

CPC COOPERATIVE PATENT CLASSIFICATION

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

LIGHTING; HEATING

F24 HEATING; RANGES; VENTILATING (protecting plants by heating in gardens, orchards, or forests [A01G 13/06](#); baking ovens and apparatus [A21B](#); cooking devices other than ranges [A47J](#); forging [B21J](#), [B21K](#); specially adapted for vehicles, see the relevant subclasses of [B60](#) - [B64](#); combustion apparatus in general [F23](#); drying [F26B](#); ovens in general [F27](#); electric heating elements and arrangements [H05B](#))
(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

- 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](#).
- In this subclass, the following terms or expressions are used with the meanings indicated:
 - "air-conditioning" means the supply of air to rooms or spaces by means which provide for the treatment of the air in at least two of the following ways: heating — cooling — any other kind of treatment, e.g. humidification.
 - "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.
- In this subclass, control or safety arrangements are classified in [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 main 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, e.g. separate or self-contained units or units receiving primary air from a central station {or with supply of heating or cooling agents from a central station, such as those applied to air-treatment systems included in F24F 3/00 and F24F 5/00}	2001/0048	. . {mounted in or on the wall}
		2001/0051	. . {Introducing outside air to rooms}
		2001/0055	. . {Exhausting internal air from rooms}
		1/0059	. {characterised by the heat exchanger}
		2001/0062	. {receiving air from a central station}
		2001/0066	. . {with air treatment in the central station and in the room unit}
1/0003	. {Split units}	2001/007	. . {with air treatment in the room unit}
1/0007	. {Fan coil units, e.g. using an evaporating refrigerant}	2001/0074	. {receiving heat exchange fluid}
1/0011	. . {characterised by the air outlet}	2001/0077	. . {the fluid entering and leaving the room unit as a liquid}
1/0014	. . . {with two or more blow out openings}	2001/0081	. . {the fluid entering the room unit as a liquid and leaving it as a gas}
1/0018	. . {characterised by the fan}	2001/0085	. {using the cooling effect of evaporating fluid either evaporating directly in the room air, in the air supplied to the room or in the outside air}
1/0022	. . . {Centrifugal or radial fan}	2001/0088	. . {evaporating directly in the room air or the air supplied to the room}
1/0025	. . . {Cross flow or tangential fan}	2001/0092	. . {evaporating in the outside air, e.g. evaporation heat being extracted from the room air by indirect heat exchange}
1/0029	. . . {Axial fan}		
1/0033	. . . {comprising two or more fans}		
2001/0037	. . {mounted in or under the ceiling}		
2001/004	. . {mounted or standing on the floor}		
2001/0044	. . {mounted at least partially under the floor or the outlet air is being distributed under the floor (HVAC with raised floors F24F 2221/40)}		

- 2001/0096 . {Units supplying highly filtered air to a room or to a limited area within a room}
- 1/01 . in which secondary air is induced by injector action of the primary air ([F24F 1/02](#) takes precedence; {arrangement or assembly of or components for the regulation of the air supply through a heat exchanger and the associated bypass for the secondary treatment of the air [F24F 11/81](#); nozzle for induction unit [F24F 13/26](#)})
- 1/02 . self-contained, i.e. with all apparatus for treatment installed in a common casing {(arrangement or assembly of components for the primary treatment of air in independent units [F24F 11/30](#))}
- 1/022 . . {Comprising a compressor cycle}
- 1/025 . . . {Portable}
- 1/027 . . . {mounted in wall openings, e.g. in windows}
- 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

WARNING

Group [F24F 3/02](#) is incomplete pending reclassification of documents from groups [F24F 3/044](#) - [F24F 3/056](#).

Group [F24F 3/02](#) is also impacted by reclassification into groups [F24F 3/06](#) - [F24F 3/10](#) and [F24F 3/12](#) - [F24F 2003/1696](#).

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

- 3/04 . . operating with high pressure or high velocity

WARNING

Group [F24F 3/04](#) is incomplete pending reclassification of documents from groups [F24F 3/044](#) - [F24F 3/056](#).

