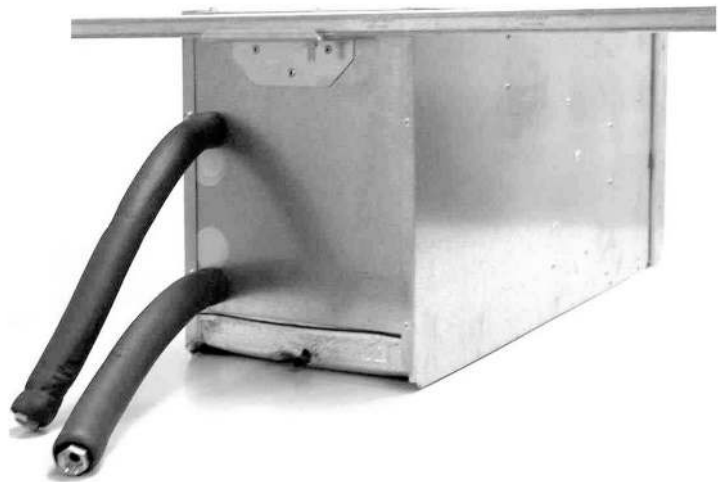
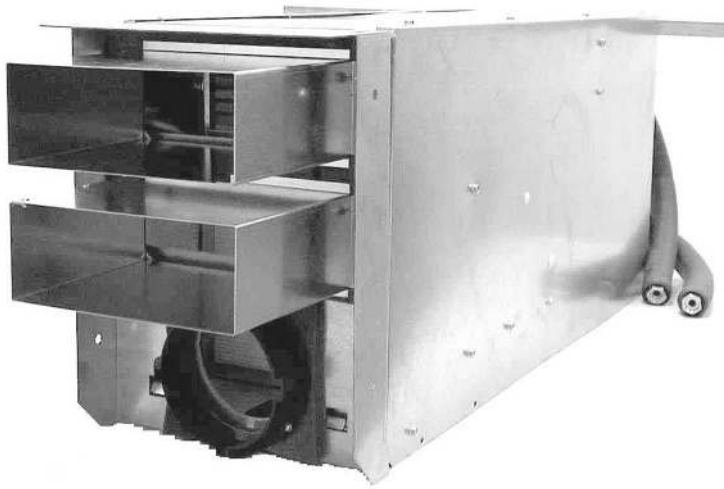




42GM ITM

Individual Air Treatment Module for Variable-Flow Systems



Selection manual



Quality Management System Approval

CONTENTS

1 - INTRODUCTION	3
1.1 - Comfort	3
1.2 - Air quality	3
1.3 - QUALITY+	4
2 - FEATURES.....	5
2.1 - Main characteristics	5
2.2 - Physical and electrical data	6
2.3 - Dimensional drawings - 42GM on front and rear supports	7
2.4 - System components.....	8
3 - SAFETY CONSIDERATIONS	10
3.1 - General	10
3.2 - Precautions against electrocution.....	10
3.3 - General installation recommendations.....	10
3.4 - Conformity	10
4 - CARRIER NUMERIC CONTROLLER.....	11
5 - TECHNICAL SPECIFICATIONS	12
5.1 - Technical specifications of the valves	12
5.2 - Flexible water pipes	12
6 - ACCESSORIES	13
6.1 - Carrier numeric controller	13
7 - PERFORMANCES	14
7.1 - Cooling capacities - cold water coil.....	14
7.2 - Heating capacities - hot water coil	16
7.3 - Coil pressure drop.....	17
7.4 - Valve pressure drop.....	17
7.5 - Sound power level.....	18
7.6 - Electrical data	19
7.7 - Air flow/available static pressure data	20
7.8 - Electric heater performance	21
8 - 42GM CODIFICATION	22
9 - GUIDE SPECIFICATION	23

The illustrations shown in this document are solely for information, and not contractually binding. The manufacturer reserves the right to make changes without previous notification.

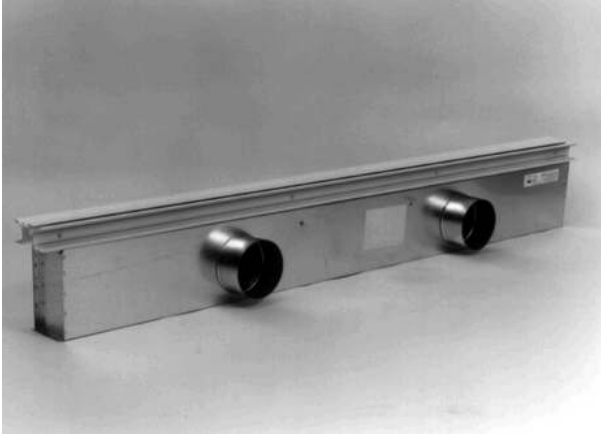
1 - INTRODUCTION

The 42GM Individual Air Treatment Module (ITM) is something more than a simple air conditioner which enables room air temperature to be controlled. It is a total, integrated comfort system in the building.

The Carrier 42GM is a compact central station air handler to supply conditioned air at a rate of 125 l/s to rooms with floor areas of approximately 25 m². The main components of the unit are an air filter, a fresh air supply, equipped with an air flow controller (option), a chilled water cooling coil, a hot water heating coil or an electric resistance heater, a centrifugal fan. The unit is controlled by a Carrier numeric controller.

The 42GM is connected, on site, to one or more low-profile plenums fitted with high induction Carrier linear diffusers in the false ceiling. Typically, these will be Carrier Moduboot 35BD/35SR units with each one serving an individual room or zone and providing both supply air and return air paths according to diffuser model.

Connection is made with two flexible isophonic ducts, (insulated at the supply air side) with rectangular section (unit side) which is then extended using a 200 mm diameter circular duct linked via an adapter piece. The duct lengths of the rectangular sections are as short as possible to avoid impairment of the unit performances (pressure drops of rectangular ducts are higher than those of circular ducts). The ducts and adapter pieces are not supplied by Carrier.



The total air conditioning system comprises one or more Carrier air- or water-cooled chillers connected to a number of air handlers supplying fresh air to the Carrier 42GM.

The 42GM is designed to be installed in false ceilings. Their high static pressure capability allows them to be used with long ducts.

Low noise in the air conditioned space due to the remote location of the unit from the space which it serves and easy installation are key attributes which influence the selection of an air conditioning system.

1.1 - Comfort

Within the conditioned space, a linear diffuser integrated into the ceiling is the only clue to the presence of the system. There will be no noise, no drafts, no vibration, just an empty space allowing free reign to the imagination of the architect in designing his interiors.

The modular concept gives freedom to rearrange partitions and reallocate space later.

The 42GM has a Carrier numeric controller. Each room occupant then has his or her own Zone User Interface, on a wall (with a mounting base) or desk, with which to select the preferred comfort level:

- Room ambient temperature
- Select Occupied or Unoccupied mode at each 42GM to control energy usage
- Ventilation air (the rate of air replacement)
- Lighting on or off
- Blinds raised or lowered and their inclination.

In addition, connection to a central Building Management System allows units to be controlled individually to satisfy overriding criteria or to respond to local regulations.

The Building Management System monitors, continuously, the comfort level in each zone and reacts instantly to the inputs received to achieve optimum energy usage without overriding individual comfort level selections.

1.2 - Air quality

1.2.1 - Fresh air

Every 42GM has a fresh air inlet which can be equipped with a constant-flow fresh air volume controller giving precise control of the fresh air ventilation and refresh rate to comply with local health codes.

As an option, the 42GM ITM can be equipped with a variable-flow fresh air valve. This is equipped with a servo motor and a flow measurement device. It can precisely control the hygienic fresh air flow rate supplied, and this flow rate can be configured from the BMS via the bus and the Carrier numeric controller.

The selection of the fresh air controller must take account of room occupancy.

1.2.2 - Air filtration

The cleanliness of the supply air is one of the primary functions of air treatment. It gives the most basic and important measure of 'air quality' essential to our health. The air we breathe contains a wide diversity of particles, pollens and dusts, all potential allergens, which have different effects upon the health of different people.

They come from many sources both within and outside the building. Air filtration protects people against the health hazards of these pollutants and safeguards furnishings and equipment against potential damage from the contamination which they can cause.

The 42GM has, as standard, a high-efficiency F6 filter in accordance with standard EN 779 or EU 6 in accordance with Eurovent 4/5. Fire rating medium M1.

Indoor Air Quality (IAQ)

In the last ten years Carrier has been committed to developing an Indoor Air Quality (IAQ) control system that is integrated into the air conditioning units. This is a major innovation, and the beginning of a new era in air conditioning.

It means that each individual air treatment module (ITM) is equipped with a high-tech fresh air intake and filtration control system to effectively combat any type of pollutant. This guarantees optimised indoor air quality in three stages, as described below:

1. **High-efficiency filtration** with filter type F6
2. **Air purification:** Purification or elimination of contaminants is achieved by degradation of the gases present and deactivation of potentially irritating airborne substances.
3. **Modulation of the fresh air flow.** In order to control the air flow supplied to a room, Carrier air conditioners can be equipped with a fresh air flow modulation system.

Three objectives:

- **To adjust the ventilation rate** to the actual occupation in the rooms
- **To maintain good indoor air quality** in order to ensure comfort and hygiene for the occupants.
- **To control energy consumption** due to the air renewal in the rooms and adjust it to avoid "overventilation" of the building, and to minimise the operating costs especially during unoccupied periods.

Operating principles

The occupants of a room release on average 0.0045 l/s (16,2 l/h) CO₂. A CO₂ sensor, placed in the return air duct of the terminal, checks the concentration in the air conditioned room. The measured concentration indicates the actual occupation of the room. The sensor sends a signal to the numerical Carrier controller which in turn passes an action signal to the fresh air valve:

- if the CO₂ concentration is below a threshold value: the fresh air flow is minimal or zero,
- if it is above: the fresh air flow is increased up to the specified maximum.

For more information on the Air4life system used on the 42GM ITM, please contact your local Carrier dealer.

1.3 - QUALITY+

The Carrier total quality philosophy extends from the conception of a product through its design, the selection of components, the product itself (laboratory tests) and the production processes.

Carrier has held LRQA quality certification to ISO 9001 since 1989.

2 - FEATURES

2.1 - Main characteristics

The modular design of the 42GM allows it to be applied efficiently, singly or in multiples, as master/slave (several slave units for one master) to heat or cool alone or heat and cool, as required for small to medium size rooms. 42GM units are built to be installed into false ceilings quickly and easily. A simple suspension system has been adopted and quick connect couplings are used for power and water supplies and supply and return air ducts.

The total system comprises:

- A suspension rail fixed directly to the concrete slab
- A front module fastening support fixed directly to the concrete slab

This two-piece fixing system enables it alone to be installed while building proceeds. The ducts can be connected to the fastening support before the diffuser is installed. The operating element need not be installed, or even delivered until just before the tenants take up occupation. Financial resources are not tied up in idle equipment.

Other components are:

- Two-way hot or cold water valves.
- Flexible water pipes with 1/2" BSP threaded nut. The chilled water pipe is already insulated.
- High efficiency throwaway filters (F6 in accordance with EN 779 or EU6 in accordance with Eurovent 4/5).

