

PAW-FC

# Fan Coil Units

Recommended Installation Guidelines



**Notes:**

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## **Recommended Installation Guidelines**

**Original Installation Guidelines (English)**  
**Version of the documentation: 05/2019**

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# 1 Miscellaneous

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## 1.1 About this manual

This manual describes the recommended guidelines for the installation of Fan Coil units (PAW-FC-D/-H...), which are distributed (but not manufactured) by Panasonic. It contains some information on the technical specifications and some recommended procedures for installation, commissioning and maintenance.



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### IMPORTANT

This manual is not a replacement for the original installation instructions, which must be provided by the manufacturer. It is just a supplement and must always be read and used in combination with the manufacturer's original documentation.

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### Products covered

The following products are covered in this manual.

- PAW-FC-D... Fan Coil units with a total cooling capacity ranging from 0.50 to 5.53 kW and air flow rates ranging from 48 to 831 m<sup>3</sup>/h
- PAW-FC-H... Fan Coil unit with a total cooling capacity of 6.27 to 12.90 kW and air flow rates ranging from 838 to 2665 m<sup>3</sup>/h

### Intended use

The intended use of the products is the heating and cooling of air in space heating or cooling applications.

The intended use of the products requires adherence to the information and instructions contained in the manufacturer's original documentation and this manual, especially the safety-related information and safety instructions.

Any other use is considered improper and can lead to significant damage.

Panasonic assumes no liability for any damage resulting from improper use.

### Target groups

This manual is aimed at specialist planning and installation operations.

The installation, commissioning and maintenance of these units may only be performed by qualified personnel having a good knowledge of standards and local regulations as well as experience with this type of equipment.

This appliance has not been designed for use by persons (including children) with reduced physical, sensorial or mental faculties or by persons without any experience or knowledge of heating systems, unless they act under the safety and supervision of a responsible person or have received prior training concerning the use of the appliance.

No changes or conversions whatsoever must be made to the units. Any changes or conversions made by customers themselves will basically exclude any liability being incurred by the distributor for any damage resulting from this in exactly the same way as with improper use.

Any repairs of the units must be carried out by a fully qualified technician.

Operation of the products can, in contrast, also be undertaken by private persons.

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## Information for using this manual

Various notices, symbols and text representations used in this manual are briefly explained below.

### Safety-related information

Safety-related information warns the user about dangers and provides instructions for the safe and proper use of the products. The following safety messages and symbols are used in this manual:



### WARNING

This signal word warns of a hazard which can lead to death or severe injury.

► Follow the Warning Notices given, in order to prevent this.

---



### CAUTION

This signal word warns of a hazard which may result in slight or moderate injury.

► Follow the Warning Notices given, in order to prevent this.

---

### NOTICE

This signal word warns of a situation which can result in material damage occurring.

► Follow the Warning Notices given, in order to prevent this.

---

### Additional warning symbols



Warning of electric shock

### Further information



### IMPORTANT

Important information which must be observed in all cases, in order to ensure that the devices function in the intended manner.

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### Note

Reference to further useful information.

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### Text representations

- indicates instructions for actions in a safety message
- 1., 2., 3. ... or a, b, c ... indicates a sequence of several steps of action, which must be executed in the order specified
- indicates a list
- Accentuation** indicates important terms or text passages
- (1)** indicates references to image keys in the running text
- *Cross-reference* indicates a cross-reference (with hyperlink function)

---

## 1.2 Inspection and storage

At the time of receiving the equipment carefully cross check all the elements against the shipping documents in order to ensure that all the crates and boxes have been received. Inspect all the units for any visible or hidden damage.

In the event of shipping damage, write precise details of the damage on the shipper's delivery note and send immediately a registered letter to the shipper within 48 hours, clearly stating the damage caused. Forward a copy of this letter to the distributor or his representative.

Never store or transport the unit upside down. Do not stand or transport the machines with casing on end. For storing, each carton is marked with "up" arrows. It must be stored indoors, completely protected from rain, snow etc. The unit must not be damaged by changes in the weather (high and low temperatures).

Excessively high temperatures (above 60 °C) can harm certain plastic materials and cause permanent damage. Moreover, the performance of certain electrical or electronic components can be impaired.

## 1.3 Warranty and disclaimer

The appliances are delivered fully assembled, factory tested and ready to operate.

Any modification to the units without the distributor's prior approval, shall automatically render the warranty null and void.

The following conditions must be respected in order to maintain the validity of the warranty:

- Commissioning shall be performed by specialised technicians from technical services approved by the distributor.
- Maintenance shall be performed by technicians trained for this purpose.
- Only original equipment spare parts shall be used.
- All information in this document aiming at the safe and troublefree installation, commissioning, operation and maintenance of the product must strictly be observed, including especially the following:
  - > → *Intended use*, p. 6
  - > → *2 Safety-related information*, p. 9
  - > all safety messages and information marked as **IMPORTANT**
- All the operations listed in the present manual shall be performed within the required time limits.

The warranty shall be null and void in the event of non-compliance with any of the above conditions.



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## 2 Safety-related information

---

Please read the following safety instructions very carefully before installing the unit.

These safety instructions must be followed strictly at any time when handling the unit, especially during installation, commissioning and maintenance.



### **WARNING**



The following safety instructions need to be followed strictly, in order to avoid hazardous situations, which could result in death or serious injury.

---

#### **Danger to life from electric shock**

The devices are operated with 230-V alternating current. Improper installation can present a danger to life from electric shock as well as a danger of fire occurring due to superheat.

- ▶ Electrical installation work must be undertaken by a trained electrician in accordance with local electrical standards and the wiring diagram corresponding to the unit model (→ 3.4.9 *Electrical connections*, p. 25).
  - ▶ Always cut off power supply before starting to work on the appliance.
  - ▶ Make sure that the power supply and its frequency are adapted to the required electric current of operation, taking into account specific conditions of the location and the current required for any other appliance connected to the same circuit.
  - ▶ Only use licensed power cords for connecting to a power source. No modified cables or extension cables are to be used for connecting to the power source.
  - ▶ The power supply cord section must be sufficient to provide the appropriate voltage to the unit's power supply terminals, both at start-up and under full load operating conditions.
  - ▶ The unit must be earthed to avoid any risks caused by insulation defects. Earthing is not to be undertaken via gas or water pipes, lightning conductors or earthing for a telephone system.
  - ▶ Do not start any work on the electrical components if water or high humidity is present on the installation site.
-



## CAUTION

The following safety instructions need to be followed strictly, in order to avoid hazardous situations, which could result in minor or moderate injury.

---

### **Danger of personal injury due to the unit falling down**

If the selected unit location is not strong enough to support the unit's weight or if the unit is not properly fixed to the installation structure, the unit may fall down and cause personal injury and/or damage to the property. In such an event, the warranty shall be null and void.

- ▶ Install the unit on a firm level structure of adequate strength to support its full operating weight.
  - ▶ Make sure that the unit does not have to withstand any weights or stresses from adjacent equipment, pipework or constructions.
- 

### **Danger of injury due to carrying of heavy loads**

As the devices are heavy, they must always be carried by at least two persons, otherwise there is a danger of injury due to overloading.

- ▶ When handling the unit, always use lifting and handling equipment appropriate to the unit's size and weight.
  - ▶ Deploy as many persons as necessary to carry the devices in order to avoid injuries and physical overloading.
  - ▶ Use mechanical hoists for loads that are too heavy to lift.
- 

### **Danger of personal injury by cutting on sharp edges**

Contact with the coil surfaces and their sharp edges can cause dangerous cuts.

- ▶ Avoid contact with the coil surfaces and their sharp edges when handling the unit.
-

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## NOTICE

The following safety instructions need to be followed strictly, in order to avoid situations which can result in material damage occurring.

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### **Risk of damaging the units' electrical circuits by overcurrent**

If unprotected, the units' electrical circuit may be damaged by overcurrent. Therefore, a main fuse must mandatorily be provided on the power supply.

- ▶ Always make sure that a suitably sized main fuse is installed on the power supply.
- 

### **Risk of damage to plastic piping due to adverse effect of oil**

The Fan Coil units may contain a small amount of oil having an adverse effect on plastic polyethylene piping (PER/HTA/PVC).

- ▶ Rinse the coil before use to wash out any residual oil.
  - ▶ Contact your pipe supplier for information on the general instructions for the use of plastic pipes and take them into account.
- 

### **Risk of damage to the heat exchanger due to inadequate water quality**

Using water of inadequate quality (→ 3.4.2 *Water quality*, p. 15) may cause scaling, erosion, corrosion or algae or sludge deposits in the unit's heat exchanger.

- ▶ Have the water, which is to be used in the water system, analyzed by a specialized water treatment company.
  - ▶ Ensure that the installed water system includes all elements necessary for the water treatment as recommended by the specialized company.
  - ▶ Follow the specialized company's recommendations for water treatment.
- 

### **Risk of freeze-up due to low ambient temperatures**

If the water pipes are exposed to temperatures below 0 °C, the pipes and the heat exchanger may be damaged by freeze-up.

- ▶ Use antifreeze to avoid the coils freezing. However, take into account that adding anti-freeze to the circuit reduces the unit's performance.
  - ▶ Drain the water from the coils whenever the Fan Coil units are being kept out of operation for a longer period of time in locations with low ambient temperatures.  
If the water circuit is to be drained for a time exceeding one month, the circuit must be fully charged with nitrogen to prevent any risk of corrosion by differential venting.
- 

### **Risk of damage to the unit due to false handling**

If the unit is lifted by weak points of the casing structure, the unit structure may be deformed or damaged.

- ▶ Do not lift the unit by its condensate outlet, by the water connectors, by the duct unions (if mounted) or by the mounting lugs.
  - ▶ If necessary, use a fork lift truck to make it easier to install the unit.
-

## 3 Product description

The PAW-FC Fan Coil Unit range is an ideal air conditioning solution for residential and commercial use, like for example apartments, hotels, hospitals, offices etc.

The units are designed for horizontal false-ceiling installation and for air distribution by duct-work. They are equipped with 2-pipe heat exchanger coils offering cooling or heating mode. All units are fitted with AC direct drive fan motors and replaceable air filters.