Group [F24F 3/04](#) is also impacted by reclassification into groups [F24F 3/06](#) - [F24F 3/10](#) and [F24F 3/12](#) - [F24F 2003/1696](#).

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

- 3/044 . . Systems in which all treatment is given in the central station, i.e. all-air systems

WARNING

Group [F24F 3/044](#) is impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

Groups [F24F 3/044](#), [F24F 3/02](#), and [F24F 3/04](#) should be considered in order to perform a complete search.

- 3/0442 . . {with volume control at a constant temperature}

WARNING

Group [F24F 3/0442](#) is impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

Groups [F24F 3/0442](#), [F24F 3/02](#), and [F24F 3/04](#) should be considered in order to perform a complete search.

- 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}

WARNING

Group [F24F 3/0444](#) is impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

Groups [F24F 3/0444](#), [F24F 3/02](#), and [F24F 3/04](#) should be considered in order to perform a complete search.

- 2003/0446 . . {with a single air duct for transporting treated air from the central station to the rooms}

WARNING

Group [F24F 2003/0446](#) is impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

Groups [F24F 2003/0446](#), [F24F 3/02](#), and [F24F 3/04](#) should be considered in order to perform a complete search.

- 2003/0448 . . {with two air ducts for separately transporting treated hot and cold air from the central station to the rooms}

WARNING

Groups [F24F 2003/0448](#) is impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

Groups [F24F 2003/0448](#), [F24F 3/02](#), and [F24F 3/04](#) should be considered in order to perform a complete search.

- 3/048 . . with temperature control at constant rate of air-flow

WARNING

Group [F24F 3/048](#) is incomplete pending reclassification of documents from group [F24F 3/056](#).

Group [F24F 3/048](#) is also impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

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

- 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

WARNING

Group [F24F 3/052](#) is incomplete pending reclassification of documents from group [F24F 3/056](#).

Group [F24F 3/052](#) is also impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

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

- 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}

WARNING

Group [F24F 3/0522](#) is incomplete pending reclassification of documents from group [F24F 3/056](#).

Group [F24F 3/0522](#) is also impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

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

- 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}

WARNING

Group [F24F 3/0525](#) is incomplete pending reclassification of documents from group [F24F 3/056](#).

Group [F24F 3/0525](#) is also impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

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; ([F24F 3/0525](#) takes precedence)}

WARNING

Group [F24F 3/0527](#) is incomplete pending reclassification of documents from group [F24F 3/056](#).

Group [F24F 3/0527](#) is also impacted by reclassification into groups [F24F 3/02](#) and [F24F 3/04](#).

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

- 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 [F24F 13/078](#))

WARNING

Group [F24F 3/056](#) is impacted by reclassification into groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/048](#), [F24F 3/052](#), [F24F 3/0522](#), [F24F 3/0525](#), [F24F 3/0527](#), and [F24F 13/078](#).

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

- 3/06 . characterised by the arrangements for the supply of heat-exchange fluid for the subsequent treatment of primary air in the room units

WARNING

Group [F24F 3/06](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 11/83](#), [F24F 11/84](#), and [F24F 11/85](#).

Group [F24F 3/06](#) is also impacted by reclassification into groups [F24F 3/12](#) - [F24F 2003/1696](#).

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

- 3/065 . . {with a plurality of evaporators or condensers}

WARNING

Group [F24F 3/065](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 11/83](#), [F24F 11/84](#), and [F24F 11/85](#).

Group [F24F 3/065](#) is also impacted by reclassification into groups [F24F 3/12](#) - [F24F 2003/1696](#).

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

- 3/08 . . with separate supply and return lines for hot and cold heat-exchange fluids {i.e. so-called "4-conduit" system}

WARNING

Group [F24F 3/08](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 11/83](#), [F24F 11/84](#), and [F24F 11/85](#).

Group [F24F 3/08](#) is also impacted by reclassification into groups [F24F 3/12](#) - [F24F 2003/1696](#).