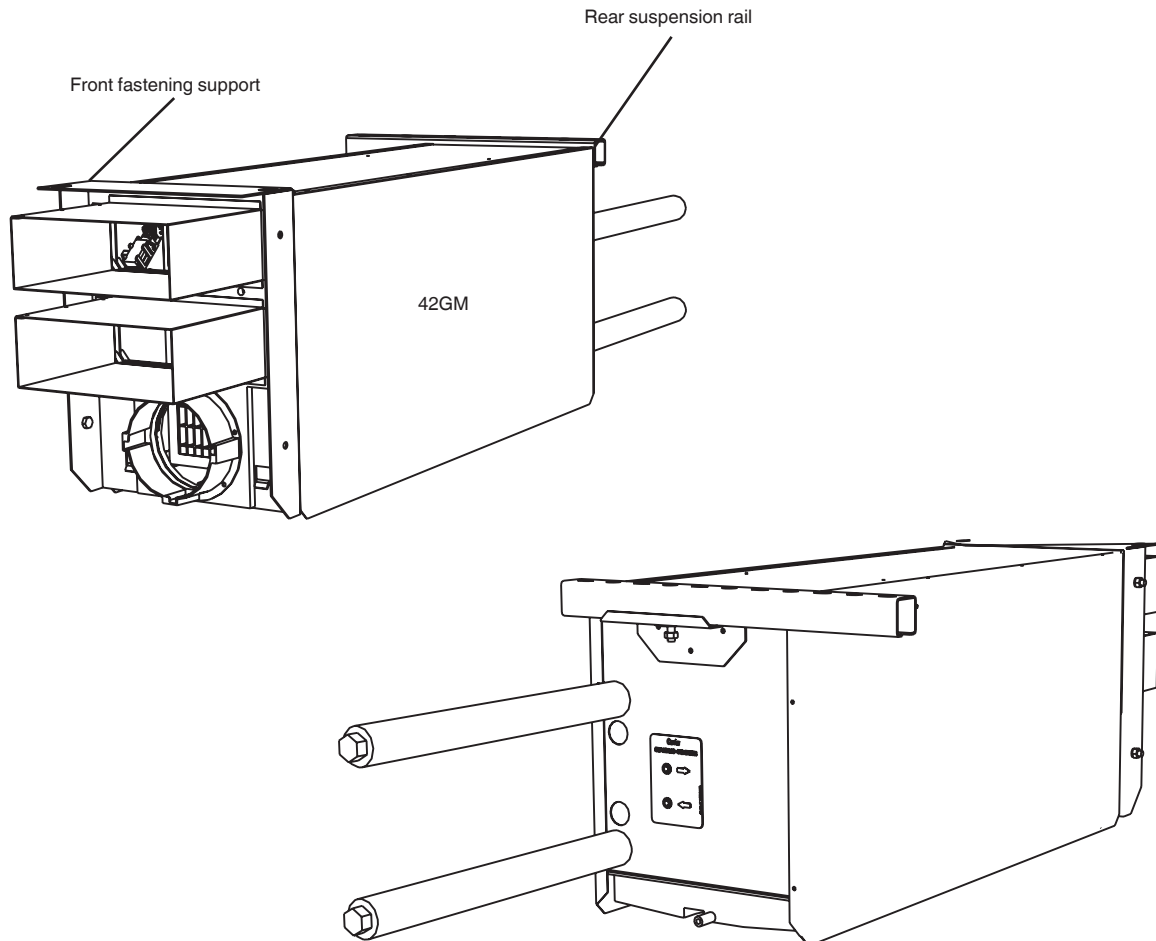
- A fresh air controller, installed on the 42GM front fastening support (the fresh air is filtered and treated by the coil).
- A single, directly-driven centrifugal, forward-curved double inlet fan. Fan speed is controlled by phase splitting.
- A PTC electric heater (as an option) may be used in place of the hot water coil. PTC (Positive Temperature Coefficient) electric resistance heaters are high performance devices with two characteristics: heating and inherent limiting of the surface temperature. The self-regulating characteristic ensures total and reliable control over the heat dissipated which is always proportional to the volume and temperature of the incoming air flow.
- A Carrier numeric controller. In effect this provides each user with a wall-mounted or desktop Zone User Interface controller which can be used to display the preferred individual comfort level. A Zone User Interface is optional, depending on whether the 42GM is configured as a master or a slave.

NOTE: Operating limits:

Cooling mode: Supply air temperature 12°C when the unit is installed where the ambient temperature is 27°C dry bulb with 65% relative humidity.

Heating mode: Max. supply air temperature = 60°C.

If an electric heater is used, the minimum unit operating flow rate is 16.6 l/s (60 m³/h).



2.2 - Physical and electrical data

42GM ITM		2 pipes + electric heater	4 pipes
Nominal air flow	l/s (m ³ /h)	125 (450)	125 (450)
Total cooling capacity*	kW	3.33	2.87
Sensible heating capacity*	kW	2.31	2.12
Heating capacity**	kW	-	1.5
Power supply 230 V- 1 ph - 50 Hz	U %	+/- 15	+/- 15
Operating weight (6-row coil)	kg	30	30
Water coil		3/8" copper tubes, aluminium fins, test pressure 24 bar, operating pressure 16 bar	
Water coil volume	l	1.42	1.22 + 0.2
PTC electric heater (Positive Temperature Coefficient)		CE approved	
Max. capacity at nominal air flow	kW	1.88	-
Current draw (± 15%)	A	11	-
Power input at zero flow	W	100	-
Safety thermostat with automatic reset - cut-out temperature	°C	70	-
Fan			
Centrifugal fan, single wheel		Double inlet	Double inlet
Nominal air flow	l/s (m ³ /h)	125 (450)	125 (450)
Static pressure at nominal air flow (without air purifier)	Pa	210	210
Fan motor		230 V-1 ph-50 Hz, 2-pole open asynchronous, permanent capacitor, inherent overload protection, class B insulation, varnish class F, connected to a speed controller	
Protection index	IP	44	44
Max. power input at 230 VAC	W	185	185
Min. output from electronic speed controller (RMS)	V	80	80
Nominal current	A	0.85	0.85
Starting current	A	3.64	3.64
Air filter		Throwaway, 48 mm thick, efficiency F6 according to EN 779, EU6 according to EUROVENT 4/5, fire rating medium M1, metal frame	
Dimensions	mm	265 x 255	265 x 255
Pressure drop, clean, at 125 l/s (450 m ³ /h)	Pa	53	53
Air purifier (option)			
Number of UV-C lamps		1	1
Nominal current consumption	A	0.09	0.09
Pressure drop at 125 l/s (450 m ³ /h)	Pa	20	20
Fresh air connection			
External diameter	mm	125	125
Minimum constant air flow (-10%, +20%)	l/s (m ³ /h)	8.3 (30)	8.3 (30)
Minimum constant air flow (-10%, +20%)	l/s (m ³ /h)	44.4 (160)	44.4 (160)
Min./max. variable air flow (optional motorised valve)	l/s (m ³ /h)	0/55 (0/200)	0/55 (0/200)
ΔP (upstream/downstream)			
- controller at 8.3 l/s (30 m ³ /h)	Pa	50/200	50/200
- controller at 44.4 l/s (160 m ³ /h)	Pa	70/200	70/200
Min. available pressure in the upstream air duct (motorised valve)	Pa	180	180

Water connections

42GM modules are designed and tested for 16 bar operating pressure. The total operating circuit of the 42GM is guaranteed for an operating pressure of 10 bar.

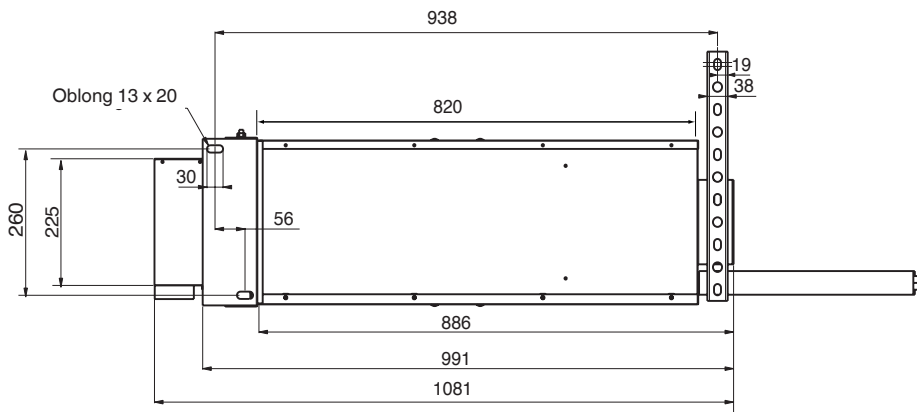
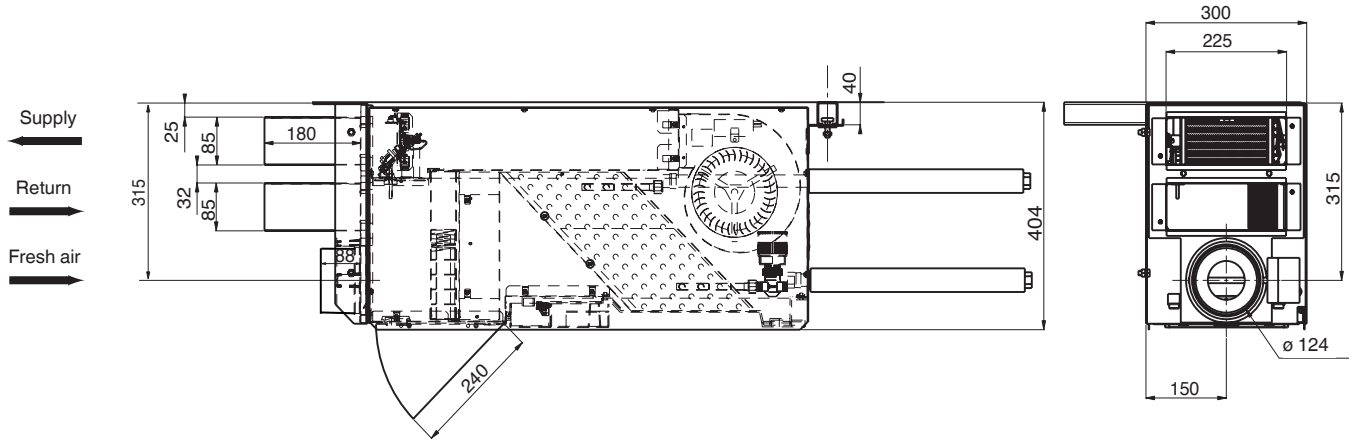
Contact your local Carrier representative for advice when an application calls for an operating pressure of 10 bar.

* Based upon water entering at 7°C, room air at 27°C dry bulb, 47% relative humidity, 5°C Δt and nominal air flow. Capacity takes account of the fan-motor assembly heat.

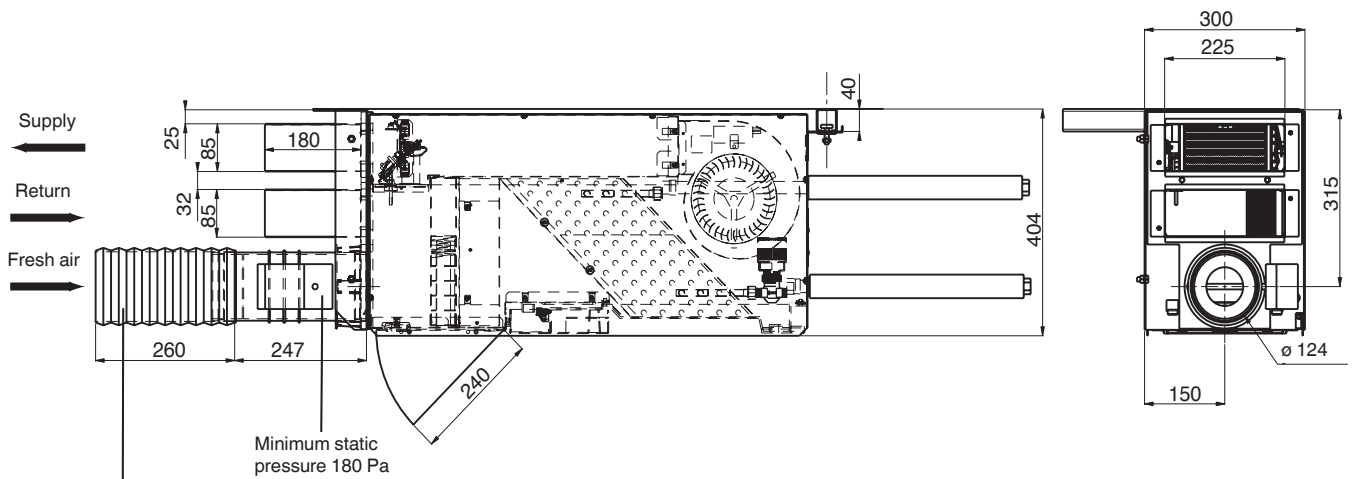
** Based upon water entering at 50°C, room air at 19°C, 10°C Δt and nominal air flow. Capacity takes account of the fan-motor assembly heat.