For maximum flexibility, the range comprises a total of 18 different models with the following scope of supply:

- total cooling capacities ranging from 0,50 to 12,90 kW
- heating capacities ranging from 0,47 to 17,40 kW
- air flows ranging from 48 to 2665 m<sup>3</sup>/h
- low static pressure (D-type models) or high static pressure (H-type model)
- left-hand or right-hand service side configuration

All units are equipped with an integrated condensate drain pan.

The Fan Coil Unit range is compatible with Panasonic Aquarea air-to-water heat pumps and VRF systems.

### 3.1 Nomenclature

The nomenclature reflects each model's type, external static pressure configuration size and service side configuration.

		Example: PAW-FC - D 40 -1 - R						
Unit type	PAW-FC = Fan Coil Unit							
Separator	-							
External static pressure	D = low external static pressure models H = high external static pressure models							
Size								
Generation	-1 = generation differentiator (only applicable for D-type models)							
Separator	-							
Service side	blank = left-hand service side configuration* R = right-hand service side configuration*							

\* as seen from the unit's air discharge side

Examples:

Model name	Unit Type	Separator	ESP	Size	Generation	Separator	Service side	Description
PAW-FC-D11-1	PAW-FC	-	D	11	-1			low static pressure model D11-1, service side is left
PAW-FC-D24-1-R	PAW-FC	-	D	24	-1	-	R	low static pressure model D24-1, service side is right
PAW-FC-H150	PAW-FC	-	H	150				high static pressure model H150, service side is left
PAW-FC-H150-R	PAW-FC	-	H	150		-	R	high static pressure model H150, service side is right

---

## 3.2 Product range

The following table shows the complete Fan Coil Unit range.

External static pressure	Service side (as seen from the unit's air discharge side)	
	left	right
low	PAW-FC-D11-1	
	PAW-FC-D11-1	-R
	PAW-FC-D15-1	
	PAW-FC-D15-1	-R
	PAW-FC-D24-1	
	PAW-FC-D24-1	-R
	PAW-FC-D28-1	
	PAW-FC-D28-1	-R
	PAW-FC-D40-1	
	PAW-FC-D40-1	-R
high	PAW-FC-D55-1	
	PAW-FC-D55-1	-R
	PAW-FC-D65-1	
	PAW-FC-D65-1	-R
	PAW-FC-D90-1	
	PAW-FC-D90-1	-R
high	PAW-FC-H150	
	PAW-FC-H150	-R

## 3.3 Product properties

### Casing

Made of galvanized steel insulated with closed cell polyethylene foam. Casing has 3 slotted lugs which allow the unit to be easily and quickly installed at site in ceiling mounting.

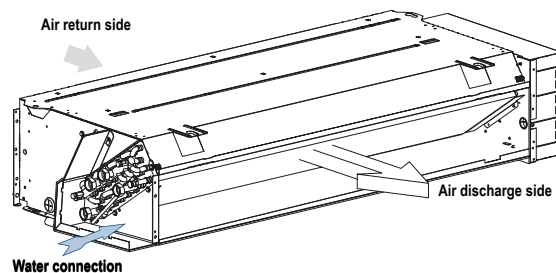
Access to all internal components of the unit is facilitated by easy dismounting of the casing.

All models are equipped with an inclined condensate drain pan to ensure optimal condensate draining and to minimize water retention. Condensate drain pan is made from galvanized sheet steel coated with closed cell polyethylene foam on external face. The drain pan is painted to ensure anticorrosion protection.

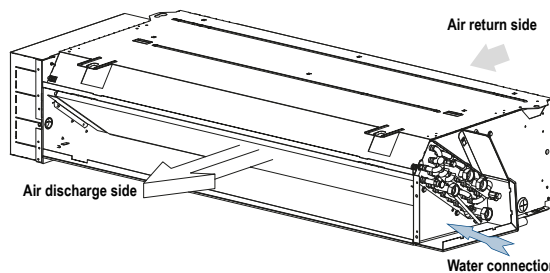
### Coil compartment

**Note:** The water connection side, or service side, is defined as left-hand or right-hand side as seen from the unit's air discharge side.

### Left-hand service side configuration



### Right-hand service side configuration (-R)



Note: As an example, schematic shows a 4-pipe D40-1(-R) model, while Panasonic distributes only 2-pipe models.

The coil is made of staggered copper tubes, mechanically expanded into aluminium fins, assuring maximum heat transfer efficiency.

The units are equipped with a main chilled water coil with 2 rows (D11-1(-R)), or 3 rows (D15-1(-R) ... D90-1(-R), H150(-R)).

Each coil is supplied with headers having an air vent at the highest point and a drain plug at the lowest point.

The coil compartment is lined with 10 mm thick closed cell polyethylene foam insulation, having M1 fire classification.

### Fan compartment

The units are fitted with a fan-motor assembly of which the fan is composed of double inlet forward curved centrifugal wheel(s) dynamically balanced and specially designed for an optimal air flow and a low noise level.

The AC motor is of asynchrone direct drive type having 5 speeds, 3 of them are factory pre-wired. The motor is suitable for nominal voltage of 230 V / 1 Ph / 50-60 Hz and is equipped with a built-in thermal overload protection of automatic reset type.

Relays for fan speed control are fitted, as standard.

### Air filter

Units are equipped with filters consisting of cleanable synthetic media (sewn on wire frame), which are easily removable for cleaning or replacement.

### Electrical connections

Units are supplied complete with internal electrical wiring terminating in a junction block protected by a cap.

Cabinet internal space allows for installation of optional control systems supplied by the distributor or others.

## 3.4 Technical specifications

### 3.4.1 Operating limits

Ambient air conditions	Minimum ambient temperature / relative humidity	+5 °C / 15 % RH
	Minimum ambient temperature / relative humidity	+32 °C / 70 % RH
Water circuit conditions	Maximum operating pressure	16 bars
	Minimum inlet temperature (100 % water)	+5 °C
	Maximum inlet temperature	+90 °C

### 3.4.2 Water quality

#### Guidelines for water quality

Substance / Condition	Effects	Recommended content
NH <sub>4</sub> <sup>+</sup>	No NH <sub>4</sub> <sup>+</sup> ammonium ions in the water, highly detrimental to copper.	< 10 mg/l
Cl <sup>-</sup>	Cl <sup>-</sup> chloride ions are detrimental to copper with a risk of puncture by picking corrosion.	< 10 mg/l
SO <sub>4</sub> <sup>2-</sup>	SO <sub>4</sub> <sup>2-</sup> sulphate ions may cause perforating corrosion.	< 30 mg/l
Fluoride ions	No fluoride ions	< 0.1 mg/l
Fe <sup>2+</sup> and Fe <sup>3+</sup>	No Fe <sup>2+</sup> and Fe <sup>3+</sup> ions, particularly in case of dissolved oxygen. The presence of these ions with dissolved oxygen indicates corrosion of steel parts, likely to generate corrosion of copper parts under Fe deposits, particularly in the case of multitubular exchangers.	Fe < 5 mg/l; with dissolved oxygen < 5 mg/l
Dissolved silica	Silica is an acid element of water and may also cause corrosion.	< 1 mg/l
Total water hardness (TH)	Values between 10 and 25 may be recommended. This facilitates scaling deposits likely to limit copper corrosion. Excess TH values may lead to clogging the pipes.	10 °F < TH < 25 °F
Total alkalinity (TAC)		TAC < 100 mg/l
Dissolved oxygen	Prevent any sudden change in the water's oxygenation conditions. Also, avoid deoxygenating water by sparging inert gas as well as overoxygenating it by pure oxygen sparging. Disturbing oxygenation conditions destabilizes copper hydroxides and particle salting-out.	
Electrical Resistivity / Conductivity	The higher the resistivity, the slower the corrosion. Values above 3000 ohm/cm are preferred. A neutral environment favours maximum resistivity. For electrical conductivity, values around 200 ... 600 S/cm can be recommended.	
pH	neutral pH at 20 °C	7 < pH < 8

### 3.4.3 Weights

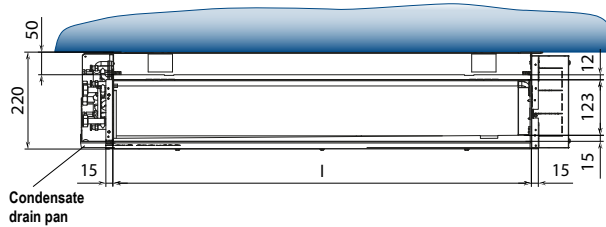
Size		D11-1(-R)	D15-1(-R)	D24-1(-R)	D28-1(-R)	D40-1(-R)	D55-1(-R)	D65-1(-R)	D90-1(-R)	H150(-R)
Net weight	kg	13	13	15	20	22	26	27	38	63

## 3.4.4 Dimensions

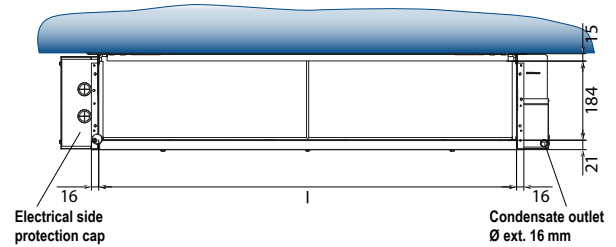
### 3.4.4.1 Unit dimensions

Dimensions – D-type models (example shown with left-hand service side configuration)