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

- 3/10 . . with separate supply lines and common return line for hot and cold heat-exchange fluids {i.e. so-called "3-conduit" system}

WARNING

Group [F24F 3/10](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 11/83](#), [F24F 11/84](#), and [F24F 11/85](#).

Group [F24F 3/10](#) is also impacted by reclassification into groups [F24F 3/12](#) - [F24F 2003/1696](#).

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

- 3/12 . . . characterised by the treatment of the air otherwise than by heating and cooling

WARNING

Group [F24F 3/12](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 3/14 . . by humidification; by dehumidification

WARNING

Group [F24F 3/14](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 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}

WARNING

Group [F24F 3/1405](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 3/1411 . . . {by absorbing or adsorbing water, e.g. using an hygroscopic desiccant}

WARNING

Group [F24F 3/1411](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 3/1417 {with liquid hygroscopic desiccants}

WARNING

Group [F24F 3/1417](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 3/1423 {with a moving bed of solid desiccants, e.g. a rotary wheel supporting solid desiccants}

WARNING

Group [F24F 3/1423](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 3/1429 {alternatively operating a heat exchanger in an absorbing/adsorbing mode and a heat exchanger in a regeneration mode}

WARNING

Group [F24F 3/1429](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 2003/1435 {comprising semi-permeable membrane}

WARNING

Group [F24F 2003/1435](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 2003/144 {by dehumidification only}

WARNING

Group [F24F 2003/144](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

- 2003/1446 {by condensing}

WARNING

Group [F24F 2003/1446](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1452 {heat extracted from the humid air for condensing is returned to the dried air}

WARNING

Group [F24F 2003/1452](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1458 . . . {using regenerators}

WARNING

Group [F24F 2003/1458](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1464 {using rotating regenerators}

WARNING

Group [F24F 2003/1464](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

3/147 . . . with both heat and humidity transfer between supplied and exhausted air

WARNING

Group [F24F 3/147](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

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

WARNING

Group [F24F 3/153](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

3/16 . . by purification, e.g. by filtering; by sterilisation; by ozonisation {(ion sources [H01J 27/02](#), [H01J 37/08](#); treatment rooms or enclosures for medical purposes [A61G 10/00](#))}

WARNING

Group [F24F 3/16](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

3/1603 . . . {by filtering (arrangements or mounting of filters [F24F 13/28](#))}

WARNING

Group [F24F 3/1603](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

3/1607 {Clean air work stations, i.e. selected areas within a space to which filtered air is passed (means providing sterile air at a surgical operation table or area [A61G 13/108](#))}

WARNING

Group [F24F 3/1607](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

3/161 {Clean rooms, i.e. enclosed spaces in which a uniform flow of filtered air is distributed (air distribution by perforated walls [F24F 7/10](#); dust-free rooms or enclosures applicable solely to laboratory purposes [B01L 1/04](#))}

WARNING

Group [F24F 3/161](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1614 {using a dry filtering element}

WARNING

Group [F24F 2003/1614](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1617 {using wet filtering methods}

WARNING

Group [F24F 2003/1617](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1621 {using chemical filtering methods}

WARNING

Group [F24F 2003/1621](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1625 {using active carbon}

WARNING

Group [F24F 2003/1625](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1628 {using catalytic reaction}

WARNING

Group [F24F 2003/1628](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1632 {using vortex}

WARNING

Group [F24F 2003/1632](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1635 {using high voltage}

WARNING

Group [F24F 2003/1635](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1639 {with filter cleaning}

WARNING

Group [F24F 2003/1639](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1642 {of pollen, to avoid allergies}

WARNING

Group [F24F 2003/1642](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1646 {of tobacco smoke}

WARNING

Group [F24F 2003/1646](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/165 {of ozone}

WARNING

Group [F24F 2003/165](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1653 {using biofilters, plants or microorganisms}

WARNING

Group [F24F 2003/1653](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1657 {the air pollution of a street or a city}

WARNING

Group [F24F 2003/1657](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

3/166 {using electric means, e.g. applying electrostatic field ([using thermo-electric means F24F 5/0042](#))}

WARNING

Group [F24F 3/166](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1664 {by sterilisation}