2.3 - Dimensional drawings - 42GM on front and rear supports

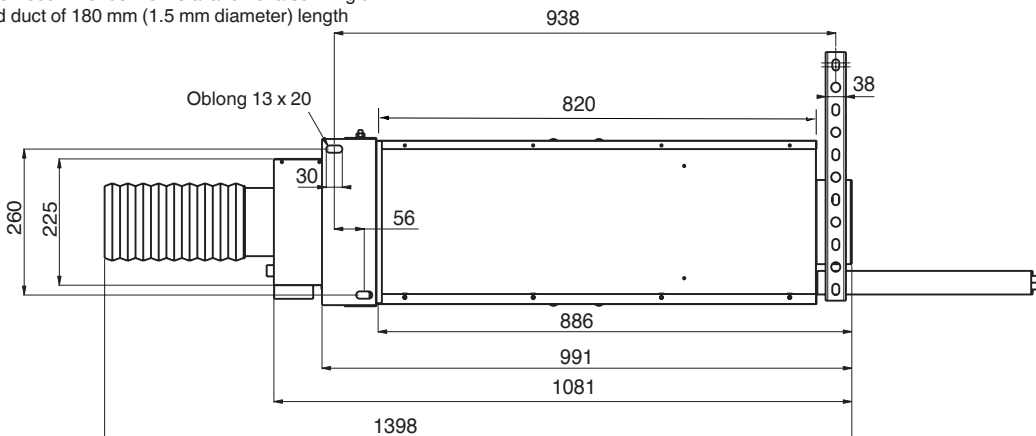
2.3.1 - 42GM with front fastening support with constant-flow fresh air, mm



2.3.2 - 42GM with front fastening support with variable-flow fresh air, mm



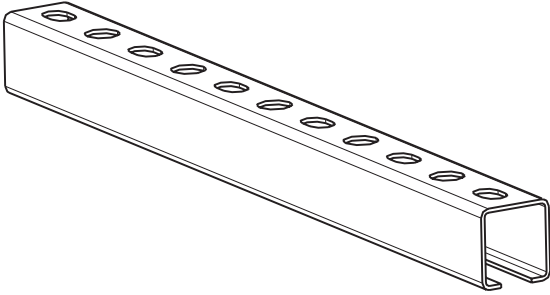
Carrier recommends the installation of a semi-rigid round duct of 180 mm (1.5 mm diameter) length



2.4 - System components

2.4.1 - Rear suspension rail, mm

The rear suspension rail, fixed to the concrete slab, can suspend and fix the 42GM ITM at the rear. Rails are available in a kit of 1 rail 2 m long, sufficient to hang up to six 42GM units.



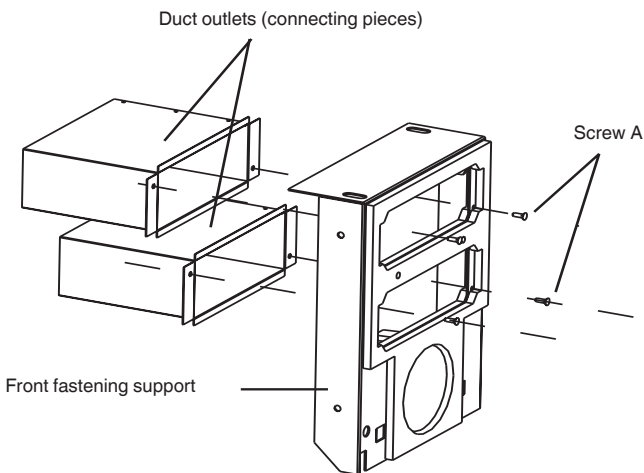
2.4.2 - Front fastening support

The front fastening support is firmly fixed to the concrete slab and used together with the rear suspension rail to install the 42GM ITM.

The fastening support can be installed during the construction of the building. It permits installation of the duct system and of the false ceiling. The 42GM ITM operating element can be fitted just before the occupants move in, allowing calibration of the 42GM ITM controls. Financial resources are not tied up in idle equipment, and there is no on-site pollution and deterioration of components such as heat exchangers, fans, flexible ducts, electric heaters, numeric controllers.

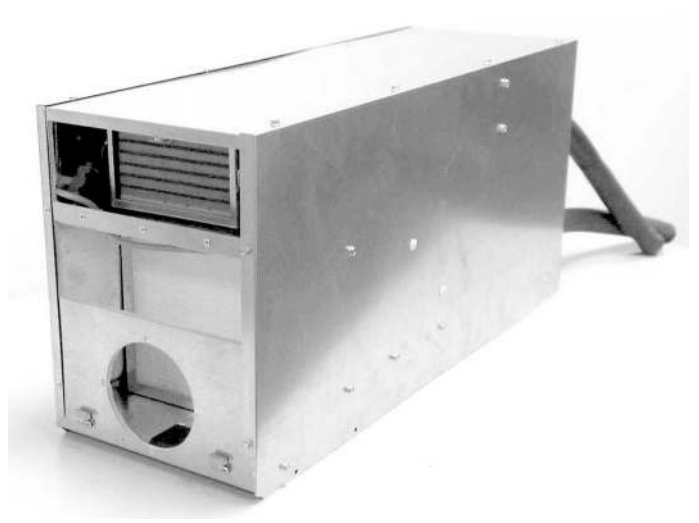
2.4.3 - Rectangular duct outlets (connection pieces)

The front fastening support is designed to be connected to rectangular supply and return air ducts. It therefore has two independent duct outlets (connection pieces) per support (supply and return). This facilitates installation, as the ducts can be connected to the connection pieces on the floor and full leak-tightness can be ensured, before connecting the ducts to the supports with the help of the four screws referenced A.



2.4.4 - Individual air treatment module 42GM ITM

With high static pressure available at nominal air flow the 42GM ITM allows long runs of duct to be used. On the unit side the ducts are rectangular, isophonic and insulated at the supply side over the shortest possible length. They are extended with circular ducts with a diameter of 200 mm via adapter pieces.



Main components

Constant-flow fresh air controller (optional)

The constant-flow fresh air controller for the 42GM gives precise control of the rate at which fresh air ventilation air is introduced and the supply air refresh rate. This is fixed to the front fastening support of the module.

Selection of the fresh air controller bearing in mind the occupancy of each room or zone is critical.

Range of fresh air flow controllers available:

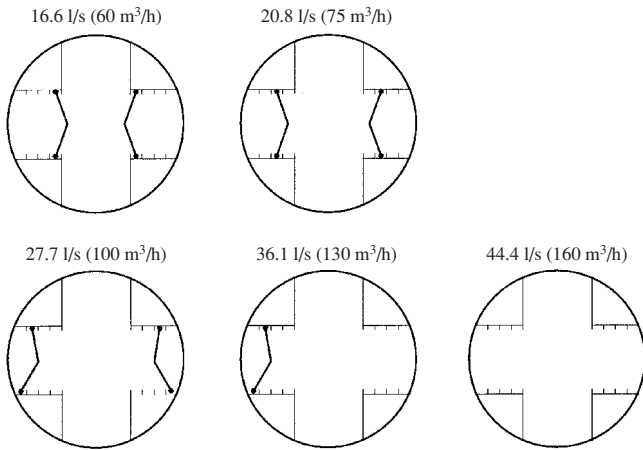
- 8.3 l/s (30 m³/h): -10%; + 20%
- 16.6 l/s (60 m³/h): -10%; + 20%

The fresh air supply is located before the filter and the water coil.

The collar which houses the flow controller is made of recyclable ABS and has a connection diameter of 125 mm.

The 16.6 l/s or 60 m³/h fresh air controller may be modified on site by relocating or removing two plastic restrictors in order to increase its constant fresh air flow capacity to a maximum of 44.4 l/s or 160 m³/h.

A label on the front fastening support of the 42GM shows how to readjust the two plastic restrictors.



Variable-flow fresh air controller (option)

The 42GM ITM can be equipped with a variable-flow fresh air controller from 0 to 56 l/s (0 to 200 m³/h).

This fresh air control module is connected to the Carrier numeric controller and can regulate the intake of fresh air in two ways:

- flow rate fixed by the user and re-configurable as required
- flow rate based on the CO₂ rate - in this case it is linked to a CO₂ sensor via the Carrier numeric controller.

Filter and filter access

The throwaway filter is replaced through a door under the unit. Changing the filter is a quick and easy task - an important consideration with a unit which is more likely to be used in large multiples rather than singly.

Water coil

Aluminium fins are mechanically bonded by expansion onto 3/8" copper tube.

Male/female water inlet/outlet connections are 1/2" gas threaded nut.

ATTENTION: The unit does not incorporate an air vent. This must be installed during the installation. The coil is not equipped with a drain.

Available coils:

- 6-row coils for two-pipe systems (with an electric heater).
- 6-row coils for four-pipe systems (with one row for heating duty and five rows for cooling duty).

Water flow control valve and flexible water pipes

Each 42GM is fitted with a Carrier numeric controller enabling the water flow control valves to be controlled remotely. These are two-way valves with bodies built to withstand a 16 bar operating pressure at a maximum differential pressure of 2.5 bar. Water pipes are flexible and insulated. The supply pipes must be fitted with shut-off valves.

PTC (Positive Temperature Coefficient) electric heaters

The 42GM ITM can be equipped with an electric heater to provide heating. In this case it is equipped with an innovative and intelligent electric heating system.

The electric heater generates air pressure drops, is mounted on a rotation axis and oscillates between two positions:

- a vertical position
- a horizontal position (corresponding to the cooling mode).

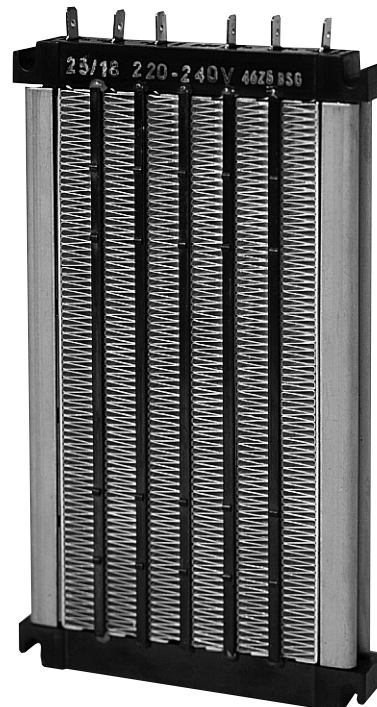
This has the following advantages:

- obtains a higher cooling capacity
- achieves energy savings (fan-motor assembly power consumption lower for a given flow rate).

These are high-performance PTC electrical resistance heaters which make use of two technologies: electric heating and surface temperature limitation (a state-of-the-art technology based on the use of ceramics).

The technology ensures totally safe self-regulation of the dissipated power. In addition, each heater coil is fitted with a self-resetting safety thermostat of the normally closed variety which cuts out when the temperature rises to 70°C with an average differential of 20°C. The true dissipated power is then dependent on the temperature and flow rate of the incoming air.