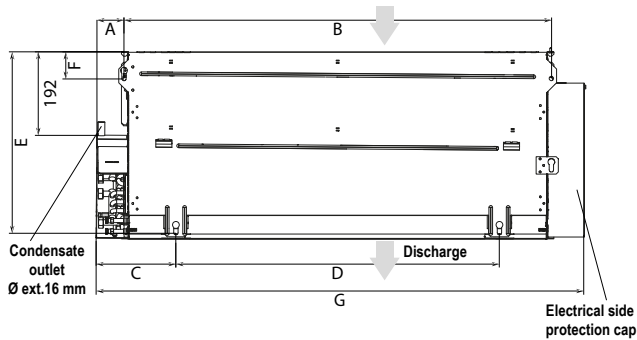
Front view



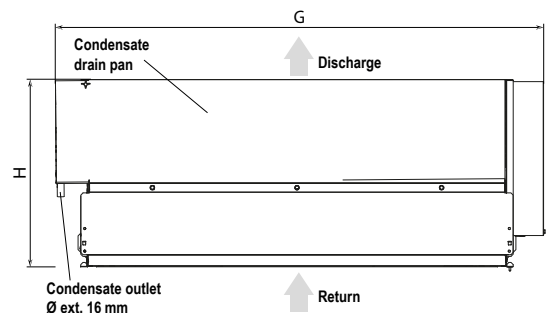
Rear view



Top view



Bottom view

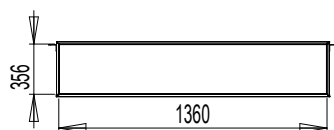


Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	H (mm)	I (mm)
D11-1(-R)	66.5	428	185.5	189	415.5	61	569.9	430	407
D15-1(-R)	66.5	428	185.5	189	415.5	61	569.9	430	407
D24-1(-R)	64	613	184	374	415.5	61	753	430	592
D28-1(-R)	64	798	184	559	415.5	61	938	430	777
D40-1(-R)	63	983	183	744	415.5	61	1122	430	962
D55-1(-R)	63	1168	183	929	415.5	61	1307	430	1147
D65-1(-R)	63	983	195	744	519	88	1121	530	962
D90-1(-R)	69	1168	195	929	519	86	1316	530	1147

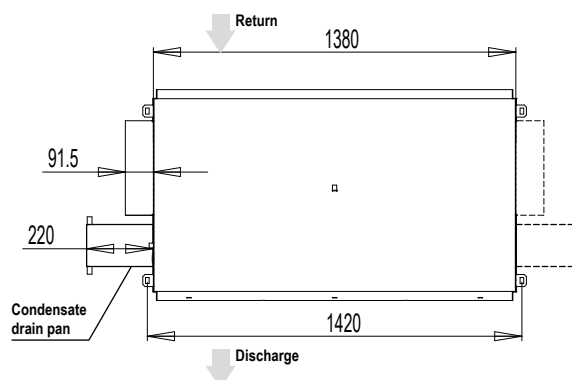


## Dimensions – H-type model (shown with left-hand service side configuration)

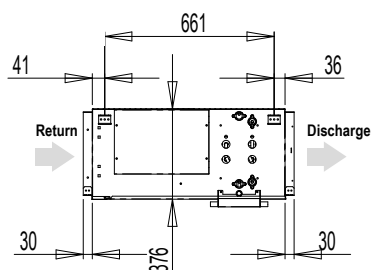
Front view



Top view

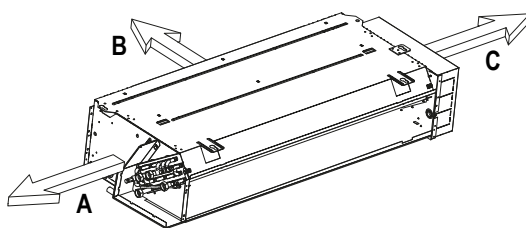


Side view (left)

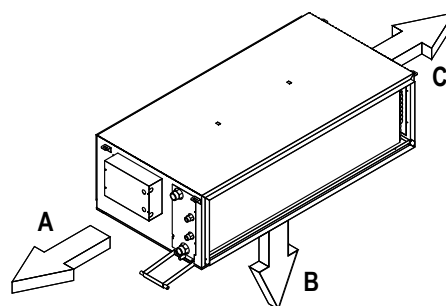


### 3.4.4.2 Minimum installation and maintenance clearances

D-type models



H-type model



Model	A (mm)	B (mm)	C (mm)
D-type models	400	100	400
H-type model	1000	430	200

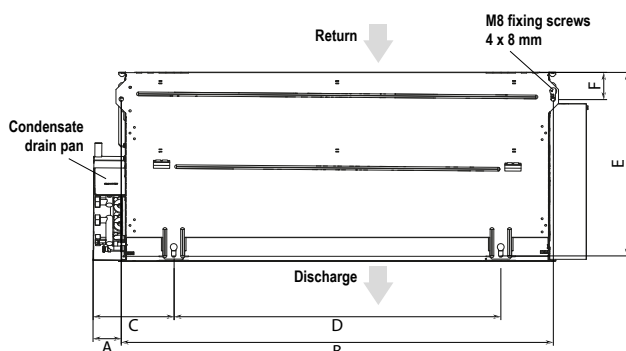
**A** Clearance for access to the hydraulic connections (service side), and – in case of the H-type model – to the electrical control box.

**B** Clearance for removing the filter and access to the fan motor assembly.

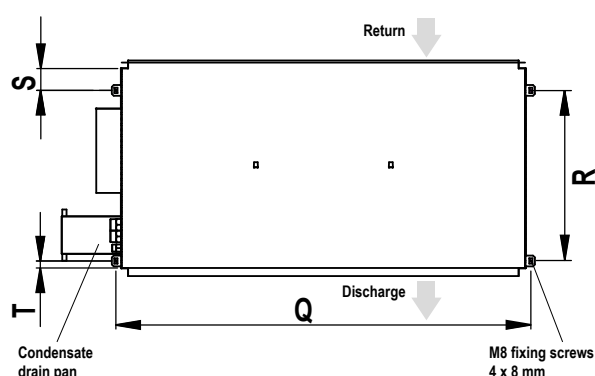
**C** Clearance for access to the opposite side of the hydraulic connections, and – in case of the D-type models – to the electrical control box.

### 3.4.4.3 Mounting lug dimensions

#### D-type models



#### H-type model



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)	G (mm)	Q (mm)	R (mm)	S (mm)	T (mm)
D11-1(-R)	66.5	428	185.5	189	415.5	61	569.9	–	–	–	–
D15-1(-R)	66.5	428	185.5	189	415.5	61	569.9	–	–	–	–
D24-1(-R)	64	613	184	374	415.5	61	753	–	–	–	–
D28-1(-R)	64	798	184	559	415.5	61	938	–	–	–	–
D40-1(-R)	63	983	183	744	415.5	61	1122	–	–	–	–
D55-1(-R)	63	1168	183	929	415.5	61	1307	–	–	–	–
D65-1(-R)	63	983	195	744	519	88	1121	–	–	–	–
D90-1(-R)	69	1168	195	929	519	86	1316	–	–	–	–
H150(-R)	–	–	–	–	–	–	–	1420	561	41	36

### 3.4.5 Electrical specifications

Fan Coil unit		D11-1(-R)	D15-1(-R)	D24-1(-R)	D28-1(-R)	D40-1(-R)	D55-1(-R)	D65-1(-R)	D90-1(-R)	H150(-R)*	
Power Supply	V / Ph / Hz	230 / 1 / 50 (or 60)									
Cable section mini	mm²	3G1.5	3G1.5	3G1.5	3G1.5	3G1.5	3G1.5	3G1.5	3G1.5	–	
Current / Power consumption											
Fan speed	1	A / W	– / 13	– / 10	– / 16	– / 15	– / 28	– / 37	– / 53	– / 90	0.93 / 180
	2	A / W	– / –	– / –	– / –	– / –	– / –	– / –	– / –	– / –	1.33 / 271
	3	A / W	– / 24	– / 18	– / 37	– / 37	– / 55	– / 75	– / 100	– / 112	2.00 / 421
	4	A / W	– / –	– / –	– / –	– / –	– / –	– / –	– / –	– / –	2.52 / 587
	5	A / W	– / 36	– / 29	– / 45	– / 56	– / 72	– / 105	– / 147	– / 188	3.17 / 675

\* Current and power drawn by the motor in operation at 230 V / 1 Ph / 50 Hz, unit not fitted with ducting and with 0 Pa pressure available for a unit with a G3 filter. Rectangular duct inlet and outlet.



#### IMPORTANT

The above data are given for guidance only. They must be checked at commissioning according to prevailing standards. They depend on the installation and the cables used.

However, a main fuse must mandatorily be provided on the power supply. Fuses and cables must be field-supplied.

### 3.4.6 Performance data

Model	ESP	Fan speed	Air flow (m³/h)	Water flow (l/h)	Pc (kW)	Cooling		Heating	
	(Pa)					Ps (kW)	WPD (kPa)	Ph (kW)	WPD (kPa)
D11-1(-R)	30	1	—	—	—	—	—	—	—
		2	—	—	—	—	—	—	—
		3	48	85	0.50	0.34	5.5	0.47	4.0
		4	103	119	0.69	0.51	10.0	0.83	6.9
		5	167	158	0.92	0.70	16.7	1.23	11.1
	50	1	—	—	—	—	—	—	—
		2	—	—	—	—	—	—	—
		3	—	—	—	—	—	—	—
		4	—	—	—	—	—	—	—
		5	68	98	0.57	0.40	7.0	0.60	5.0
D15-1(-R)	30	1	—	—	—	—	—	—	—
		2	—	—	—	—	—	—	—
		3	45	58	0.33	0.24	<1	0.41	<1
		4	95	116	0.67	0.50	1.6	0.82	1.6
		5	158	189	1.10	0.82	3.3	1.34	3.3
	50	1	—	—	—	—	—	—	—
		2	—	—	—	—	—	—	—
		3	—	—	—	—	—	—	—
		4	—	—	—	—	—	—	—
		5	65	81	0.47	0.34	1.0	0.57	1.0
D24-1(-R)	30	1	—	—	—	—	—	—	—
		2	135	168	0.98	0.80	6.0	1.23	5.6
		3	187	233	1.35	1.07	10.2	1.65	9.5
		4	239	297	1.73	1.34	15.2	2.07	14.2
		5	301	361	2.10	1.61	21.2	2.53	19.9
	50	1	—	—	—	—	—	—	—
		2	—	—	—	—	—	—	—
		3	—	—	—	—	—	—	—
		4	159	198	1.15	0.93	7.8	1.43	7.3
		5	224	279	1.62	1.26	13.7	1.95	12.8
D28-1(-R)	30	1	—	—	—	—	—	—	—
		2	132	160	0.93	0.67	3.6	1.13	3.6
		3	200	237	1.37	1.00	6.7	1.65	6.7
		4	248	291	1.69	1.23	9.4	2.03	9.4
		5	346	400	2.32	1.70	16.1	2.79	16.1
	50	1	—	—	—	—	—	—	—
		2	—	—	—	—	—	—	—
		3	95	119	0.69	0.50	2.3	0.84	2.3
		4	140	169	0.98	0.71	3.9	1.19	3.9
		5	244	286	1.66	1.21	9.1	1.99	9.1

#### Notes

1 Legend:

**ESP** = External static pressure, **Pc** = Total cooling capacity, **Ps** = Sensible cooling capacity, **Ph** = Heating capacity, **WPD** = Water pressure drop

2 By default, fan speeds **1**, **3** and **5** are factory-wired to the low, medium and high fan speed settings respectively.