WARNING

Group [F24F 2003/1664](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1667 {using UV light}

WARNING

Group [F24F 2003/1667](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1671 {using ozone}

WARNING

Group [F24F 2003/1671](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1675 {using a sterilising medium}

WARNING

Group [F24F 2003/1675](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1678 {to avoid the Legionella bacteria}

WARNING

Group [F24F 2003/1678](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1682 {by ionisation}

WARNING

Group [F24F 2003/1682](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1685 . . . {by ozonisation}

WARNING

Group [F24F 2003/1685](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1689 . . . {by odorising}

WARNING

Group [F24F 2003/1689](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1692 . . . {by adding oxygen}

WARNING

Group [F24F 2003/1692](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

2003/1696 . . . {by removing radon}

WARNING

Group [F24F 2003/1696](#) is incomplete pending reclassification of documents from groups [F24F 3/02](#), [F24F 3/04](#), [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).

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

5/00 **Air-conditioning systems or apparatus not covered by [F24F 1/00](#) or [F24F 3/00](#) {, e.g. using solar heat or combined with household units such as an oven or water heater}**

5/0003 . {Exclusively-fluid systems}

5/0007 . {cooling apparatus specially adapted for use in air-conditioning (self-contained room units [F24F 1/02](#); [F24F 5/0046](#) takes precedence; air-humidification [F24F 6/00](#))}

5/001 . . {Compression cycle type}

5/0014 . . {using absorption or desorption}

5/0017 . . {using cold storage bodies, e.g. ice}

5/0021 . . . {using phase change material [PCM] for storage}

2005/0025 . . . {using heat exchange fluid storage tanks}

2005/0028 . . . {using hydridable metals as energy storage media}

2005/0032 . . . {Systems storing energy during the night}

5/0035 . . {using evaporation}

2005/0039 . . {using a cryogen, e.g. CO₂ liquid or N₂ liquid}

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 \[F25B 21/02\]\(#\); for semi-conductors \[H01L 23/38\]\(#\); thermobatteries or thermogenerators \[H01L 35/00\]\(#\)\)}](#)

5/0046 . {using natural energy, e.g. solar energy, energy from the ground}

5/005 . . {using energy from the ground by air circulation, e.g. "Canadian well"}

2005/0053 . . {receiving heat-exchange fluid from a well}

2005/0057 . . {receiving heat-exchange fluid from a closed circuit in the ground}

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 \[E06B\]\(#\)](#))}

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 {, e.g. by means of wall-ducts or systems using window or roof apertures}**