CAUTION: It is vital to disconnect the 42GM from the general power supply before carrying out any work on the electric heater.



Fan-motor assembly

The 42GM has a double inlet fan to give very high available static pressure. The fan motor is supplied at 230 V. Its speed is variable via a numeric controller.

3 - SAFETY CONSIDERATIONS

3.1 - General

Installing, commissioning and servicing of the various components which make up the different control loops can be dangerous unless certain aspects of the installation, such as the presence of mains electricity and hot or chilled-water in the air conditioning equipment, are taken into account.

Only specially trained and qualified technicians and installers who have been fully trained on the product concerned are authorised to install, commission and service this equipment.

During servicing work, it is essential to apply all recommendations and instructions given in service leaflets, on labels or in the instructions delivered with the equipment, and to comply with any other relevant instructions.

Definition of the pictograms used



Electrical Danger



Caution hand hazard



General Danger



UV-C light: do not look directly at this light without protective glasses.

Comply with all the safety rules and regulations currently in force.

Wear eye protectors and work gloves.

Take care when moving or positioning equipment.

3.2 - Precautions against electrocution

Only electricians who are qualified to the level recommended by the IEC (International Electrotechnical Commission) in its standard IEC 364, corresponding to Europe HD 384, France NFC 15 100 and UK IEE Wiring Regulations, may have access to electrical components. In particular it is obligatory to disconnect all electrical power supplies to the unit and its accessories before carrying out any work. Disconnect the main power supply with an isolating device (not supplied by Carrier).

IMPORTANT: The components, which make up the different control loops described in this manual include electronic items. As such, they may generate or be harmed by electromagnetic interference unless they are installed and used in accordance with these instructions. The components making up these control systems conform to the requirements of electromagnetic compatibility in residential and industrial areas. They also comply with the low-voltage directive.

3.3 - General installation recommendations

IMPORTANT: The numeric controller, power module, controls loops with speed controllers or in general units fitted with controls loops must have an isolating device upstream (for example a double-pole circuit breaker). If necessary, an easily operated emergency stop device (such as a punch-button switch) must cut off the power to all equipment. These safety devices shall be sized and installed in accordance with IEC Recommendation 364, corresponding to Europe HD 384, France NFC 15 100 and UK IEE Wiring Regulations. These devices are not supplied by Carrier.

In general terms the following rules must be applied:

- Units must be provided with over-voltage protection upstream (not supplied by Carrier).

	Upstream over-voltage protection
Unit without electric heater	T2A
Unit with electric heater	T16A

- Units must be protected by a differential type earth leakage current device (not supplied by Carrier).
- The power disconnection device must be clearly labelled to identify which items of equipment are connected to it.
- The wiring of the components which make up the different control systems and the communication buses must be carried out in accordance with the latest rules and regulations by professional installers.
- The power supply cable must be doubly insulated and fixed using an appropriate cable clamp or the cable clamp supplied with the numeric controller. The cable must be clamped on the outer insulation.
- The control loop components must be installed in an environment, which conforms to their index of protection (IP).

The maximum level of pollution is normally pollutant (level 2) and installation category II.

- The low-voltage wiring (communication bus) must be kept physically separate from the power wiring.
- In order to avoid interference with the communication links:
 - Keep low-voltage wiring away from power cables and avoid using the same cable run (a maximum of 300 mm in common with the 230 VAC, 30 A cable)
 - Do not pass low-voltage wires through loops in the power cables
 - Do not connect heavy inductive loads to the same electrical supply (circuit breaker) used by the controllers, power modules or speed controllers.
 - Use the screened cable type recommended by Carrier and make sure all cables are connected to the controllers and power modules.

3.4 - Conformity

This equipment has been declared to be in conformity with the main requirements of the directive by virtue of using the following standards:

- Electromagnetic compatibility: 89/336/EEC
- Low-voltage directive: 73/23/EEC

4 - CARRIER NUMERIC CONTROLLER

At the top of the range, the 42GM will be fitted with a Carrier communicating numeric controller with programmable parameters. The controller will be attached directly to each 42GM.

The control system will then consist of the following:

- a Carrier numeric controller,
- one or two water flow control valves, depending how the 42GM is configured, complete with their flexible water pipes,
- a user interface or wall-mounted thermostat located in the air conditioned zone from which commands can be sent to the controller (available as accessories),
- a Power Module (Pm) for controlling lights and window blinds in the air conditioned zone (available as an accessory) can be added to the system to further enhance comfort.

Depending on the required configuration, a room temperature sensor (available as an accessory) may be supplied.

The connection uses quick connectors to simplify maintenance work and reduce servicing costs.

The Zone Controller is available with the following functions:

- Two pipes, cooling only
- Four pipes
- Two pipes/two wires

The main functions of the controller are:

- Controlling room temperature. Temperature is measured either by the temperature sensor incorporated in the user interface or wall-mounted thermostat, or by a room temperature sensor.
- Selecting occupied or unoccupied mode through the user interface or wall-mounted thermostat.
- Controlling the occupied setpoint through the user interface or wall-mounted thermostat.
- Controlling room air renewal (available through the user interface only).
- Halting the control function if an open window is detected (the parameters for this function are programmable).

If a Power Module is associated with the controller, the following additional functions are accessible from the user interface:

- Turning a lighting source on or off,
- Turning a controlled output on or off,
- Raising, lowering and adjusting the angle of window blinds.

For complete information on the numeric controller consult the specific documentation.

5 - TECHNICAL SPECIFICATIONS

5.1 - Technical specifications of the valves

The valves used on the 42GM ITM are two-way valves.

5.1.1 - Motor of the all-or-nothing thermoelectric valve (AON)

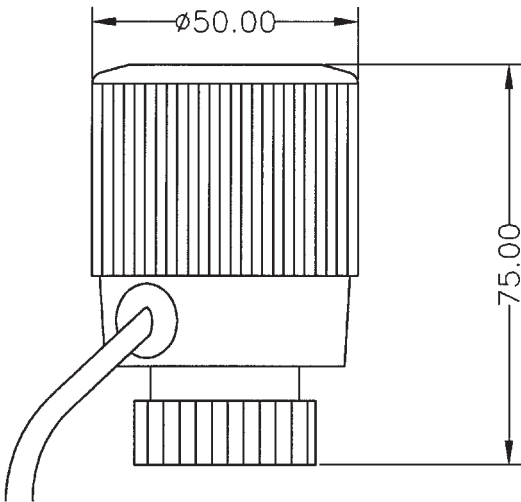
- Compact design
- Long lasting
- Easy installation without toolkit
- Completely silent in operation
- Complete with connector cable

Operation

Linear movement is controlled by expansion and contraction of a wax element heated by an electrical resistor.

Specifications

Power supply	230 VAC ($\pm 15\%$) - 1 Ph-50 Hz)
Inrush current	0.7 A
Holding current	0.013 A
Power	3 W
Maximum travel	8 mm
Operating temperature	0 to 50°C
Degree of protection	IP43 if installed vertically IP40 if installed horizontally
Opening time	4 min.
Closing time	Maximum 7 min. depending on the valve motor heating-up time (ambient temperature 20°C)
Connection cable	2 x 0.75 mm ²
Dimensions	Diameter 50 mm Height 68.5 mm
Permitted differential pressure	2.5 bar (2-way valve)



All dimensions are given in mm.

Features

- G1/2" flat-joint thread
- Straight valve body in non-nickel plated Rg5 bronze with arrow indicating direction of flow engraved on valve body.
- Stainless steel stem
- Brass valve
- MEPD seating joint (modified ethylene-propylene-diene)
- Nominal size 15
- Kvs value: 1
- Fluid: water and water glycolated to max. 40%
- Temperature: 2-90°C
- Leak rate: 0.02% of Kvs
- Travel: 6.5 mm
- Closing height: 18 mm
- Flow curve: linear
- Maximum pressure: PN 16 bars

Pressure drop

See chapters 7.3 and 7.4.

5.2 - Flexible water pipes

Features

- Insulation: cell foam rubber to M1 fire rating.
- Minimum bending radius: 106 mm insulated.
- The flexible water pipes are designed to carry treated water (maximum 40% concentration of ethylene glycol or propylene glycol).
- Maximum hot water temperature 90°C.
- Operating pressure: 10 bar.
- Connections: G1/2" threaded nut.
- Length: 400 mm (unit outlet).

6 - ACCESSORIES

A broad range of accessories is available to allow the 42GM to be installed in a wide range of applications.

6.1 - Carrier numeric controller

See Chapter 4.

