed in this warning should be considered in order to perform a complete search.
- 11/85 . . . . using variable-flow pumps
- WARNING**
- Group [F24F 11/85](#) is incomplete pending reclassification of documents from groups [F24F 11/30](#), [F24F 11/70](#) and [F24F 11/83](#).
- All groups listed should be considered in order to perform a complete search.

11/86	. . . by controlling compressors within refrigeration or heat pump circuits	2013/0616	. . . {Outlets that have intake openings}
11/87	. . . by controlling absorption or discharge of heat in outdoor units	13/062	. . . having one or more bowls or cones diverging in the flow direction
11/871	. . . . by controlling outdoor fans	13/065	. . . formed as cylindrical or spherical bodies which are rotatable
11/873	. . . by controlling refrigerant heaters	13/068	. . . formed as perforated walls, ceilings or floors (F24F 13/078 takes precedence)
11/875	. . . by controlling heat-storage apparatus	13/072	. . . of elongated shape, e.g. between ceiling panels
11/88	. Electrical aspects, e.g. circuits	13/075	. . . having parallel rods or lamellae directing the outflow, e.g. the rods or lamellae being individually adjustable (F24F 13/072 takes precedence)
<b>WARNING</b>		13/078	. . . combined with lighting fixtures
Group F24F 11/88 is incomplete pending reclassification of documents from group F24F 11/30.		13/08	. Air-flow control members, e.g. louvres, grilles, flaps or guide plates (F24F 7/013, F24F 13/06 take precedence)
Groups F24F 11/30 and F24F 11/88 should be considered in order to perform a complete search.		13/081	. . {for guiding air around a curve}
11/89	. Arrangement or mounting of control or safety devices	13/082	. . {Grilles, registers or guards}
<b>12/00</b>	<b>Use of energy recovery systems in air conditioning, ventilation or screening (with both heat and humidity transfer between supplied and exhausted air F24F 3/147)</b>	13/084	. . . {with mounting arrangements, e.g. snap fasteners for mounting to the wall or duct}
12/001	. {with heat-exchange between supplied and exhausted air}	13/085	. . . {including an air filter}
12/002	. . {using an intermediate heat-transfer fluid}	2013/087	. . . {using inflatable bellows}
12/003	. . . {using a heat pump}	2013/088	. . . {Air-flow straightener}
2012/005	. . . {using heat pipes}	13/10	. . movable, e.g. dampers
12/006	. . {using an air-to-air heat exchanger (F24F 12/002 takes precedence)}	13/105	. . . {composed of diaphragms or segments}
2012/007	. . {using a by-pass for bypassing the heat-exchanger}	13/12	. . . built up of sliding members
2012/008	. . {cyclic routing supply and exhaust air}	13/14	. . . built up of tilting members, e.g. louvre
<b>13/00</b>	<b>Details common to, or for air-conditioning, air-humidification, ventilation or use of air currents for screening</b>	13/1406	. . . . {characterised by sealing means}
13/02	. Ducting arrangements	13/1413	. . . . {using more than one tilting member, e.g. with several pivoting blades (F24F 13/15 takes precedence)}
13/0209	. . {characterised by their connecting means, e.g. flanges}	13/142	. . . . {using pivoting blades with intersecting axes}
13/0218	. . {Flexible soft ducts, e.g. ducts made of permeable textiles}	13/1426	. . . . {characterised by actuating means}
13/0227	. . {using parts of the building, e.g. air ducts inside the floor, walls or ceiling of a building (air ducts or channels of buildings E04F 17/04)}	2013/1433	. . . . . {with electric motors}
13/0236	. . {with ducts including air distributors, e.g. air collecting boxes with at least three openings}	2013/144	. . . . . {with thermoactuators}
13/0245	. . {Manufacturing or assembly of air ducts; Methods therefor}	2013/1446	. . . . . {with gearings}
13/0254	. . {characterised by their mounting means, e.g. supports}	2013/1453	. . . . . {with cables, e.g. bowden cables}
13/0263	. . {Insulation for air ducts}	2013/146	. . . . . {with springs}
13/0272	. . {Modules for easy installation or transport}	2013/1466	. . . . . {with pneumatic means}
13/0281	. . {Multilayer duct}	2013/1473	. . . . . {with cams or levers}
13/029	. . {Duct comprising an opening for inspection, e.g. manhole}	2013/148	. . . . . {with magnets}
13/04	. . Air-mixing units (F24F 13/06 takes precedence {; room units for the mixing of pre-treated primary air with recirculated or room air F24F 1/00})	13/1486	. . . . . {characterised by bearings, pivots or hinges}
13/06	. . Outlets for directing or distributing air into rooms or spaces, e.g. ceiling air diffuser	2013/1493	. . . . . {using an elastic membrane}
13/0604	. . . {integrated in or forming part of furniture}	13/15	. . . . . with parallel simultaneously tiltable lamellae
2013/0608	. . . {Perforated ducts}	13/16	. . . built up of parallelly-movable plates
2013/0612	. . . {Induction nozzles without swirl means}	13/18	. . specially adapted for insertion in flat panels, e.g. in door or window-pane
		13/20	. Casings or covers
		2013/202	. . {Mounting a compressor unit therein}
		2013/205	. . {Mounting a ventilator fan therein}
		2013/207	. . {with control knobs; Mounting controlling members or control units therein}
		13/22	. Means for preventing condensation or evacuating condensate {(for refrigerating devices in general F25D 21/14)}
		2013/221	. . {to avoid the formation of condensate, e.g. dew}
		13/222	. . {for evacuating condensate}
		13/224	. . . {in a window-type room air conditioner}
		2013/225	. . . {by evaporating the condensate in the cooling medium, e.g. in air flow from the condenser}
		2013/227	. . . {Condensate pipe for drainage of condensate from the evaporator}