2007/001 . {with exhausting air ducts}

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

2007/003 . {using vent ports in a wall}

2007/004 . {Natural ventilation using convection}

2007/005	<ul style="list-style-type: none"> {Cyclic ventilation, e.g. alternating air supply volume or reversing flow direction (F24F 2012/008 takes precedence when there is heat exchange between exhaust and supply air)} 	2009/007	<ul style="list-style-type: none"> {using more than one jet or band in the air curtain}
7/007	<ul style="list-style-type: none"> with forced flow (using ducting systems F24F 7/06) <p>WARNING</p> <p>Group F24F 7/007 is impacted by reclassification into groups F24F 7/02 and F24F 7/025.</p> <p>Groups F24F 7/007, F24F 7/02, and F24F 7/025 should be considered in order to perform a complete search.</p>	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	<ul style="list-style-type: none"> {for ventilation (F24F 11/30 takes precedence)}
		2011/0002	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {for admittance of outside air}
		2011/0004	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> {to create overpressure in a room}
		2011/0005	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> {to create underpressure in a room, keeping contamination inside}
		2011/0006	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {using low temperature external supply air to assist cooling}
		11/0008	<ul style="list-style-type: none"> {for air-humidification (F24F 11/30 takes precedence)}
		11/30	<ul style="list-style-type: none"> 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.
7/013	<ul style="list-style-type: none"> <ul style="list-style-type: none"> using wall or window fans, displacing air through the wall or window <p>WARNING</p> <p>Group F24F 7/013 is incomplete pending reclassification of documents from group F24F 13/08.</p> <p>Group F24F 7/013 is also impacted by reclassification into groups F24F 7/02 and F24F 7/025.</p> <p>All groups listed in this Warning should be considered in order to perform a complete search.</p>		
7/02	<ul style="list-style-type: none"> Roof ventilation (ventilation of roof coverings E04D) <p>WARNING</p> <p>Group F24F 7/02 is incomplete pending reclassification of documents from groups F24F 7/007 and F24F 7/013.</p> <p>Groups F24F 7/007, F24F 7/013, and F24F 7/02 should be considered in order to perform a complete search.</p>		
7/025	<ul style="list-style-type: none"> <ul style="list-style-type: none"> {with forced air circulation by means of a built-in ventilator} <p>WARNING</p> <p>Group F24F 7/025 is incomplete pending reclassification of documents from groups F24F 7/007 and F24F 7/013.</p> <p>Groups F24F 7/007, F24F 7/013, and F24F 7/025 should be considered in order to perform a complete search.</p>	11/32	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Responding to malfunctions or emergencies
		11/33	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> to fire, excessive heat or smoke
		11/34	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> by opening air passages
		11/35	<ul style="list-style-type: none"> <ul style="list-style-type: none"> <ul style="list-style-type: none"> by closing air passages
		11/36	<ul style="list-style-type: none"> <ul style="list-style-type: none"> to leakage of heat-exchange fluid
		11/37	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Resuming operation, e.g. after power outages; Emergency starting
		11/38	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Failure diagnosis
		11/39	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Monitoring filter performance
		11/41	<ul style="list-style-type: none"> Defrosting; Preventing freezing
		11/42	<ul style="list-style-type: none"> <ul style="list-style-type: none"> of outdoor units
		11/43	<ul style="list-style-type: none"> <ul style="list-style-type: none"> of indoor units
		11/46	<ul style="list-style-type: none"> Improving electric energy efficiency or saving
		11/47	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Responding to energy costs
		11/48	<ul style="list-style-type: none"> <ul style="list-style-type: none"> prior to normal operation, e.g. pre-heating or pre-cooling
		11/49	<ul style="list-style-type: none"> <ul style="list-style-type: none"> ensuring correct operation, e.g. by trial operation or configuration checks
		11/50	<ul style="list-style-type: none"> 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.
9/00	Use of air currents for screening, e.g. air curtains	11/52	<ul style="list-style-type: none"> <ul style="list-style-type: none"> Indication arrangements, e.g. displays
2009/002	<ul style="list-style-type: none"> {Room dividers} 	11/523	<ul style="list-style-type: none"> <ul style="list-style-type: none"> for displaying temperature data
2009/005	<ul style="list-style-type: none"> {combined with a door} 	11/526	<ul style="list-style-type: none"> <ul style="list-style-type: none"> 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 3/06](#), [F24F 3/065](#), [F24F 3/08](#), [F24F 3/10](#), [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](#).
- Group [F24F 11/84](#) is also impacted by reclassification into groups [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).
- 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](#).
- Group [F24F 11/85](#) is also impacted by reclassification into groups [F24F 3/06](#), [F24F 3/065](#), [F24F 3/08](#), and [F24F 3/10](#).
- All groups listed should be considered in order to perform a complete search.
- 11/86 . . . by controlling compressors within refrigeration or heat pump circuits
- 11/87 . . . by controlling absorption or discharge of heat in outdoor units
- 11/871 by controlling outdoor fans
- 11/873 . . . by controlling refrigerant heaters
- 11/875 . . . by controlling heat-storage apparatus
- 11/88 . Electrical aspects, e.g. circuits
- WARNING**
- Group [F24F 11/88](#) is incomplete pending reclassification of documents from group [F24F 11/30](#).
- Groups [F24F 11/30](#) and [F24F 11/88](#) should be considered in order to perform a complete search.
- 11/89 . Arrangement or mounting of control or safety devices
- 12/00 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](#))**
- 12/001 . {with heat-exchange between supplied and exhausted air}
- 12/002 . . {using an intermediate heat-transfer fluid}
- 12/003 . . . {using a heat pump}
- 2012/005 . . . {using heat pipes}
- 12/006 . . {using an air-to-air heat exchanger ([F24F 12/002](#) takes precedence)}
- 2012/007 . . {using a by-pass for bypassing the heat-exchanger}
- 2012/008 . . {cyclic routing supply and exhaust air ([F24F 2007/005](#) takes precedence when there is no heat exchange)}
- 13/00 Details common to, or for air-conditioning, air-humidification, ventilation or use of air currents for screening**
- 13/02 . Ducting arrangements
- 13/0209 . . {characterised by their connecting means, e.g. flanges}
- 13/0218 . . {Flexible soft ducts, e.g. ducts made of permeable textiles}
- 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](#))}
- 13/0236 . . {with ducts including air distributors, e.g. air collecting boxes with at least three openings}
- 13/0245 . . {Manufacturing or assembly of air ducts; Methods therefor}
- 13/0254 . . {characterised by their mounting means, e.g. supports}
- 13/0263 . . {Insulation for air ducts}
- 13/0272 . . {Modules for easy installation or transport}
- 13/0281 . . {Multilayer duct}
- 13/029 . . {Duct comprising an opening for inspection, e.g. manhole}
- 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](#)})
- 13/06 . . Outlets for directing or distributing air into rooms or spaces, e.g. ceiling air diffuser
- 13/0604 . . . {integrated in or forming part of furniture}
- 2013/0608 . . . {Perforated ducts}
- 2013/0612 . . . {Induction nozzles without swirl means}
- 2013/0616 . . . {Outlets that have intake openings}
- 13/062 . . . having one or more bowls or cones diverging in the flow direction
- WARNING**
- Group [F24F 13/062](#) is incomplete pending reclassification of documents from group [F24F 13/072](#).
- Groups [F24F 13/072](#) and [F24F 13/062](#) should be considered in order to perform a complete search.
- 13/065 . . . formed as cylindrical or spherical bodies which are rotatable
- WARNING**
- Group [F24F 13/065](#) is incomplete pending reclassification of documents from group [F24F 13/072](#).
- Groups [F24F 13/072](#) and [F24F 13/065](#) should be considered in order to perform a complete search.
- 13/068 . . . formed as perforated walls, ceilings or floors ([F24F 13/078](#) takes precedence)
- 13/072 . . . of elongated shape, e.g. between ceiling panels
- WARNING**
- Group [F24F 13/072](#) is impacted by reclassification into groups [F24F 13/062](#) and [F24F 13/065](#).
- Groups [F24F 13/072](#), [F24F 13/062](#), and [F24F 13/065](#) should be considered in order to perform a complete search.
- 13/075 . . . having parallel rods or lamellae directing the outflow, e.g. the rods or lamellae being individually adjustable ([F24F 13/072](#) takes precedence)