7 - PERFORMANCES

7.1 - Cooling capacities - cold water coil, kW

7.1.1 - Cold water coil, 2 pipes, 6 rows, kW

Water temp. inlet-outlet (°C)		Relative humidity 40%																	
		Air flow l/s (m³/h)																	
		69 (250)			83 (300)			97 (350)			111 (400)			125 (450)			139 (500)		
		Dry bulb temperature at coil inlet (°C)																	
		27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22
6-11	TC	1.89	1.54	1.16	2.25	1.84	1.38	2.60	2.14	1.60	2.94	2.42	1.82	3.27	2.70	2.04	3.60	2.97	2.26
	SHC	1.51	1.36	1.15	1.81	1.62	1.37	2.10	1.89	1.59	2.38	2.15	1.81	2.67	2.41	2.03	2.95	2.66	2.25
	TSA	8.7	8.6	8.3	8.7	8.7	8.4	8.9	8.8	8.5	9.0	8.9	8.5	9.1	9.0	8.6	9.2	9.1	8.7
	WF	324	265	200	387	317	237	446	367	275	505	416	313	562	464	351	618	511	388
7-12	TC	1.71	1.40	1.06	2.04	1.67	1.27	2.36	1.94	1.47	2.67	2.20	1.67	2.97	2.46	1.88	3.28	2.71	2.07
	SHC	1.43	1.28	1.06	1.71	1.54	1.27	1.99	1.79	1.47	2.26	2.04	1.67	2.53	2.28	1.88	2.80	2.52	2.07
	TSA	9.7	9.5	9.3	9.7	9.6	9.4	9.8	9.6	9.5	9.9	9.7	9.6	10.1	9.8	9.6	10.1	9.9	9.7
	WF	294	240	182	351	287	218	405	334	253	458	379	288	511	422	323	564	465	357
8-13	TC	1.54	1.27	0.97	1.85	1.51	1.16	2.14	1.76	1.34	2.42	2.00	1.53	2.71	2.23	1.71	2.97	2.46	1.89
	SHC	1.35	1.21	0.97	1.62	1.46	1.16	1.89	1.69	1.34	2.15	1.93	1.53	2.41	2.16	1.71	2.66	2.39	1.89
	TSA	10.6	10.4	10.4	10.6	10.4	10.5	10.7	10.5	10.6	10.8	10.5	10.6	10.9	10.6	10.7	11.0	10.7	10.8
	WF	266	218	166	317	260	199	368	302	231	416	344	263	465	384	294	511	423	326
10-15	TC	1.26	1.06	0.78	1.51	1.27	0.93	1.75	1.47	1.08	1.99	1.68	1.23	2.22	1.88	1.37	2.45	2.08	1.52
	SHC	1.22	1.06	0.78	1.46	1.27	0.93	1.70	1.47	1.08	1.93	1.68	1.23	2.16	1.88	1.37	2.39	2.08	1.52
	TSA	12.3	12.2	12.7	12.3	12.3	12.8	12.4	12.4	12.8	12.4	12.4	12.9	12.5	12.5	12.9	12.6	12.6	13.0
	WF	217	183	134	260	218	160	302	254	186	343	289	211	383	324	236	422	357	261
		Relative humidity 50%																	
6-11	TC	2.34	1.90	1.30	2.77	2.26	1.55	3.20	2.61	1.80	3.62	2.94	2.04	4.03	3.27	2.27	4.44	3.60	2.50
	SHC	1.51	1.34	1.08	1.80	1.60	1.30	2.09	1.85	1.51	2.37	2.10	1.72	2.65	2.35	1.92	2.92	2.59	2.12
	TSA	8.6	8.8	9.1	8.8	8.9	9.1	8.9	9.1	9.2	9.1	9.2	9.2	9.2	9.4	9.3	9.4	9.5	9.4
	WF	401	326	223	476	389	266	550	448	309	622	506	351	693	562	391	762	618	429
7-12	TC	2.14	1.70	1.14	2.54	2.03	1.36	2.93	2.34	1.58	3.31	2.64	1.80	3.68	2.93	2.01	4.05	3.22	2.21
	SHC	1.42	1.25	1.01	1.69	1.49	1.20	1.96	1.73	1.40	2.23	1.96	1.60	2.49	2.19	1.79	2.75	2.42	1.98
	TSA	9.7	10.0	10.0	9.9	10.0	10.0	10.0	10.2	10.1	10.2	10.3	10.1	10.3	10.4	10.2	10.4	10.5	10.3
	WF	368	292	196	437	348	234	503	402	272	569	453	309	633	503	345	696	553	380
8-13	TC	1.94	1.50	1.00	2.30	1.79	1.19	2.65	2.07	1.39	2.99	2.34	1.57	3.32	2.60	1.76	3.65	2.85	1.95
	SHC	1.33	1.16	0.94	1.59	1.39	1.12	1.84	1.62	1.30	2.09	1.83	1.49	2.33	2.05	1.67	2.58	2.26	1.85
	TSA	10.8	11.0	10.8	11.0	11.1	10.9	11.1	11.2	10.9	11.2	11.3	11.0	11.4	11.4	11.0	11.5	11.5	11.1
	WF	333	258	172	395	308	205	455	357	238	514	402	271	571	447	303	628	490	335
10-15	TC	1.52	1.15	0.78	1.81	1.37	0.93	2.09	1.59	1.08	2.35	1.81	1.23	2.61	2.02	1.37	2.86	2.22	1.52
	SHC	1.16	1.01	0.78	1.39	1.21	0.93	1.61	1.40	1.08	1.83	1.60	1.23	2.04	1.79	1.37	2.25	1.98	1.52
	TSA	13.0	12.9	12.7	13.0	12.9	12.8	13.1	13.0	12.8	13.3	13.0	12.9	13.4	13.1	13.0	13.5	13.2	13.0
	WF	261	198	134	311	236	160	359	274	186	405	311	211	449	347	236	493	381	261
		Relative humidity 60%																	
6-11	TC	2.81	2.33	1.62	3.35	2.76	1.93	3.87	3.19	2.23	4.39	3.60	2.51	4.89	4.01	2.79	5.39	4.41	3.06
	SHC	1.52	1.35	1.07	1.82	1.61	1.28	2.10	1.86	1.49	2.39	2.11	1.69	2.67	2.35	1.88	2.94	2.59	2.07
	TSA	8.4	8.7	9.2	8.6	8.8	9.2	8.8	9.0	9.3	8.9	9.2	9.5	9.1	9.3	9.6	9.2	9.4	9.7
	WF	483	400	278	575	474	331	664	547	383	753	619	432	840	689	479	925	758	525
7-12	TC	2.62	2.12	1.40	3.11	2.52	1.67	3.59	2.90	1.94	4.07	3.28	2.19	4.53	3.65	2.42	4.99	4.00	2.65
	SHC	1.43	1.26	0.98	1.71	1.50	1.17	1.98	1.73	1.36	2.24	1.96	1.54	2.51	2.19	1.72	2.76	2.41	1.90
	TSA	9.5	9.8	10.3	9.7	10.0	10.4	9.9	10.1	10.5	10.0	10.3	10.5	10.2	10.4	10.7	10.3	10.5	10.8
	WF	449	365	241	534	433	287	617	499	333	698	563	376	778	626	417	857	688	456
8-13	TC	2.41	1.91	1.19	2.86	2.27	1.42	3.30	2.61	1.64	3.73	2.94	1.87	4.15	3.27	2.08	4.57	3.59	2.27
	SHC	1.34	1.17	0.89	1.60	1.39	1.06	1.85	1.60	1.23	2.10	1.82	1.41	2.34	2.03	1.57	2.58	2.23	1.73
	TSA	10.7	10.9	11.4	10.8	11.1	11.5	11.0	11.2	11.5	11.1	11.4	11.6	11.3	11.5	11.6	11.4	11.6	11.7
	WF	414	329	205	491	390	244	567	449	283	641	506	321	713	562	357	785	616	391
10-15	TC	1.97	1.45	0.83	2.33	1.73	0.99	2.68	2.00	1.15	3.02	2.24	1.31	3.36	2.48	1.46	3.68	2.72	1.61
	SHC	1.16	0.98	0.73	1.38	1.17	0.87	1.60	1.35	1.02	1.81	1.53	1.16	2.02	1.71	1.30	2.22	1.88	1.44
	TSA	12.9	13.3	13.3	13.1	13.3	13.3	13.2	13.4	13.4	13.4	13.5	13.4	13.5	13.7	13.5	13.6	13.8	13.5
	WF	339	250	143	401	298	171	461	344	198	520	386	225	577	428	251	633	468	277

Legend:

TC - Total cooling capacity, kW
 SHC - Sensible heat capacity, kW
 TSA - Air discharge temperature, °C
 WF - Water flow, l/h

NOTE: Operating limit: air discharge temperature 12°C, when the unit is installed where room temperature is 27°C dry bulb and rh 65%. If WF > 0,153 l/s (550 l/h) the water pressure drop is > 50 kPa.

NOTE: To convert l/h to l/s, please divide by 3600.

7.1.2 - Cold water coil, 4 pipes (5 rows cooling, 1 row heating), kW

		Relative humidity 40%																	
		Air flow l/s (m ³ /h)																	
Water temp. inlet-outlet (°C)		69 (250)			83 (300)			97 (350)			111 (400)			125 (450)			139 (500)		
		Dry bulb temperature at coil inlet (°C)																	
		27	25	22	27	25	22	27	25	22	27	25	22	27	25	22	27	25	22
6-11	TC	1.67	1.36	1.03	1.99	1.63	1.23	2.29	1.89	1.43	2.58	2.14	1.62	2.87	2.38	1.81	3.15	2.62	2.01
	SHC	1.41	1.27	1.03	1.69	1.52	1.23	1.96	1.76	1.42	2.22	2.01	1.62	2.48	2.24	1.81	2.74	2.47	2.00
	TSA	9.9	9.7	9.7	10.0	9.8	9.8	10.1	9.9	9.9	10.2	10.0	10.0	10.4	10.1	10.1	10.5	10.2	10.1
	WF	287	234	177	342	279	211	394	324	245	444	368	279	493	409	312	541	450	344
7-12	TC	1.51	1.25	0.94	1.80	1.49	1.12	2.08	1.72	1.30	2.35	1.96	1.48	2.61	2.19	1.65	2.86	2.40	1.83
	SHC	1.34	1.19	0.94	1.60	1.43	1.12	1.86	1.66	1.30	2.12	1.89	1.48	2.37	2.11	1.65	2.61	2.33	1.83
	TSA	10.8	10.6	10.8	10.8	10.7	10.9	10.9	10.8	10.9	11.0	10.9	11.0	11.2	11.0	11.1	11.3	11.1	11.2
	WF	259	214	162	309	255	193	358	296	224	404	337	254	448	376	284	492	413	314
8-13	TC	1.37	1.14	0.85	1.63	1.36	1.01	1.89	1.58	1.17	2.14	1.79	1.33	2.39	2.00	1.49	2.62	2.20	1.65
	SHC	1.27	1.12	0.85	1.52	1.33	1.01	1.77	1.55	1.17	2.01	1.76	1.33	2.24	1.97	1.49	2.47	2.17	1.65
	TSA	11.6	11.6	11.9	11.7	11.6	12.0	11.8	11.7	12.0	11.9	11.8	12.1	12.0	11.9	12.2	12.1	12.0	12.2
	WF	235	196	146	281	233	174	325	271	202	369	308	229	410	344	256	451	379	283
10-15	TC	1.14	0.95	0.66	1.36	1.13	0.79	1.58	1.31	0.91	1.79	1.49	1.03	2.00	1.67	1.16	2.20	1.84	1.28
	SHC	1.12	0.95	0.66	1.34	1.13	0.79	1.55	1.31	0.91	1.77	1.49	1.03	1.97	1.67	1.16	2.18	1.84	1.28
	TSA	13.4	13.6	14.1	13.5	13.7	14.2	13.6	13.8	14.3	13.7	13.8	14.3	13.8	13.9	14.4	13.9	14.0	14.4
	WF	196	163	114	234	195	135	272	226	157	309	257	178	345	287	199	379	317	220
		Relative humidity 50%																	
6-11	TC	2.07	1.64	1.10	2.45	1.96	1.31	2.82	2.26	1.52	3.17	2.54	1.72	3.52	2.81	1.93	3.86	3.07	2.12
	SHC	1.39	1.22	0.99	1.66	1.46	1.19	1.91	1.70	1.38	2.17	1.92	1.57	2.42	2.14	1.76	2.66	2.36	1.94
	TSA	10.1	10.2	10.2	10.3	10.3	10.2	10.5	10.4	10.3	10.6	10.6	10.4	10.8	10.7	10.4	10.9	10.9	10.5
	WF	356	283	189	421	337	225	484	388	261	545	436	296	604	482	331	662	528	365
7-12	TC	1.88	1.46	0.97	2.23	1.73	1.16	2.55	2.00	1.35	2.87	2.26	1.53	3.18	2.50	1.71	3.49	2.74	1.89
	SHC	1.31	1.14	0.92	1.56	1.37	1.09	1.80	1.59	1.27	2.04	1.80	1.45	2.28	2.01	1.62	2.51	2.21	1.79
	TSA	11.1	11.2	11.1	11.3	11.3	11.1	11.4	11.4	11.2	11.6	11.5	11.3	11.8	11.6	11.3	11.9	11.8	11.4
	WF	323	250	168	383	298	200	439	345	231	494	388	263	547	430	293	599	470	324
8-13	TC	1.68	1.28	0.86	1.99	1.52	1.03	2.29	1.76	1.19	2.57	1.99	1.35	2.84	2.21	1.51	3.11	2.42	1.67
	SHC	1.22	1.07	0.84	1.46	1.28	1.00	1.69	1.48	1.16	1.91	1.69	1.32	2.14	1.89	1.47	2.35	2.08	1.63
	TSA	12.2	12.2	12.0	12.3	12.2	12.1	12.4	12.3	12.2	12.6	12.4	12.2	12.7	12.5	12.3	12.8	12.6	12.4
	WF	288	220	148	343	261	176	393	303	205	442	343	232	489	380	260	535	416	287
10-15	TC	1.29	0.99	0.66	1.54	1.18	0.79	1.78	1.36	0.91	2.01	1.55	1.03	2.22	1.73	1.16	2.43	1.91	1.28
	SHC	1.07	0.92	0.66	1.28	1.10	0.79	1.49	1.28	0.91	1.69	1.46	1.03	1.89	1.63	1.16	2.08	1.81	1.28
	TSA	14.1	13.9	14.1	14.1	14.0	14.2	14.2	14.0	14.3	14.3	14.1	14.3	14.4	14.1	14.4	14.5	14.2	14.4
	WF	222	170	114	264	202	135	306	235	157	345	266	178	382	298	199	419	328	220
		Relative humidity 60%																	
6-11	TC	2.53	2.05	1.35	3.00	2.42	1.61	3.45	2.78	1.86	3.89	3.12	2.10	4.32	3.46	2.33	4.74	3.79	2.54
	SHC	1.40	1.22	0.96	1.66	1.46	1.14	1.92	1.68	1.33	2.17	1.90	1.51	2.42	2.11	1.68	2.66	2.32	1.85
	TSA	10.0	10.2	10.6	10.2	10.4	10.7	10.4	10.6	10.7	10.6	10.8	10.8	10.8	10.9	10.9	10.9	11.1	11.1
	WF	435	351	232	515	416	276	592	477	319	668	537	361	743	595	399	815	651	436
7-12	TC	2.33	1.84	1.15	2.76	2.18	1.37	3.17	2.50	1.58	3.57	2.81	1.79	3.96	3.11	2.00	4.34	3.40	2.19
	SHC	1.31	1.13	0.87	1.56	1.35	1.04	1.80	1.56	1.21	2.03	1.76	1.37	2.26	1.96	1.54	2.49	2.16	1.70
	TSA	11.1	11.3	11.6	11.3	11.4	11.7	11.5	11.6	11.8	11.7	11.8	11.8	11.8	11.9	11.9	12.0	12.1	12.0
	WF	400	316	197	474	375	235	544	430	271	613	483	308	680	534	343	745	585	376
8-13	TC	2.12	1.63	0.96	2.50	1.94	1.15	2.87	2.22	1.33	3.23	2.49	1.50	3.58	2.76	1.68	3.92	3.01	1.85
	SHC	1.22	1.05	0.79	1.45	1.25	0.95	1.67	1.44	1.10	1.89	1.63	1.25	2.11	1.82	1.40	2.32	2.00	1.55
	TSA	12.2	12.4	12.6	12.4	12.5	12.6	12.6	12.6	12.7	12.7	12.8	12.7	12.9	12.9	12.8	13.0	13.0	12.8
	WF	364	280	166	430	333	197	493	382	228	555	429	258	615	474	288	673	518	318
10-15	TC	1.68	1.19	0.68	1.99	1.41	0.81	2.28	1.63	0.94	2.55	1.85	1.06	2.82	2.05	1.19	3.08	2.23	1.31
	SHC	1.05	0.87	0.64	1.25	1.04	0.77	1.44	1.21	0.89	1.63	1.38	1.01	1.81	1.54	1.13	1.99	1.70	1.25
	TSA	14.3	14.5	14.4	14.4	14.6	14.4	14.6	14.6	14.5	14.8	14.7	14.5	14.9	14.8	14.6	15.0	14.9	14.6
	WF	289	205	117	343	243	139	392	281	161	440	318	183	486	352	204	531	384	225