- 2013/228 . . {Treatment of condensate, e.g. sterilising}
- 13/24 . Means for preventing or suppressing noise {(in perforated ceilings [F24F 7/10](#))}
- 2013/242 . . {Sound-absorbing material}
- 2013/245 . . {using resonance}
- 2013/247 . . {Active noise-suppression}
- 13/26 . Arrangements for air-circulation by means of induction, e.g. by fluid coupling or thermal effect
- 13/28 . Arrangement or mounting of filters
- 13/30 . Arrangement or mounting of heat-exchangers
- 13/32 . Supports for air-conditioning, air-humidification or ventilation units

**Indexing scheme associated with group [F24F 11/00](#), relating to control inputs, e.g. measured or estimated values or parameters**

**2110/00 Control inputs relating to air properties**

- 2110/10 . Temperature
- 2110/12 . . of the outside air
- 2110/20 . Humidity
- 2110/22 . . of the outside air
- 2110/30 . Velocity
- 2110/32 . . of the outside air
- 2110/40 . Pressure, e.g. wind pressure

**WARNING**

Group [F24F 2110/40](#) is impacted by reclassification into groups [F24F 2140/10](#) and [F24F 2140/12](#).

Groups [F24F 2110/40](#), [F24F 2140/10](#), and [F24F 2140/12](#) should be considered in order to perform a complete search.

- 2110/50 . Air quality properties

**WARNING**

Group [F24F 2110/50](#) is impacted by reclassification into group [F24F 2110/65](#).

Groups [F24F 2110/50](#) and [F24F 2110/65](#) should be considered in order to perform a complete search.

- 2110/52 . . of the outside air
- 2110/60 . . Odour
- 2110/62 . . Tobacco smoke
- 2110/64 . . Airborne particle content
- 2110/65 . . Concentration of specific substances or contaminants

**WARNING**

Group [F24F 2110/65](#) is incomplete pending reclassification of documents from group [F24F 2110/50](#).

Groups [F24F 2110/50](#) and [F24F 2110/65](#) should be considered in order to perform a complete search.

- 2110/66 . . . Volatile organic compounds [VOC]
- 2110/68 . . . Radon
- 2110/70 . . . Carbon dioxide
- 2110/72 . . . Carbon monoxide
- 2110/74 . . . Ozone
- 2110/76 . . . Oxygen
- 2110/80 . . Electric charge

**2120/00 Control inputs relating to users or occupants**

**WARNING**

Group [F24F 2120/00](#) is incomplete pending reclassification of documents from group [F24F 11/30](#).

Groups [F24F 11/30](#) and [F24F 2120/00](#) should be considered in order to perform a complete search.

- 2120/10 . Occupancy
- 2120/12 . . Position of occupants
- 2120/14 . . Activity of occupants
- 2120/20 . Feedback from users

**2130/00 Control inputs relating to environmental factors not covered by group [F24F 2110/00](#)**

- 2130/10 . Weather information or forecasts
- 2130/20 . Sunlight
- 2130/30 . Artificial light
- 2130/40 . Noise

**2140/00 Control inputs relating to system states**

**WARNING**

Group [F24F 2140/00](#) is incomplete pending reclassification of documents from group [F24F 11/30](#).