13/078	. . . combined with lighting fixtures	13/14	. . . built up of tilting members, e.g. louver
	<u>WARNING</u>		<u>WARNING</u>
	Group F24F 13/078 is incomplete pending reclassification of documents from group F24F 3/056 .		Group F24F 13/14 is incomplete pending reclassification of documents from group F24F 13/18 .
	Groups F24F 3/056 and F24F 13/078 should be considered in order to perform a complete search.		Groups F24F 13/18 and F24F 13/14 should be considered in order to perform a complete search.
13/08	. Air-flow control members, e.g. louvres, grilles, flaps or guide plates (F24F 7/013 , F24F 13/06 take precedence)	13/1406 {characterised by sealing means}
	<u>WARNING</u>		<u>WARNING</u>
	Group F24F 13/08 is impacted by reclassification into group F24F 7/013 .		Group F24F 13/1406 is incomplete pending reclassification of documents from group F24F 13/18 .
	Groups F24F 13/08 and F24F 7/013 should be considered in order to perform a complete search.		Groups F24F 13/18 and F24F 13/1406 should be considered in order to perform a complete search.
13/081	. . {for guiding air around a curve}	13/1413 {using more than one tilting member, e.g. with several pivoting blades (F24F 13/15 takes precedence)}
13/082	. . {Grilles, registers or guards}		<u>WARNING</u>
13/084	. . . {with mounting arrangements, e.g. snap fasteners for mounting to the wall or duct}		Group F24F 13/1413 is incomplete pending reclassification of documents from group F24F 13/18 .
13/085	. . . {including an air filter}		Groups F24F 13/18 and F24F 13/1413 should be considered in order to perform a complete search.
2013/087	. . . {using inflatable bellows}		
2013/088	. . . {Air-flow straightener}		
13/10	. . movable, e.g. dampers		
	<u>WARNING</u>		
	Group F24F 13/10 is incomplete pending reclassification of documents from group F24F 13/18 .	13/142 {using pivoting blades with intersecting axles}
	Groups F24F 13/18 and F24F 13/10 should be considered in order to perform a complete search.		<u>WARNING</u>
13/105	. . . {composed of diaphragms or segments}		Group F24F 13/142 is incomplete pending reclassification of documents from group F24F 13/18 .
	<u>WARNING</u>		Groups F24F 13/18 and F24F 13/142 should be considered in order to perform a complete search.
	Group F24F 13/105 is incomplete pending reclassification of documents from group F24F 13/18 .	13/1426 {characterised by actuating means}
	Groups F24F 13/18 and F24F 13/105 should be considered in order to perform a complete search.		<u>WARNING</u>
13/12	. . . built up of sliding members		Group F24F 13/1426 is incomplete pending reclassification of documents from group F24F 13/18 .
	<u>WARNING</u>		Groups F24F 13/18 and F24F 13/1426 should be considered in order to perform a complete search.
	Group F24F 13/12 is incomplete pending reclassification of documents from group F24F 13/18 .	2013/1433 {with electric motors}
	Groups F24F 13/18 and F24F 13/12 should be considered in order to perform a complete search.		<u>WARNING</u>
			Group F24F 2013/1433 is incomplete pending reclassification of documents from group F24F 13/18 .
			Groups F24F 13/18 and F24F 2013/1433 should be considered in order to perform a complete search.