3 Nominal cooling conditions: ambient air temperature 27 °C dry bulb; chilled water temperature 7 °C/12 °C. D-type models with G2 filter. H150 model with G3 filter and rectangular return and discharge duct connections.

4 Nominal heating conditions: ambient air temperature 20 °C, entering water temperature 50 °C. D-type models with G2 filter. H150 model with G3 filter and rectangular return and discharge duct connections.

Model	ESP (Pa)	Fan speed	Air flow (m³/h)	Water flow (l/h)	Cooling			Heating	
					Pc (kW)	Ps (kW)	WPD (kPa)	Ph (kW)	WPD (kPa)
D40-1(-R)	30	1	99	132	0.77	0.59	1.9	0.83	1.4
		2	272	316	1.83	1.32	8.4	2.30	6.3
		3	363	413	2.40	1.71	13.7	3.07	10.3
		4	438	493	2.86	2.03	19.0	3.71	14.4
		5	561	627	3.64	2.57	29.7	4.65	22.6
	50	1	–	–	–	–	–	–	–
		2	175	213	1.24	0.91	4.2	1.48	3.1
		3	264	308	1.79	1.29	8.1	2.23	6.0
		4	333	381	2.21	1.58	11.8	2.82	8.9
		5	438	493	2.86	2.03	19.0	3.71	14.4
	70	1	–	–	–	–	–	–	–
		2	55	85	0.50	0.40	1.0	0.46	<1
		3	138	174	1.01	0.75	3.0	1.16	2.2
		4	199	238	1.38	1.01	5.1	1.68	3.8
		5	288	333	1.93	1.39	9.3	2.44	7.0
D55-1(-R)	30	1	204	306	1.78	1.20	6.3	2.00	10.3
		2	407	529	3.07	2.18	17.6	3.55	28.5
		3	514	646	3.75	2.69	25.8	4.37	41.8
		4	625	768	4.46	3.23	35.9	5.22	58.2
		5	773	884	5.13	3.83	47.1	6.14	76.4
	50	1	88	179	1.04	0.64	2.4	1.11	3.9
		2	316	429	2.49	1.74	11.9	2.85	19.2
		3	420	534	3.15	2.24	18.5	3.65	30.0
		4	528	661	3.84	2.76	26.9	4.48	43.6
		5	655	796	4.62	3.36	38.5	5.43	62.4
	70	1	–	–	–	–	–	–	–
		2	219	322	1.87	1.27	7.0	2.11	11.3
		3	317	430	2.50	1.74	11.9	2.86	19.3
		4	420	543	3.15	2.24	18.5	3.65	30.0
		5	525	658	3.82	2.75	26.7	4.45	43.2
D65-1(-R)	30	1	352	441	2.56	1.77	2.7	3.23	2.7
		2	637	766	4.45	3.11	8.1	5.67	8.1
		3	738	881	5.12	3.59	10.7	6.54	10.7
		4	817	971	5.64	3.97	13.0	7.21	13.0
		5	885	1049	6.09	4.29	15.1	7.79	15.1
	50	1	257	332	1.93	1.32	1.6	2.42	1.6
		2	529	643	3.73	2.60	5.8	4.74	5.8
		3	624	751	4.36	3.05	7.8	5.56	7.8
		4	693	830	4.82	3.38	9.5	6.15	9.5
		5	756	902	5.23	3.68	11.2	6.69	11.2
	70	1	150	210	1.22	0.81	<1	1.5	<1
		2	410	507	2.94	2.04	3.6	3.72	3.6
		3	500	609	3.54	2.47	5.2	4.50	5.2
		4	559	677	3.93	2.75	6.4	5.00	6.4
		5	617	743	4.31	3.01	7.7	5.50	7.7

#### Notes

1 Legend:

**ESP** = External static pressure, **Pc** = Total cooling capacity, **Ps** = Sensible cooling capacity, **Ph** = Heating capacity, **WPD** = Water pressure drop

2 By default, fan speeds **1**, **3** and **5** are factory-wired to the low, medium and high fan speed settings respectively.

3 Nominal cooling conditions: ambient air temperature 27 °C dry bulb; chilled water temperature 7 °C/12 °C. D-type models with G2 filter. H150 model with G3 filter and rectangular return and discharge duct connections.

4 Nominal heating conditions: ambient air temperature 20 °C, entering water temperature 50 °C. D-type models with G2 filter. H150 model with G3 filter and rectangular return and discharge duct connections.

Model	ESP (Pa)	Fan speed	Air flow (m³/h)	Water flow (l/h)	Cooling			Heating	
					Pc (kW)	Ps (kW)	WPD (kPa)	Ph (kW)	WPD (kPa)
D90-1(-R)	30	1	516	668	3.88	2.81	8.8	4.77	8.8
		2	647	786	4.57	3.36	11.6	5.80	11.6
		3	757	886	5.14	3.82	14.3	6.66	14.3
		4	888	1004	5.83	4.37	17.9	7.69	17.9
		5	1186	1239	7.19	5.51	26.0	9.99	26.0
	50	1	377	542	3.15	2.22	6.2	3.67	6.2
		2	512	664	3.86	2.79	8.7	4.73	8.7
		3	622	764	4.43	3.25	11.1	5.60	11.1
		4	741	871	5.06	3.75	13.9	6.54	13.9
		5	1023	1114	6.47	4.90	21.5	8.74	21.5
	70	1	–	–	–	–	–	–	–
		2	–	–	–	–	–	–	–
		3	–	–	–	–	–	–	–
		4	–	–	–	–	–	–	–
		5	831	953	5.53	4.13	16.3	7.24	16.3
H150(-R)	30	1	838	1080	6.27	4.48	6.7	7.14	5.3
		2	1397	1475	8.56	6.55	11.6	10.30	9.1
		3	2221	2026	11.80	9.50	20.8	14.90	16.2
		4	2742	2245	13.00	10.90	25.1	17.80	19.5
		5	3356	2504	14.50	12.60	30.8	20.80	23.8
	50	1	676	966	5.61	3.88	5.5	6.19	4.4
		2	1285	1396	8.10	6.14	10.5	9.72	8.3
		3	2110	1979	11.50	9.20	19.9	14.20	15.5
		4	2615	2192	12.70	10.60	24.0	17.10	18.7
		5	3197	2437	14.20	12.20	29.3	20.00	22.7
	70	1	514	851	4.94	3.28	4.4	5.24	3.6
		2	1170	1315	7.63	5.71	9.4	9.09	7.5
		3	1990	1894	11.00	8.75	18.3	13.60	14.3
		4	2479	2135	12.40	10.20	22.9	16.30	17.8
		5	3030	2367	13.70	11.70	27.8	19.20	21.5
	110	1	–	–	–	–	–	–	–
		2	933	1147	6.66	4.84	7.4	7.7	5.9
		3	1719	1703	9.89	7.75	15.1	12.0	11.8
		4	2177	2007	11.70	9.38	20.4	14.6	15.9
		5	2665	2213	12.90	10.70	24.5	17.4	19.0

#### Notes

##### 1 Legend:

**ESP** = External static pressure, **Pc** = Total cooling capacity, **Ps** = Sensible cooling capacity, **Ph** = Heating capacity, **WPD** = Water pressure drop

2 By default, fan speeds **1**, **3** and **5** are factory-wired to the low, medium and high fan speed settings respectively.

3 Nominal cooling conditions: ambient air temperature 27 °C dry bulb; chilled water temperature 7 °C/12 °C. D-type models with G2 filter. H150 model with G3 filter and rectangular return and discharge duct connections.

4 Nominal heating conditions: ambient air temperature 20 °C, entering water temperature 50 °C. D-type models with G2 filter. H150 model with G3 filter and rectangular return and discharge duct connections.

### 3.4.7 Acoustical data

Model	Fan speed	Sound levels			
		Type (if applicable)	Lw global dB(A)	Lp global dB(A)	NR
D11-1(-R)	1	–	–	–	–
	2	–	–	–	–
	3	–	40	24	19
	4	–	44	28	23
	5	–	49	33	28
D15-1(-R)	1	–	–	–	–
	2	–	–	–	–
	3	–	43	27	22
	4	–	46	30	25
	5	–	50	34	29
D24-1(-R)	1	–	–	–	–
	2	–	39	23	18
	3	–	45	29	24
	4	–	48	32	27
	5	–	52	36	31
D28-1(-R)	1	–	–	–	–
	2	–	40	24	19
	3	–	44	28	23
	4	–	47	31	26
	5	–	51	35	30
D40-1(-R)	1	–	34	18	<16
	2	–	43	27	22
	3	–	46	30	25
	4	–	51	35	30
	5	–	56	40	35
D55-1(-R)	1	–	38	22	17
	2	–	46	30	25
	3	–	51	35	30
	4	–	53	37	32
	5	–	58	42	37
D65-1(-R)	1	–	43	27	22
	2	–	53	37	32
	3	–	56	40	35
	4	–	58	42	37
	5	–	61	45	40
D90-1(-R)	1	–	50	34	29
	2	–	52	36	31
	3	–	55	39	34
	4	–	59	43	38
	5	–	64	48	43
H150(-R)	1	Return + Radiated	52	31	27
		Discharge	52		
	2	Return + Radiated	58	37	32
		Discharge	57		
	3	Return + Radiated	66	45	44
		Discharge	64		
	4	Return + Radiated	69	48	44
		Discharge	68		
	5	Return + Radiated	72	51	47
		Discharge	71		