Groups [F24F 11/30](#) and [F24F 2140/00](#) should be considered in order to perform a complete search.

- 2140/10 . Pressure

**WARNING**

Groups [F24F 2140/10](#) and [F24F 2140/12](#) are incomplete pending reclassification of documents from group [F24F 2110/40](#).

Groups [F24F 2110/40](#), [F24F 2140/10](#) and [F24F 2140/12](#) should be considered in order to perform a complete search.

- 2140/12 . . Heat-exchange fluid pressure
- 2140/20 . Heat-exchange fluid temperature
- 2140/30 . Condensation of water from cooled air
- 2140/40 . Damper positions, e.g. open or closed
- 2140/50 . Load
- 2140/60 . Energy consumption

**2203/00 Devices or apparatus used for air treatment**

- 2203/02 . System or Device comprising a heat pump as a subsystem, e.g. combined with humidification/dehumidification, heating, natural energy or with hybrid system
- 2203/021 . . Compression cycle
- 2203/023 . . . with turbine used for expansion
- 2203/025 . . . with turbine for compression
- 2203/026 . . Absorption - desorption cycle
- 2203/028 . . . using a solid absorbing medium
- 2203/10 . Rotary wheel
- 2203/1004 . . Bearings or driving means
- 2203/1008 . . comprising a by-pass channel
- 2203/1012 . . Details of the casing or cover
- 2203/1016 . . combined with another type of cooling principle, e.g. compression cycle
- 2203/102 . . combined with a heat pipe



- 2203/1024 . . combined with a humidifier
- 2203/1028 . . combined with a spraying device
- 2203/1032 . . Desiccant wheel
- 2203/1036 . . . Details
- 2203/104 . . Heat exchanger wheel
- 2203/1044 . . performing other movements, e.g. sliding
- 2203/1048 . . Geometric details
- 2203/1052 . . comprising a non-axial air flow
- 2203/1056 . . comprising a reheater
- 2203/106 . . . Electrical reheater
- 2203/1064 . . . Gas fired reheater
- 2203/1068 . . comprising one rotor
- 2203/1072 . . comprising two rotors
- 2203/1076 . . comprising three rotors
- 2203/108 . . comprising rotor parts shaped in sector form
- 2203/1084 . . comprising two flow rotor segments
- 2203/1088 . . comprising three flow rotor segments
- 2203/1092 . . comprising four flow rotor segments
- 2203/1096 . . comprising sealing means
- 2203/12 . Dehumidifying or humidifying belt type

#### **Air-conditioning**

- 2221/00 Details or features not otherwise provided for**
- 2221/02 . combined with lighting fixtures
- 2221/08 . Installation or apparatus for use in sport halls, e.g. swimming pools, ice rings
- 2221/10 . combined with, or integrated in, furniture
- 2221/12 . transportable
- 2221/125 . . mounted on wheels
- 2221/14 . mounted on the ceiling
- 2221/16 . mounted on the roof
- 2221/17 . mounted in a wall
- 2221/18 . combined with domestic apparatus
- 2221/183 . . combined with a hot-water boiler
- 2221/186 . . combined with a fireplace
- 2221/20 . mounted in or close to a window
- 2221/22 . Cleaning ducts or apparatus
- 2221/225 . . using a liquid
- 2221/26 . improving the aesthetic appearance
- 2221/28 . using the Coanda effect
- 2221/30 . comprising fireproof material
- 2221/32 . preventing human errors during the installation, use or maintenance, e.g. goofy proof
- 2221/34 . Heater, e.g. gas burner, electric air heater
- 2221/36 . Modules, e.g. for an easy mounting or transport
- 2221/38 . Personalised air distribution
- 2221/40 . HVAC with raised floors
- 2221/42 . Mobile autonomous air conditioner, e.g. robots
- 2221/44 . Protection from terrorism or theft
- 2221/46 . Air flow forming a vortex
- 2221/48 . HVAC for a wine cellar
- 2221/50 . HVAC for high buildings, e.g. thermal or pressure differences
- 2221/52 . Weather protecting means, e.g. against wind, rain or snow
- 2221/54 . Heating and cooling, simultaneously or alternatively
- 2221/56 . Cooling being a secondary aspect