Legend:

TC - Total cooling capacity, kW
 SHC - Sensible heat capacity, kW
 TSA - Air discharge temperature, °C
 WF - Water flow, l/h

NOTE: Operating limit: air discharge temperature 12°C, when the unit is installed where room temperature is 27°C dry bulb and rh 65%. If WF > 0,161 l/s (580 l/h) the water pressure drop is > 50 kPa.

NOTE: To convert l/h to l/s, please divide by 3600..

7.2 - Heating capacities - hot water coil, kW

7.2.1 - 4-pipe water coil (1 row heating), kW

Water temp. inlet-outlet (°C)		Air flow l/s (m³/h)																	
		28 (100)			56 (200)			83 (300)			111 (400)			125 (450)			139 (500)		
		Dry bulb temperature at coil inlet (°C)																	
		19	16	13	19	16	13	19	16	13	19	16	13	19	16	13	19	16	13
70-60	HC	0.78	0.84	0.90	1.44	1.55	1.67	2.03	2.19	2.37	2.57	2.78	3.00	2.83	3.06	3.30	2.87	3.10	3.35
	TSA	41.6	40.3	38.9	39.9	38.4	37.0	38.7	37.1	35.6	37.7	36.1	34.5	37.3	35.7	34.0	37.2	35.6	34.0
	WF	68	74	80	126	137	147	178	193	208	226	245	264	249	269	290	252	273	294
70-55	HC	0.68	0.75	0.81	1.26	1.38	1.49	1.76	1.93	2.09	2.22	2.43	2.64	2.43	2.66	2.90	2.46	2.70	2.93
	TSA	38.8	37.6	36.3	37.3	35.9	34.4	36.1	34.5	33.0	35.1	33.5	31.9	34.7	33.1	31.4	34.7	33.0	31.4
	WF	40	44	48	74	81	88	103	113	123	130	142	155	142	156	170	144	158	172
60-55	HC	0.67	0.73	0.80	1.25	1.37	1.49	1.78	1.94	2.11	2.26	2.48	2.69	2.49	2.73	2.97	2.53	2.77	3.01
	TSA	38.5	37.2	35.8	37.2	35.8	34.3	36.2	34.7	33.2	35.5	33.9	32.3	35.1	33.5	31.9	35.1	33.5	31.9
	WF	117	128	139	219	239	260	311	340	370	396	433	471	437	478	519	443	484	527
60-50	HC	0.58	0.64	0.71	1.07	1.19	1.30	1.50	1.66	1.83	1.90	2.10	2.31	2.08	2.31	2.54	2.11	2.34	2.58
	TSA	35.9	34.6	33.3	34.6	33.1	31.7	33.6	32.0	30.5	32.8	31.2	29.6	32.5	30.8	29.2	29.2	32.4	30.8
	WF	51	56	62	94	104	114	131	146	160	166	184	202	182	202	222	185	205	225
60-45	HC	0.47	0.53	0.60	0.86	0.98	1.11	1.22	1.39	1.55	1.53	1.73	1.94	1.67	1.89	2.12	1.69	1.92	2.15
	TSA	32.6	31.4	30.1	31.6	30.2	28.9	30.9	29.3	27.8	30.1	28.5	26.9	29.8	28.2	26.5	29.8	28.1	26.5
	WF	27	31	35	50	57	65	71	81	90	89	101	113	98	111	124	99	112	125
50-45	HC	0.48	0.54	0.60	0.89	1.01	1.12	1.26	1.42	1.59	1.60	1.81	2.02	1.76	1.99	2.22	1.78	2.01	2.25
	TSA	33.1	31.7	30.3	32.0	30.5	29.1	31.2	29.7	28.2	30.6	29.0	27.5	30.4	28.8	27.1	30.4	28.7	27.1
	WF	84	95	105	156	175	195	220	248	277	279	315	351	307	347	387	311	351	392
50-40	HC	0.37	0.44	0.50	0.69	0.81	0.93	0.98	1.13	1.29	1.22	1.42	1.62	1.34	1.56	1.78	1.35	1.58	1.80
	TSA	29.9	28.6	27.3	29.1	27.7	26.3	28.5	26.9	25.4	27.9	26.3	24.6	27.6	26.0	24.3	27.6	25.9	24.3
	WF	33	38	44	60	70	81	85	99	113	107	124	142	117	136	155	118	137	157
50-35	HC	0.24	0.30	0.37	0.43	0.55	0.67	0.60	0.78	0.95	0.76	0.98	1.21	0.84	1.08	1.33	0.85	1.10	1.35
	TSA	26.1	24.7	23.5	25.2	24.0	22.7	24.8	23.5	22.1	24.5	23.1	21.7	24.4	23.0	21.5	24.4	22.9	21.4
	WF	14	17	21	25	32	39	35	45	55	44	57	70	49	63	77	49	64	78
45-40	HC	0.39	0.45	0.51	0.71	0.82	0.94	1.00	1.16	1.32	1.27	1.47	1.68	1.39	1.62	1.84	1.41	1.64	1.87
	TSA	30.2	28.9	27.6	29.4	27.9	26.4	28.7	27.2	25.6	28.2	26.6	25.0	28.0	26.4	24.8	28.0	26.4	24.7
	WF	67	78	88	124	144	163	175	202	230	221	256	292	243	281	321	246	285	325
40-35	HC	0.29	0.35	0.41	0.53	0.64	0.75	0.75	0.90	1.06	0.94	1.14	1.34	1.03	1.25	1.47	1.04	1.26	1.60
	TSA	27.4	26.0	24.7	26.8	25.3	23.8	26.2	24.7	23.1	25.8	24.2	22.6	25.7	24.0	22.4	25.6	24.0	22.2
	WF	50	60	71	93	112	131	130	157	184	163	197	232	179	217	255	181	220	277
40-30	HC	0.17	0.21	0.28	0.27	0.39	0.51	0.37	0.55	0.72	0.47	0.69	0.91	0.52	0.76	1.00	0.53	0.77	1.02
	TSA	23.8	22.1	20.9	22.9	21.6	20.3	22.6	21.3	19.9	22.4	21.0	19.5	22.4	20.9	19.4	22.4	20.9	19.4
	WF	14	18	24	23	34	44	32	47	62	41	60	79	45	66	87	46	67	88

Legend:

HC - Heating capacity, kW
TSA - Air discharge temperature, °C
WF - Water flow, l/h

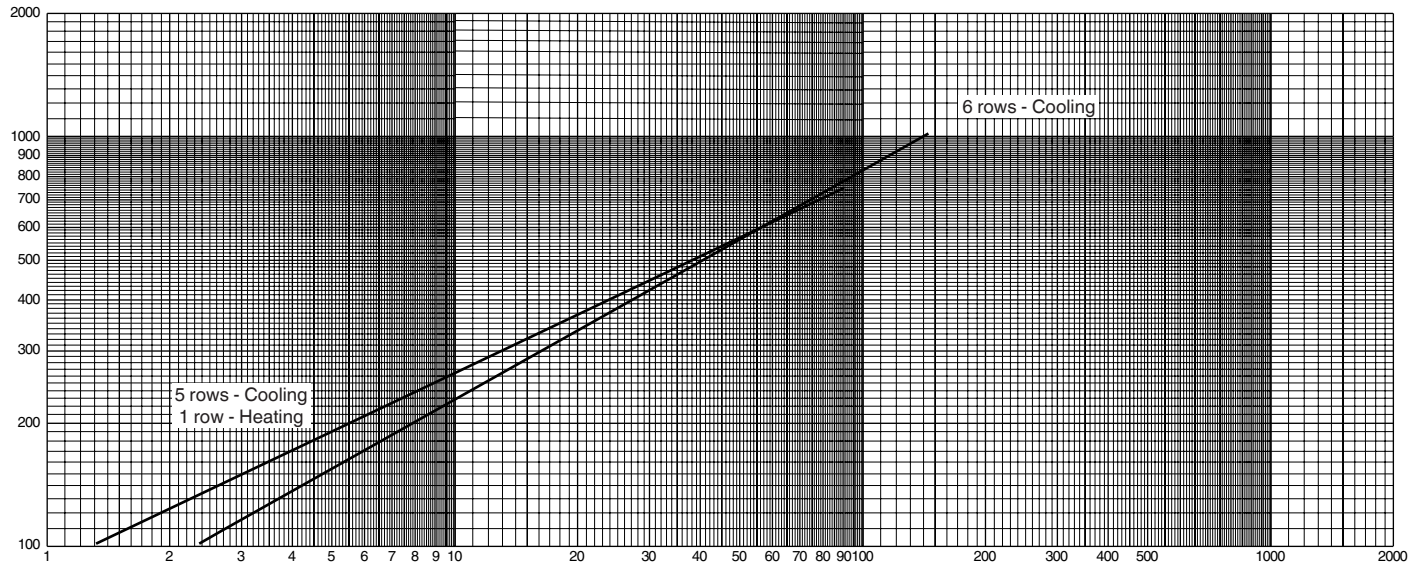
NOTE: To avoid any risk of stratification, Carrier recommends to keep discharge air temperature below 35°C.