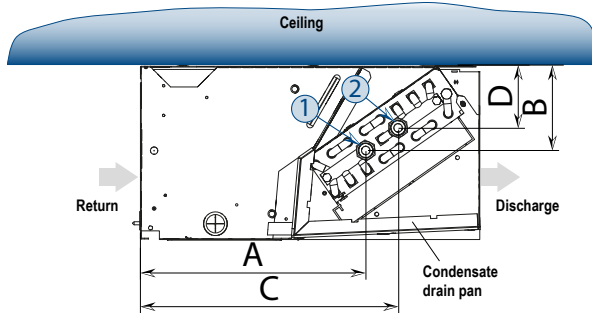
#### Notes

1 Legend:

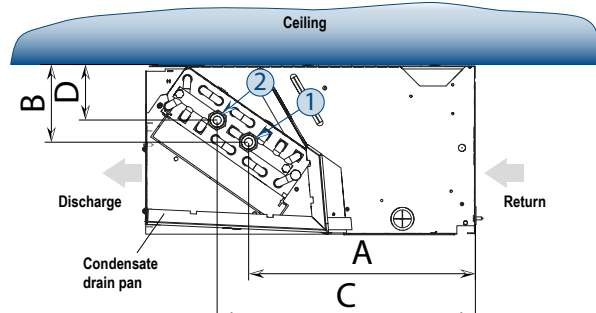
- 2 **Lw global** = A-weighted sound power level, **Lp global** = A-weighted sound pressure level, **NR** = Noise Rating
- 3 By default, fan speeds **1**, **2** and **3** are factory-wired to the low, medium and high fan speed settings.
- 4 For the D-type models: The sound pressure levels **Lp global** are based on **NR** characteristics of a room having volume of 100 m<sup>3</sup> with reverberation of 0.5 seconds. For the H-type model: **Lp global** and **NR** are just informative data, considering a hypothetical sound attenuation of the room and installation of 21 dB.
- 5 Acoustical data for the H150 model is based on the following conditions.  
According to Eurovent 8/2, data is given for a unit with 50 Pa external static pressure, rectangular return and discharge duct connections, and G3 standard filter.

### 3.4.8 Hydraulic connections

Left-hand service side – models D11-1 ... D90-1



Right-hand service side – models D11-1-R ... D90-1-R

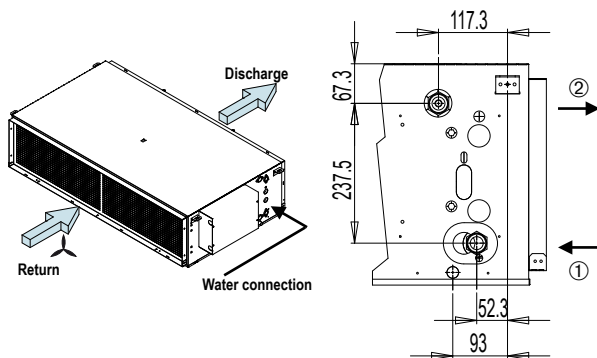


① = Hot or chilled water inlet

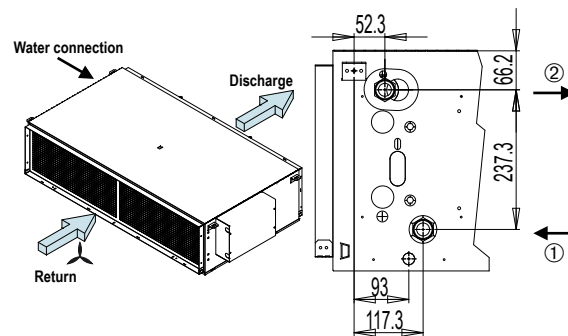
② = Hot or chilled water outlet

Model	Left-hand service side				Right-hand service side			
	A (mm)	B (mm)	C (mm)	D (mm)	A (mm)	B (mm)	C (mm)	D (mm)
D11-1(-R)	285	107	326	78	295	100	337	71
D15-1(-R)	285	107	326	78	295	100	337	71
D24-1(-R)	285	107	326	78	295	100	337	71
D28-1(-R)	285	107	326	78	295	100	337	71
D40-1(-R)	285	107	326	78	295	100	337	71
D55-1(-R)	285	107	326	78	295	100	337	71
D65-1(-R)	265	106	451	31	253	111	253	36
D90-1(-R)	265	129	442	34	263	107	457	52

Left-hand service side – model H150



Right-hand service side – model H150-R



① = Hot or chilled water inlet

② = Hot or chilled water outlet

#### Water coil volume

Model	D11-1(-R)	D15-1(-R)	D24-1(-R)	D28-1(-R)	D40-1(-R)	D55-1(-R)	D65-1(-R)	D90-1(-R)	H150(-R)
Volume l	0.41	0.61	0.89	1.17	1.45	1.73	2.19	2.60	3.7

### Water coil header and valve connection sizes

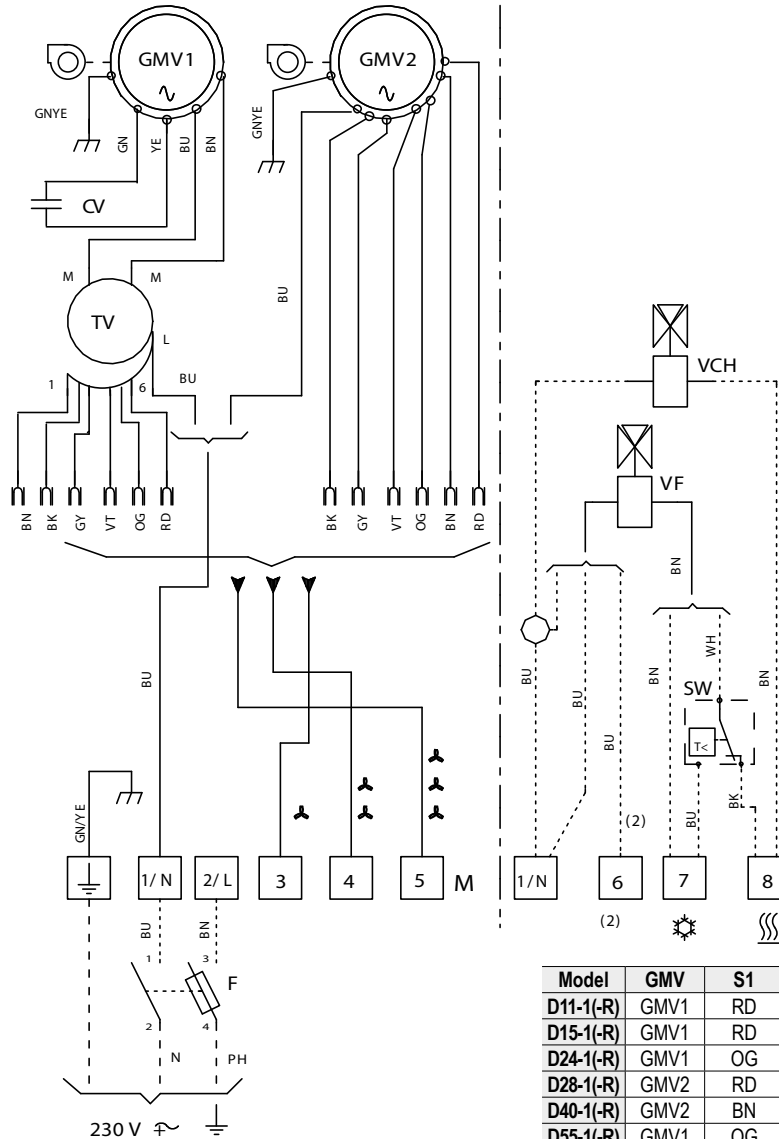
Model		D11-1(-R)	D15-1(-R)	D24-1(-R)	D28-1(-R)	D40-1(-R)	D55-1(-R)	D65-1(-R)	D90-1(-R)	H150(-R)
Header connection	Inch	G ½	G ½	G ½	G ½	G ½	G ½	G ¾	G ¾	Rc 1 male
Valve connection	Inch	G ½	G ½	G ½	G ½	G ½	G ½	G ¾	G ¾	Rc 1 male

- 1 Each water coil header has 1 pipe connection for water supply and water return.
- 2 The use of regulation valves (available as accessory (→ 3.4.11.1 *Regulating valves*, p. 27) or field-supplied by the client) is mandatory to ensure that the appliance operates correctly.