2013/144 {with thermoactuators}

WARNING

Group [F24F 2013/144](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 2013/144](#) should be considered in order to perform a complete search.

2013/1446 {with gearings}

WARNING

Group [F24F 2013/1446](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 2013/1446](#) should be considered in order to perform a complete search.

2013/1453 {with cables, e.g. bowden cables}

WARNING

Group [F24F 2013/1453](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 2013/1453](#) should be considered in order to perform a complete search.

2013/146 {with springs}

WARNING

Group [F24F 2013/146](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 2013/146](#) should be considered in order to perform a complete search.

2013/1466 {with pneumatic means}

WARNING

Group [F24F 2013/1466](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 2013/1466](#) should be considered in order to perform a complete search.

2013/1473 {with cams or levers}

WARNING

Group [F24F 2013/1473](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 2013/1473](#) should be considered in order to perform a complete search.

2013/148 {with magnets}

WARNING

Group [F24F 2013/148](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 2013/148](#) should be considered in order to perform a complete search.

13/1486 {characterised by bearings, pivots or hinges}

WARNING

Group [F24F 13/1486](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 13/1486](#) should be considered in order to perform a complete search.

2013/1493 {using an elastic membrane}

WARNING

Group [F24F 2013/1493](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 2013/1493](#) should be considered in order to perform a complete search.

13/15 with parallel simultaneously tiltable lamellae

WARNING

Group [F24F 13/15](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 13/15](#) should be considered in order to perform a complete search.

13/16 built up of parallelly-movable plates

WARNING

Group [F24F 13/16](#) is incomplete pending reclassification of documents from group [F24F 13/18](#).

Groups [F24F 13/18](#) and [F24F 13/16](#) should be considered in order to perform a complete search.

13/18 . . . specially adapted for insertion in flat panels, e.g. in door or window-pane

WARNING

Group [F24F 13/18](#) is impacted by reclassification into groups [F24F 13/10](#) - [F24F 13/16](#).

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

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

- 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

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