IMPORTANT: The discharge temperature must not exceed 60°C to avoid damage to the unit fan motor.

NOTE: To convert l/h to l/s, please divide by 3600.

7.3 - Coil pressure drop

Water flow, l/h



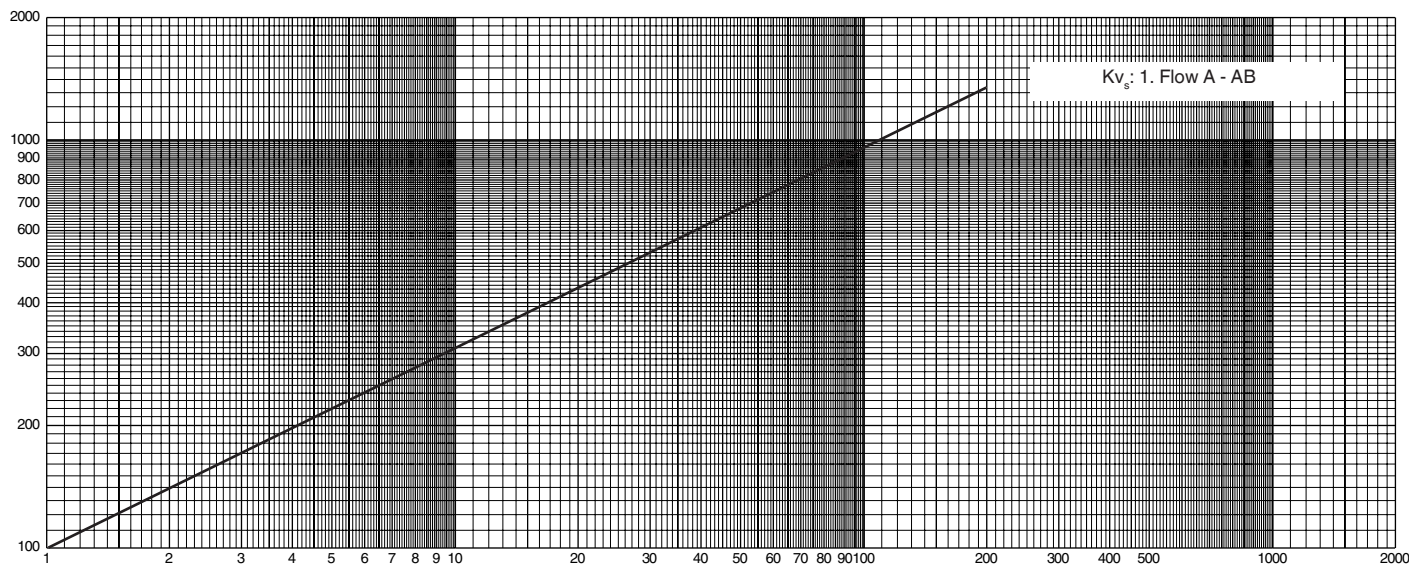
Pressure drop, kPa

NOTE: To convert l/h to l/s, please divide by 3600.

7.4 - Valve pressure drop

7.4.1 - Water pressure drop across the 2-way valve

Water flow, l/h



Pressure drop, kPa

NOTE: To convert l/h to l/s, please divide by 3600.

7.5 - Sound power level

U (V)	Qv-P l/s (m ³ /h)-Pa)	Type	Octave band frequency, Hz					
			125	250	500	1K	2K	A
230	127.8 (460)-200	SUP	66.5	71.4	67.0	65.5	58.4	69.5
		RET	58.7	67.4	59.4	54.8	45.4	61.9
		RAD	69.1	63.7	61.4	55.4	47.6	62.1
	100.0 (360)-312	SUP	65.7	70.9	67.4	66.4	59.2	69.9
		RET	58.0	66.2	59.5	54.6	45.5	61.3
		RAD	68.2	62.4	60.7	55.0	47.2	61.3
	76.4 (275)-392	SUP	66.8	71.7	67.9	67.8	61.1	71.1
		RET	58.9	67.3	59.7	54.9	46.0	62.0
		RAD	69.6	62.6	60.4	55.1	46.9	61.4
200	115.3 (415)-166	SUP	65.7	69.9	65.5	64.6	55.5	68.1
		RET	58.1	65.3	57.9	53.4	43.5	60.1
		RAD	67.8	62.1	59.7	54.1	45.5	60.5
	93.1 (335)-270	SUP	64.3	70.0	66.1	65.4	58.0	68.9
		RET	57.1	65.5	58.4	53.7	44.2	60.4
		RAD	67.4	61.3	59.5	54.0	45.6	60.2
	72.2 (260)-346	SUP	65.8	70.4	66.8	66.6	59.7	69.9
		RET	57.1	66.8	58.7	54.0	44.6	61.2
		RAD	68.1	62.1	59.7	54.3	46.2	60.6
170	98.6 (355)-120	SUP	63.0	66.8	62.5	62.3	51.7	65.4
		RET	58.0	62.8	55.0	50.9	40.4	57.5
		RAD	67.2	58.9	56.7	51.4	42.1	57.9
	81.9 (295)-210	SUP	61.8	67.3	63.3	62.7	52.3	65.9
		RET	55.7	63.1	55.8	51.6	41.3	58.0
		RAD	65.3	58.6	56.8	51.5	42.2	57.6
	65.3 (235)-282	SUP	63.1	68.3	64.5	64.5	54.3	67.4
		RET	56.6	63.7	56.7	52.4	42.2	58.8
		RAD	65.8	59.6	57.4	52.3	43.2	58.3
140	76.4 (275)-72	SUP	59.1	62.0	58.2	58.4	46.6	61.2
		RET	54.0	57.7	50.6	46.8	35.8	52.9
		RAD	63.6	54.2	51.9	46.9	37.0	53.5
	66.7 (240)-134	SUP	58.4	62.9	59.4	59.0	47.6	62.0
		RET	52.4	58.9	51.5	47.3	36.8	53.8
		RAD	61.5	54.7	52.8	47.6	37.9	53.7
	54.2 (195)-192	SUP	60.0	63.8	60.5	61.1	53.4	63.9
		RET	53.5	59.7	52.9	48.3	38.0	54.8
		RAD	62.4	55.6	53.5	48.4	38.7	54.5
110	52.8 (190)-34	SUP	52.4	55.2	52.2	52.4	39.2	55.0
		RET	51.7	51.0	44.1	40.5	28.9	46.6
		RAD	58.7	47.6	45.5	40.7	30.3	47.5
	45.8 (165)-64	SUP	51.8	55.9	53.1	52.5	39.8	55.4
		RET	49.8	51.4	45.1	41.0	29.7	47.0
		RAD	57.5	48.1	46.2	41.3	30.7	47.6
	37.5 (135)-96	SUP	52.8	57.5	54.6	54.4	41.7	57.1
		RET	49.2	53.1	46.8	42.6	31.3	48.6
		RAD	57.4	49.6	47.8	42.8	32.4	48.8

Legend:

U - Fan motor power supply
 Qv-P - Air flow/available static pressure

NOTE: Measurements are based on the usual ISO standards. Any calculation of sound pressure level within a room must take account of the sound deadening effect (absorption) in the duct, plenum, room and ceiling.

7.6 - Electrical data

42GM size 1 without electric heater

U (V)	I (A)	P (W)	Speed r/s (rpm)	Qv (m ³ /h)	Qv (l/s)	Pressure P1 Pa	Pressure P2 Pa
230	0.87	191	39.1 (2347)	505	140.2	135	110
230	0.85	185	40.1 (2406)	457	126.9	200	180
230	0.83	179	40.9 (2454)	408	113.3	262	246
230	0.82	176	41.5 (2488)	375	104.1	300	286
230	1.81	173	41.7 (2503)	348	96.6	327	315
230	0.79	168	42.4 (2543)	305	84.7	367	358
230	0.78	163	42.9 (2576)	268	74.4	398	391
200	0.82	162	35.0 (2102)	468	130.0	82	61
200	0.81	159	35.9 (2155)	443	123.0	124	105
200	0.79	156	37.1 (2225)	403	111.9	185	169
200	0.78	151	37.8 (2269)	371	103.0	225	212
200	0.76	147	38.8 (2326)	338	93.8	268	257
200	0.75	144	39.5 (2370)	307	85.2	300	291
200	0.74	140	40.3 (2415)	271	75.2	336	329
200	0.72	135	41.0 (2462)	233	64.7	372	367
170	0.75	128	30.1 (1804)	393	109.1	56	41
170	0.74	127	31.7 (1903)	360	100.0	112	99
170	0.73	124	32.8 (1966)	336	93.3	151	140
170	0.71	120	34.0 (2039)	311	86.3	192	183
170	0.70	117	35.4 (2123)	272	75.5	238	231
170	0.68	114	36.6 (2193)	240	66.6	277	271
170	0.66	110	38.2 (2294)	189	52.5	337	334
170	0.64	106	39.3 (2360)	150	41.6	373	371
140	0.65	92	25.1 (1504)	284	78.8	61	53
140	0.64	91	26.9 (1613)	257	71.3	105	99
140	0.63	89	28.7 (1722)	225	62.5	153	148
140	0.62	87	30.6 (1838)	193	53.6	194	190
140	0.61	85	32.0 (1918)	163	45.2	227	224
140	0.59	84	33.6 (2017)	131	36.3	265	263
140	0.57	80	35.5 (2130)	97	26.9	309	308
110	0.52	59	17.4 (1044)	214	59.4	9	5
110	0.52	59	19.0 (1137)	187	51.9	38	35
110	0.52	58	21.1 (1267)	153	42.5	76	74
110	0.52	58	22.6 (1357)	134	37.2	100	98
110	0.51	57	23.9 (1436)	111	30.8	126	125
110	0.51	56	25.4 (1524)	92	25.5	147	146
110	0.50	55	27.3 (1640)	63	17.5	183	183
80	0.39	32	12.3 (740)	140	38.8	2	0
80	0.38	31	14.5 (870)	95	26.3	34	33
80	0.38	31	15.4 (922)	71	19.7	47	47
80	0.38	31	16.9 (1013)	41	11.3	66	66