### 3.4.9 Electrical connections

#### Wiring diagram – D-type models

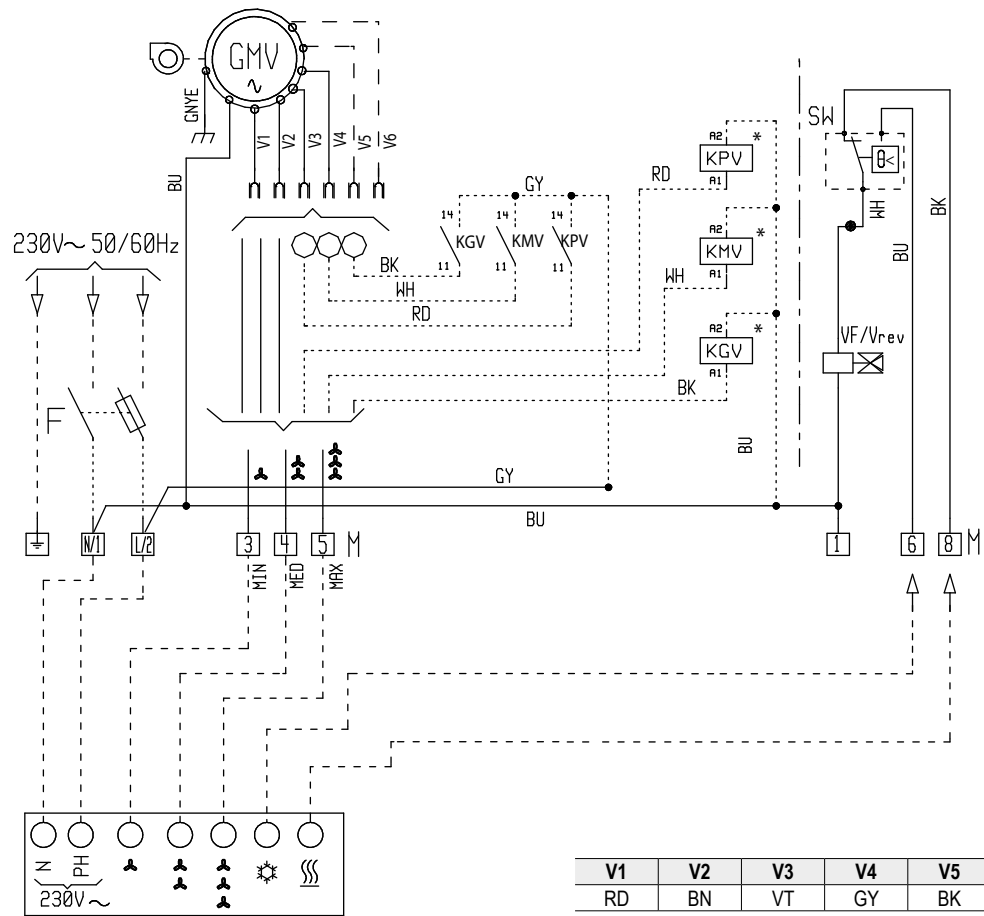


GMV1/2 Fan motor  
 S1 ... S5 Min. to max. fan speed  
 TV Autotransformer fan motor GMV1  
 M Terminal board  
 - - - - Options  
 SW/SCH Water temperature sensor  
 VF Cooling/Heating valve  
 F General protection

Model	GMV	S1	S2	S3	S4	S5
D11-1(-R)	GMV1	RD	BN	VT	GY	BK
D15-1(-R)	GMV1	RD	BN	VT	GY	BK
D24-1(-R)	GMV1	OG	BN	VT	GY	BK
D28-1(-R)	GMV2	RD	OG	VT	GY	BK
D40-1(-R)	GMV2	BN	OG	VT	GY	BK
D55-1(-R)	GMV1	OG	BN	VT	GY	BK
D65-1(-R)	GMV1	OG	BN	VT	GY	BK
D90-1(-R)	GMV1	RD	BN	VT	GY	BK

BK Black  
 OR Orange  
 WH White  
 RD Red  
 BU Blue  
 GNYE Green/Yellow  
 VT Purple  
 BN Brown  
 GY Grey

## Wiring diagram – H-type model



GMV1/2 Fan motor  
 V1 ... V5 Min. to max. fan speed  
 M Terminal board  
 KPV Relay for low fan speed  
 KMV Relay for medium fan speed  
 KGV Relay for high fan speed  
 - - - - Options  
 SW Change-over thermostat  
 VF Cooling/Heating valve  
 F General protection

BK Black  
 OR Orange  
 WH White  
 RD Red  
 BU Blue  
 GNYE Green/Yellow  
 VT Purple  
 BN Brown  
 GY Grey

## 3.4.10 Terminal board layouts

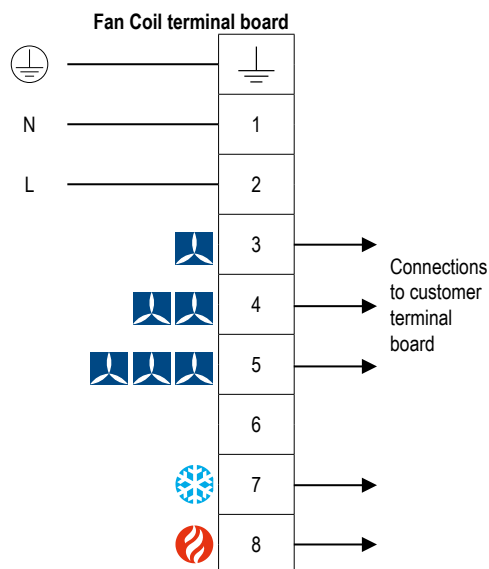
### Legend

Low fan speed  
 Cooling

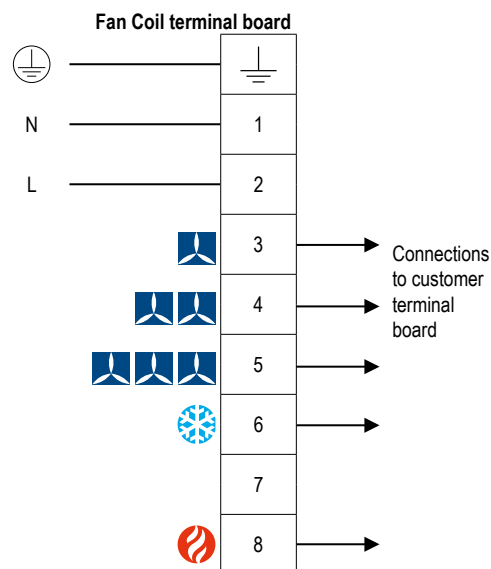
Medium fan speed  
 Heating

High fan speed  
 Regulating valve

### D-type models



### H-type model



## 3.4.11 Accessory

### 3.4.11.1 Regulating valves

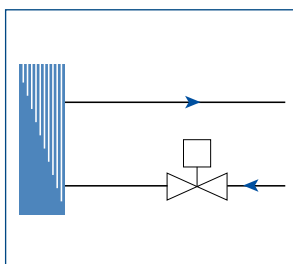
A 2-way valve or 3-way regulating valve, whose installation is mandatory to ensure that the appliance operates correctly, can be obtained from Panasonic as accessory.

The following table shows which valve model must be chosen for the relevant Fan Coil model.

#### Fan Coil / valve combinations

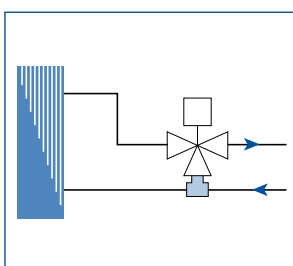
Fan Coil model	Valve model	
	2-way valves	3-way valves
PAW-FC-D11-1(-R)	PAW-FC-2WY-11/55-1	PAW-FC-3WY-11/55-1
PAW-FC-D15-1(-R)		
PAW-FC-D24-1(-R)		
PAW-FC-D28-1(-R)		
PAW-FC-D40-1(-R)		
PAW-FC-D55-1(-R)		
PAW-FC-D65-1(-R)	PAW-FC-2WY-65/90-1	PAW-FC-3WY-65/90-1
PAW-FC-D90-1(-R)		
PAW-FC-H150(-R)	PAW-FC-2WY-150	PAW-FC-3WY-150

## 2-way valve for installation on cooling or heating coil



Model	Valve		Thermal actuator 230 V / 50/60 Hz				
			T max amb (° C)	T max fluid (° C)	Id (A)	In (A)	P (VA)
D11-1(-R) ... D55-1(-R)	1.6	1/2	50	110	0.6	0.013	3.0
D65-1(-R) ... D90-1(-R)	2.5	3/4	50	110	0.6	0.013	3.0
H150(-R)	4.5	1	50	110	0.2	–	1.8

## 3-way valve for installation on cooling or heating coil



Model	Valve		Thermal actuator 230 V / 50/60 Hz				
			T max amb (° C)	T max fluid (° C)	Id (A)	In (A)	P (VA)
D11-1(-R) ... D55-1(-R)	1.6	1/2	50	110	0.6	0.013	3.0
D65-1(-R) ... D90-1(-R)	2.5	3/4	50	110	0.6	0.013	3.0
H150(-R)	4.5	1	50	110	0.2	–	1.8

### 3.4.11.2 PAW-FC-303TC controller

The wired Fan Coil controller PAW-FC-303TC can be obtained from Panasonic as optional accessory. This microprocessor-based controller enables set-point adjustment, fan speed selection, mode control and many other functions.

With its simple, yet modern design featuring a large backlit LCD screen it is optimised for office building, hotel and residential applications. It is both easy to operate and to install.

The controller is supplied complete with a flush-mounted installation box, which can be embedded into the wall, in order to install the controller flush with the wall surface.

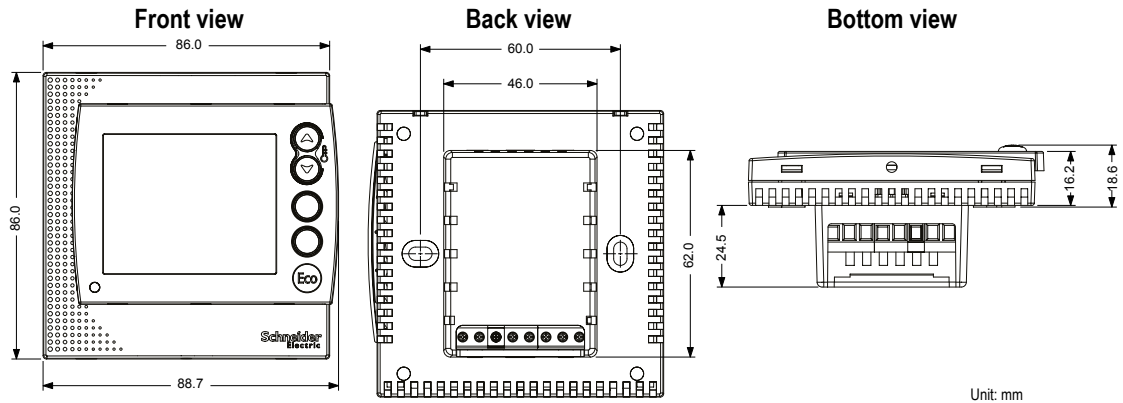
Front view



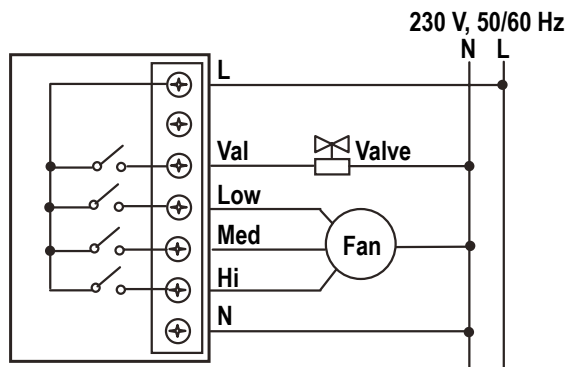
Flush-mounted installation box



## PAW-FC303TC – Dimensions







## PAW-FC303TC – Terminal board layout



## PAW-FC303TC – Connection to Fan Coil terminal boards

### Legend

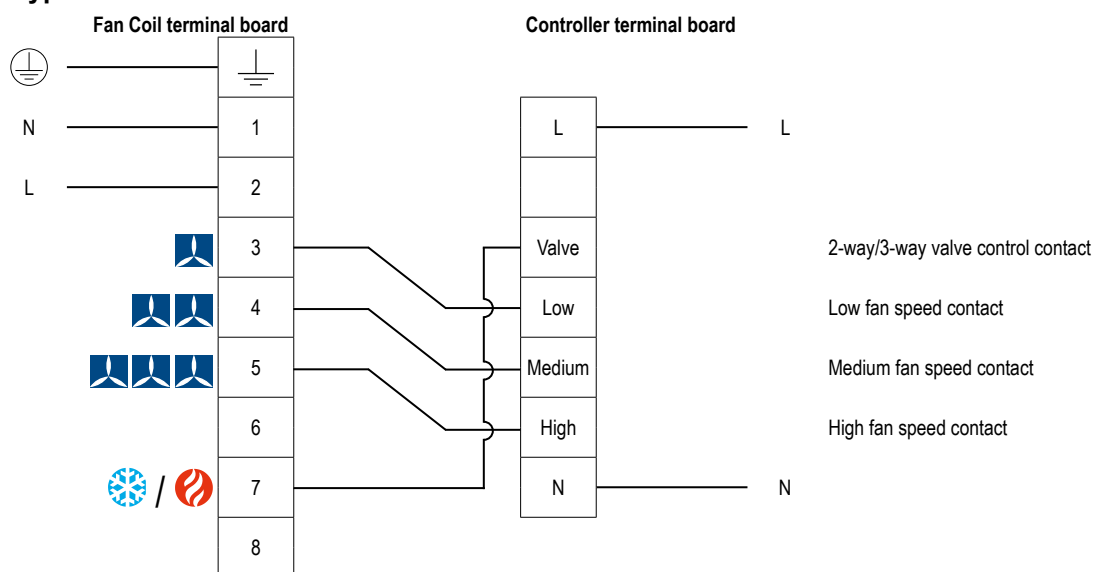
 Low fan speed  
 Cooling

 Medium fan speed  
 Heating

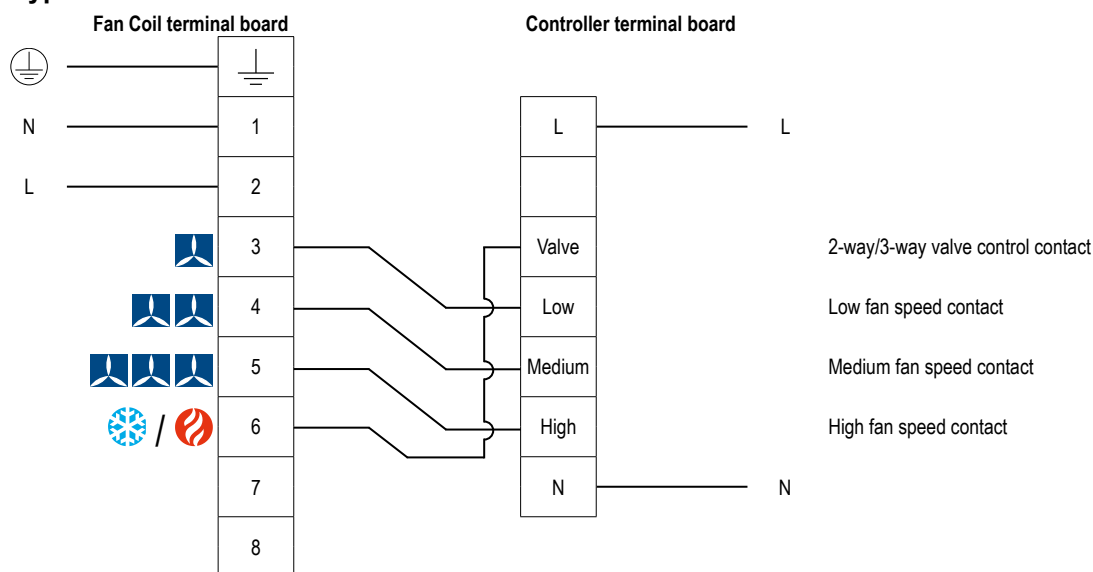
 High fan speed  
 Regulating valve

**Note:** The regulating valve wiring between the controller and the Fan Coil terminal board only applies if the regulating valve is built into the Fan Coil unit (supplied).

### D-type models



### H-type model



### 3.4.11.3 PAW-FC-RC1 controller

The advanced wired Fan Coil controller PAW-FC-RC1 can be obtained from Panasonic as optional accessory. This controller offers the following main functions:

- Room thermostat
- 3 digital outputs, 230 V relays for FAN speed control (Low-Med-Hi)
- 2 digital outputs, 230 V relays for heating/cooling valves control
- 1 digital input for presence detection (key card switch, hotel application)
- Modbus RTU slave
- 1 analog input for temperature sensor. The water flow sensor can be used for preventing cold drafts during heating mode.

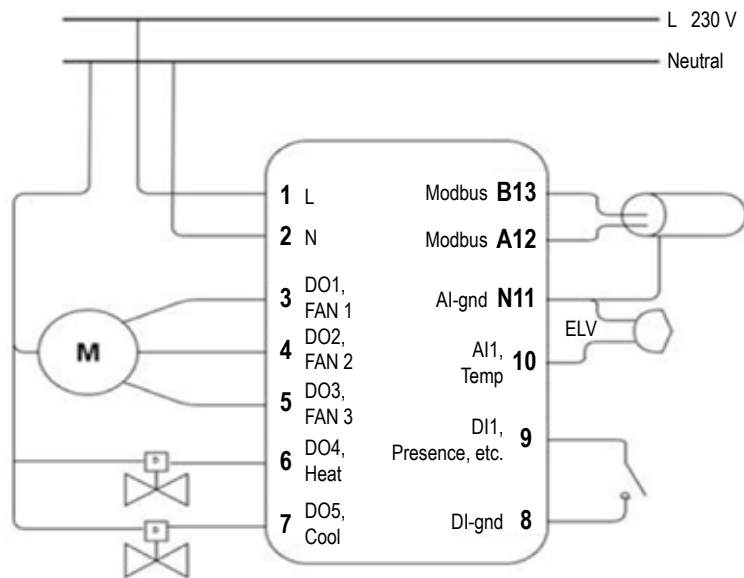
Front view



Back view




### PAW-FC-RC1 – Terminal board layout






Terminal	Name	Function	Comment
1	L	Power Supply 230 V, Live	
2	N	Power Supply 230 V, Neutral	
3	DO1	230 V AC Relay 1	Common on terminal 2
4	DO2	230 V AC Relay 2	Common on terminal 2
5	DO3	230 V AC Relay 3	Common on terminal 2
6	DO4	230 V AC Relay 4	Common on terminal 2
7	DO5	230 V AC Relay 5	Common on terminal 2
8	DI-gnd	Potential for DI1	LVD
9	DI1	Presence	LVD
10	AI1	External temperature	Pt1000
11	AI-gnd	Potential for AI1 Com N	Ground for external temperature Connect to gnd/shield for Modbus
12	Modbus	Com A	Modbus
13	Modbus	Com B	Modbus