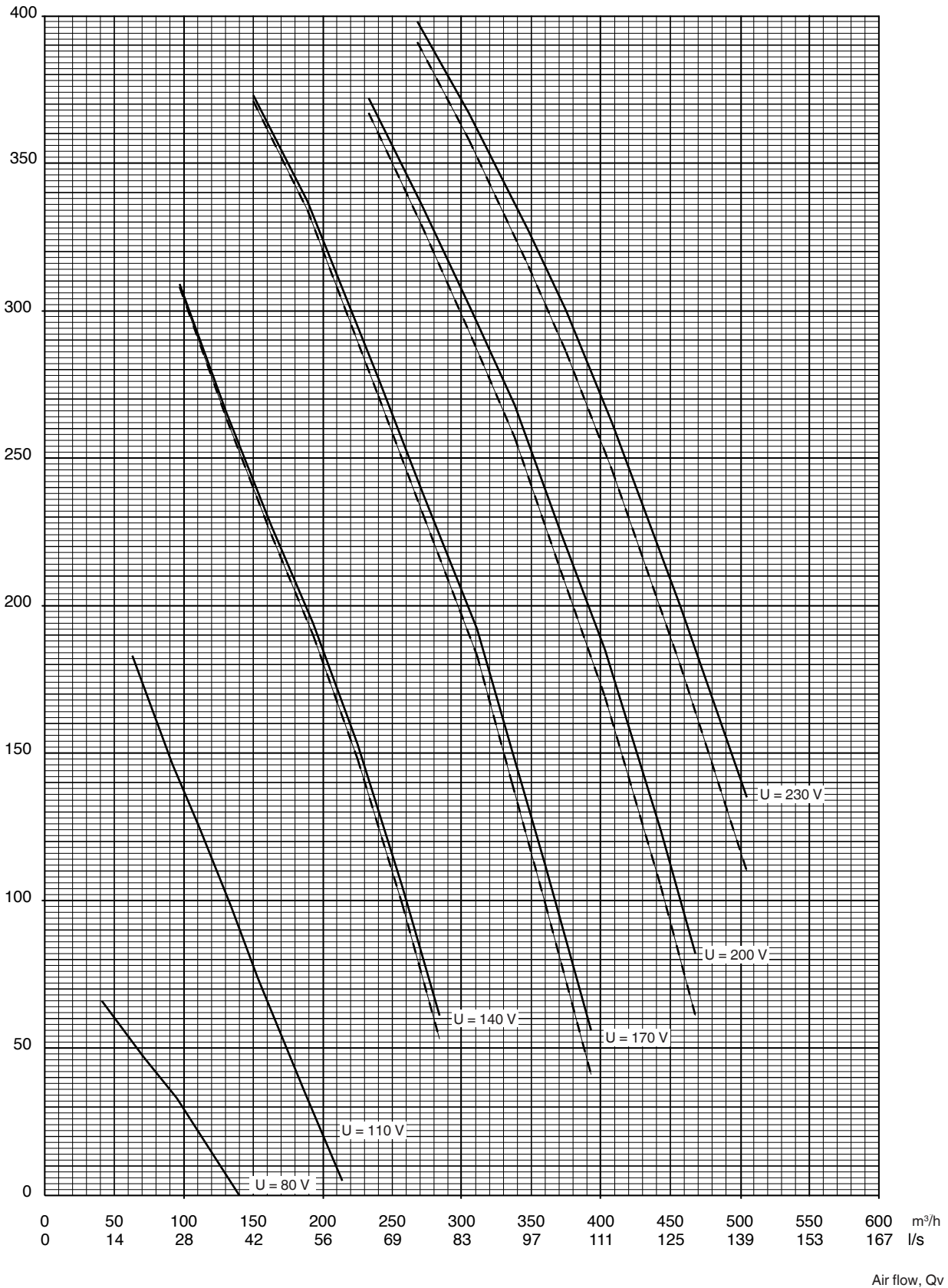
Legend:

- U - Fan motor power supply
- I - Current draw
- P - Power input to the fan motor, Carrier numeric controller or speed controller
- r/s (rpm) - Fan motor rotation speed in revolutions/second (revolutions/minute)
- Qv - Air flow
- Pressure P1 - Available static pressure (without air purifier)
- Pressure P2 - Available static pressure (without air purifier)

7.7 - Air flow/available static pressure data

Available static pressure curve (Pa) as a function of air flow (m³/h or l/s)

Available pressure, Pa

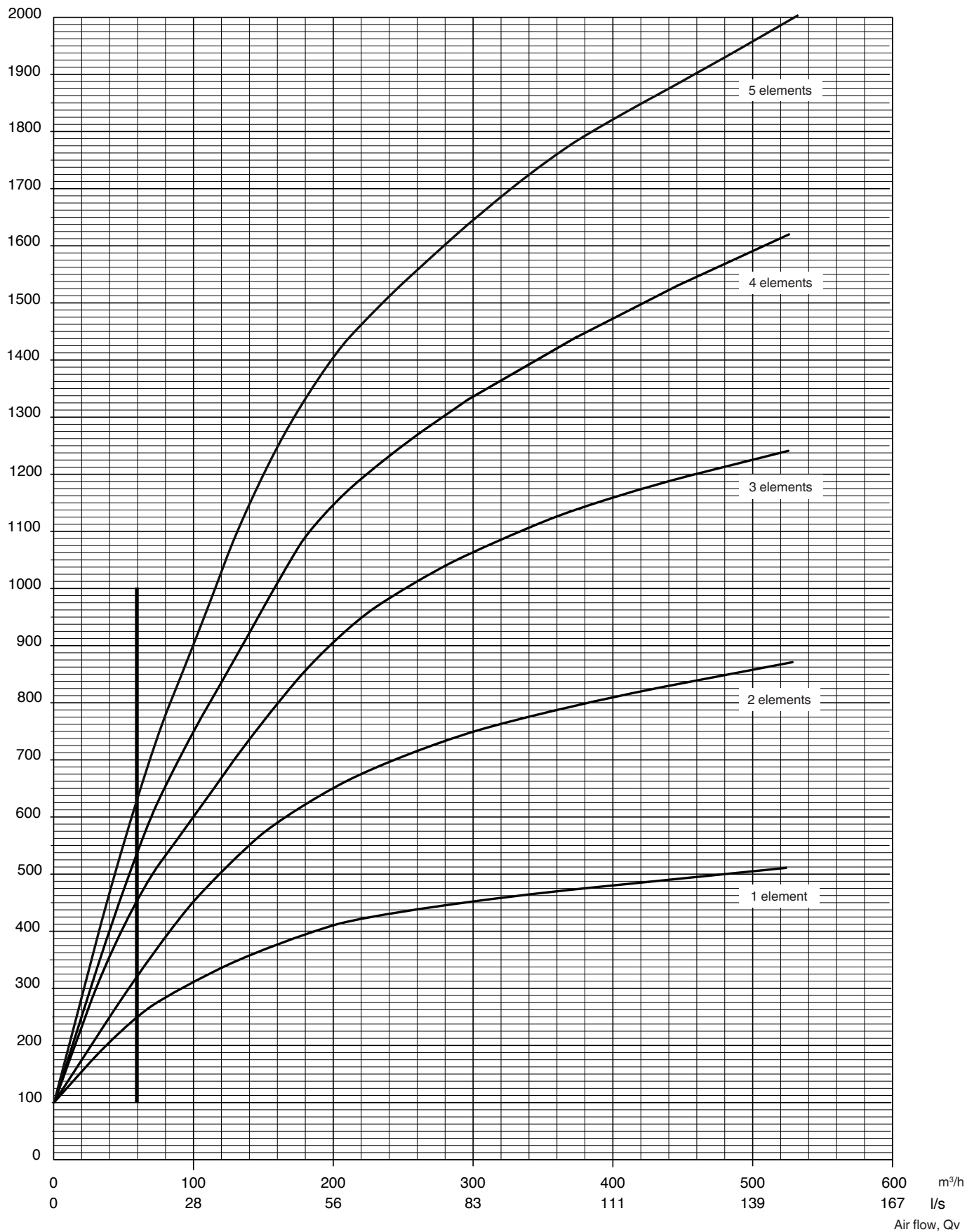


Legend:
 — Without electric heater (with 6-row water coil)
 - - - With electric heater (with 5-row water coil)
 U Fan motor power supply

IMPORTANT: The curves were derived by smoothing, based on the information contained in the electrical data table.

7.8 - Electric heater performance

Capacity, W



Legend:
 Operating limit

NOTE:
 Supply voltage: 230 V.
 Air entering temperature: 19°C.

8 - 42GM CODIFICATION

Characters	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Coding	4	2	G	M	1	A	B	F	B	E	G	5	M		

Type of unit	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Size of unit	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Modification status	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Type of control	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Type of cooling coil	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Type of heating coil	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Type of fresh air controller	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Options	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Product source: Montluel	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														
Specials	----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- ----- -----														

Digit	Codification	Designation
1, 2, 3, 4	42GM	Type of unit
5		Size of unit
	1	125 l/s (450 m ³ /h), size 1
6	A	Modification status
7, 8		Control system
	BE	Unit with Carrier numeric communicating controller, fitted with 2 two-way on/off valves and flexible water pipes.
	BF	Unit with Carrier numeric communicating controller, fitted with 1 two-way on/off valve and flexible water pipes, with electric heater control.
9		Cooling coil type
	A	5-row coil
	B	6-row coil

Digit	Codification	Designation
10		Heating coil type
	N	None
	A	1-row coil
	E	PTC electric heater, 5 prewired elements
	F	PTC electric heater, 4 prewired elements
	G	PTC electric heater, 3 prewired elements
	H	PTC electric heater, 2 prewired elements
11		Fresh air controller*
	N	None
12		Options
	5	No option
	A	Air purifier option for Carrier numeric controller
	B	Air purifier + CO ₂ detector option for Carrier numeric controller
	C	CO ₂ detector option for Carrier numeric controller
13	M	Montluel factory
14, 15		Specials

* The fresh air supply type depends on the choice of front fastening support

9 - GUIDE SPECIFICATION

- Supply 42GM units for VAV systems in accordance with the certified drawings.
- The performance of each 42GM unit supplied shall conform to the published technical and performance data.
- Each 42GM unit supplied shall comprise a cooling coil and an electric heater and a variable speed centrifugal fan. Fan speed shall be controlled by a Carrier numeric controller matched to the characteristics of the fan motor. A disposable air filter of F6 efficiency shall be supplied with each unit.
- 42GM casings shall be made of galvanised steel and shall provide adequate access to all components for maintenance and repair.
- Coils shall be made of 3/8" external diameter copper tubes and shall have aluminium fins. Maximum operating pressure shall be 10 bar (100 kPa).
- The motorised, two-port water flow control valves shall be supplied with quick connect flexible water pipes. The valve motors shall be of the thermoelectric type.
- The 42GM modules shall be fitted with a disposable, high efficiency, F6 filter to M1 fire rating.
- Access to the filter shall be through a filter access door on the underside of the unit.
- The connections for the supply and return air ducts shall be rectangular (225 x 85 mm) fixed to the front fastening support of the 42GM module. The fresh air connection spigot shall have a nominal diameter of 125 mm. The spigot shall be integral with the front fastening support of the 42GM unit. This shall be connected to the main fresh air supply by means of a built-in duct, 125 mm in diameter, which can extend from 150 to 450 mm in length. The fresh air flow controllers are available with the following flow rates:
 - 8.3 l/s (30 m³/h)
 - 16.7 to 44.4 l/s (60 to 160 m³/h) adjustable
 - 0 to 55.6 l/s (0 to 200 m³/h) motorised
- The forward-curved centrifugal fan unit for the 42GM shall be connected to a Carrier numeric controller. Available static pressure shall be 205 Pa at nominal air flow.
- The fan motor shall be single-phase, variable-speed, with internal overload protection. Connections shall comply with Class B for insulation and Class F for varnish, and shall have IP 44 electrical protection.
- Electrical connections on 42GM units shall be of the quick connect type as an aid to maintenance and servicing. The terminal block shall be protected by a self-extinguishing plastic cover.
- The Carrier communicating numeric controller shall use Carrier Comfort Network (CCN) communication protocol.
- This controller shall provide the following functions:
 - Control ventilation speed on the 42GM between a parameterised minimum and maximum hot or cold air flow;
 - Control the flow of water through the two-port, on/off type valve by reference to internal and external loads to maintain a constant ambient temperature in the air conditioned space;
 - Control the capacity of the PTC electric heater by operating in on/off mode;
 - Turn lighting sources on and off;
 - Adjust window blinds (raise/lower/angle);
 - Be controlled by a wall-mounted thermostat or a microterminal fitted with a digital display.
- The power supply to the controller shall be 230 V AC \pm 10%, single-phase, 50 Hz, to avoid the need for a transformer. The electric heater shall be controlled directly by the Carrier numeric controller to avoid the need for a power triac.

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- ✓ determination and control of the sound level in every room
- ✓ simulation of the control system of your terminals and their link to your BMS system
- ✓ and finally, simulation of how your interior will look, with a floor plan, lights and blinds to ensure true quality



Experience a real preview of your future installation



Environmental Management System Approval



Order No.: 14221-20, 10.2007. Supersedes order No.: 14221-20, 06.2003.
Manufacturer reserves the right to change any product specifications without notice.

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