**PAW-FC.-RC1 – Connection to Fan Coil terminal boards**




**Legend**


 Low fan speed

 Cooling

  Medium fan speed

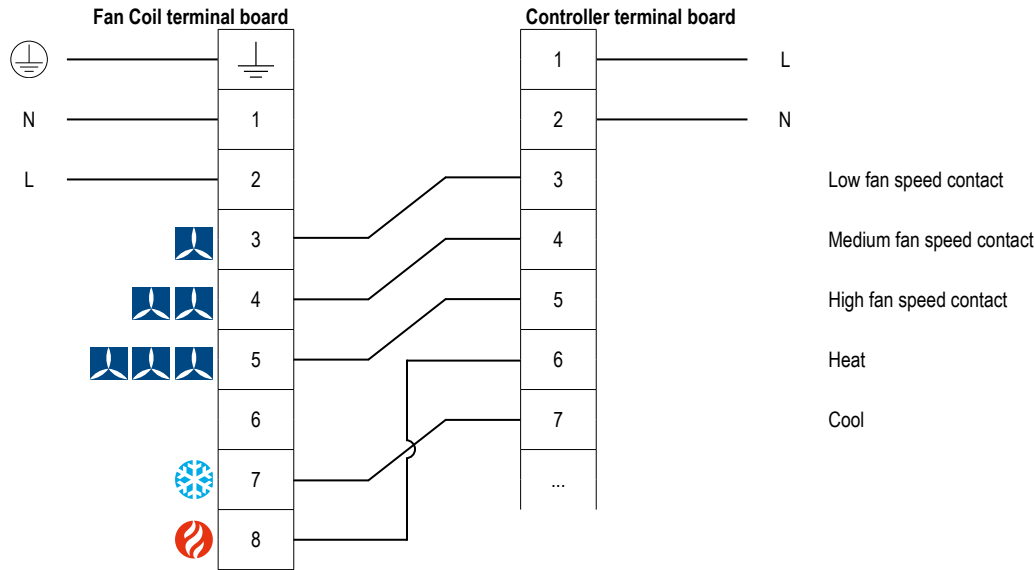
 Heating

   High fan speed

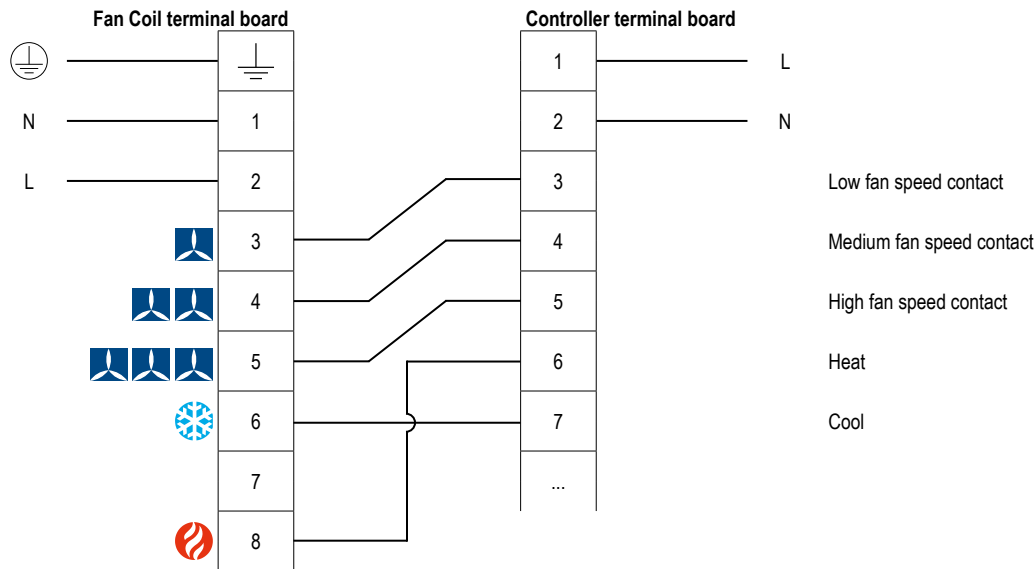
 Regulating valve

**Note:** The regulating valve wiring between the controller and the Fan Coil terminal board only applies if the regulating valve is built into the Fan Coil unit (supplied).

**D-type models**



**H-type model**





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## 4 Installation

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### IMPORTANT

Before starting installation, read the → 2 *Safety-related information*, p. 9 carefully and observe the safety instructions given there.

---

### 4.1 Selecting the unit location

Select the unit location with the following aspects in mind:

- The units must not be installed in a machinery room or a kitchen where vapours or oil mist could pass through the unit, nor in a laundry or in very damp areas (bathroom, sauna, etc.).
- The units are designed for installation in the void of a suspended ceiling.
- There must be sufficient free space between the suspended ceiling and the solid ceiling for installing the unit.
- The structure at the unit location must be capable of withstanding the operating weight of the unit (→ 3.4.3 *Weights*, p. 15, → *Water coil volume*, p. 23).
- The unit location must enable the unit's air inlet and outlet connections to be made.
- The unit's service side configuration must be taken into account to make sure that the supply, return and condensation piping can be connected according to the installation plans and will fit into the confines of the Fan Coil casing.
- The unit location must provide for easy condensate evacuation and it must be high enough to permit good drainage of defrost water with siphon.
- There must be adequate space around the unit for maintenance access, i. e. a minimum clearance on the service side for access to the filter and the fan motor assembly (→ 3.4.4.2 *Minimum installation and maintenance clearances*, p. 17). In addition to the service clearances it is essential that provision is made for adequate and safe service access.
- All electrical and ductwork connections to the unit must be made via flexible connections to prevent transmission of vibration.
- When the units are ducted at the inlet side, the controller return sensor must be located outside the fan compartment in order to ensure its good operation.

### 4.2 Mounting the unit

All installation equipment and mounting material must be provided by the installer.

The Fan Coil units are designed to be suspended on M8 threaded rods or anchor bolts with nuts and washers. The mounting lugs with slot-type holes are fitted to the upper part of the units.

If possible, assemble the compulsory or optional accessories before mounting the unit in its final location (see instructions provided with the relevant accessory).

---

Mount the Fan Coil unit according to the following instructions:

1. Drill holes in the solid ceiling in accordance with the mounting lug dimensions of the relevant unit (→ 3.4.4.3 *Mounting lug dimensions*, p. 18).
2. Attach the threaded rods or anchor bolts to the ceiling and place nuts and washers on each threaded rod.
3. Lift up the unit and slide the threaded rods through the mounting lug slots. Make sure that the unit casing does not touch the ceiling.
4. Attach the unit with further firmly tightened washers, nuts and lock nuts.  
**Recommendation:** Fit rubber blocks to prevent any risk of vibration being transmitted to the structure.
5. Lock the unit in its final location and **level it off with a spirit level** in order to guarantee correct operation. Make sure that the unit is slightly pitched towards the condensate drain outlet to facilitate condensate evacuation.



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#### IMPORTANT

After installing the unit, be sure that there is no more longitudinal and transversal counterslopes avoiding condensate evacuation.

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#### Note

When installing any required or optional accessory, e. g. a mandatory 2-way or 3-way valve or optional supply and/or discharge air ducts, sensors, controls etc., refer to the installation instructions of the relevant accessory. However, some basic information is given in the following sections:

- *Installing the mandatory 2-way or 3-way regulating valve*, p. 35
  - *Connecting a field-supplied controller*, p. 37
- 

## 4.3 Connecting the water circuit

All installation equipment and mounting material must be provided by the installer.

Flexible pipes are recommended for connecting the coils to prevent transmission of vibration.



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#### IMPORTANT

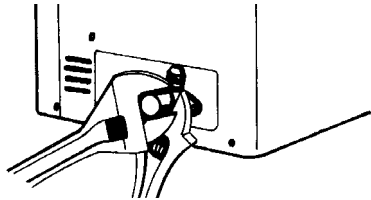
- The installation and operating conditions require the **MANDATORY** fitting of a valve ON the unit **AND/OR** UPSTREAM in the hydraulic circuit. This is to prevent chilled water from circulating in the appliance when the fan is not operational, which may cause condensation issues.  
A 2-way valve or a 3-way valve can be obtained from Panasonic as accessory (→ 3.4.11.1 *Regulating valves*, p. 27). As an alternative, a field-supplied third-party 2-way or 3-way valve can be installed.
  - When making the hydraulic connections, ensure that no impurities are introduced into the pipework.
-

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## Connecting the pipes of the main water circuit

Connect the water pipes according to the following instructions:

1. Connect the supply water pipe to the water inlet and the return water pipe to the water outlet of the unit (→ 3.4.8 *Hydraulic connections*, p. 23).
2. Use a counter-wrench for tightening the water pipe connectors. Avoid overtightening, using excessive force or pushing the coil header towards the inside of the unit, as this may damage the coil.



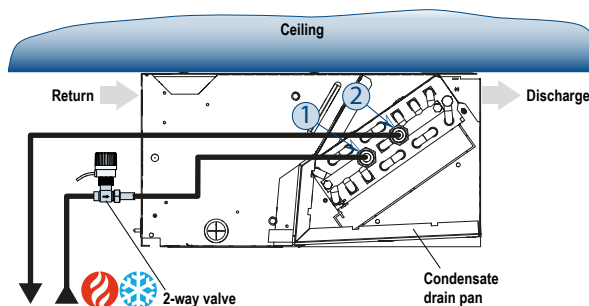
3. Insulate all water pipes to avoid sweating and heat loss.

## Installing the mandatory 2-way or 3-way regulating valve

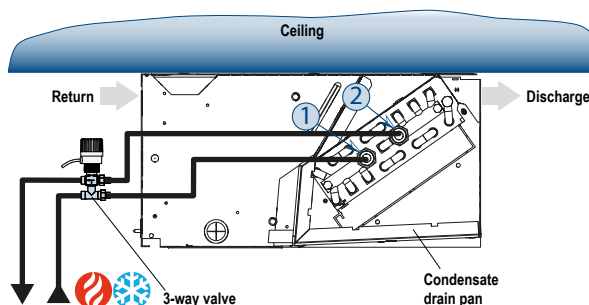
Connect the regulating valve according to the following instructions:

1. Install the mandatory 2-way or 3-way regulating valve on the unit and/or upstream in the hydraulic circuit according to the following scheme (showing model D28-1 with left-hand service side configuration as an example):

### 2-way regulating valve



### 3-way regulating valve



### IMPORTANT

Using a 2-way regulating valve **MANDATORILY** requires the fitting of additional balancing valves in the water circuit, to prevent water from circulating in the unit when the fan is not operating and to maintain a steady water flow in the rest of the water circuit.

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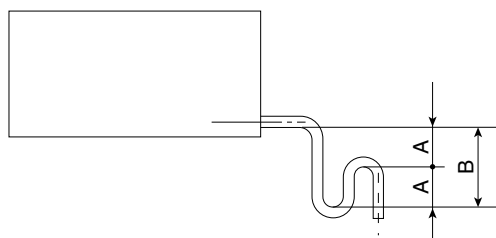
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## Connecting the condensate evacuation pipe to the drain tray

A condensate tray is supplied with a 5/8" exterior diameter copper drain hole, which must be connected to the main evacuation pipe, to ensure that the condensed water will drain properly from the tray.

Connect the condensate evacuation pipe according to the following instructions:

1. Remove all foreign material from the condensate tray.
2. Connect the evacuation pipe to the drain hole of the condensate tray by means of a flexible drain hose.
3. Make sure that the evacuation pipe is installed with a downward slope and that it has a siphon, which must be made in accordance with the following scheme:



**Height A** must be equal to 2 times the value of the negative pressure (given in mmH<sub>2</sub>O) present in the condensate reception zone.

**Height B** must be equal to 2 times the value of height A.

**Example:**

negative pressure = 40 mmH<sub>2</sub>O

height A = 80 mmH<sub>2</sub>O

height B = 160 mmH<sub>2</sub>O.

4. Make sure that the condensate drain hose is firmly connected to the drain tray and check if it allows liquid to drain properly by pouring water into the condensate tray.
5. Insulate the evacuation pipe to prevent condensation forming on the outside of the pipe.
6. Fill the coil with the amount of water which is applicable for the relevant model (→ *Water coil volume*, p. 23).

**Note:**

To vent the air from the coil, use the air vent located on the upper part of the upper header. To drain the water, use the drain plug located on the lower part of the lower header.

## 4.4 Connecting the electrical wiring



### WARNING



#### Danger to life from electric shock

The devices are operated with 230-V alternating current. Any contact with live conductors can present a danger to life from electric shock.

- Electrical installation work must be undertaken by a trained electrician.
- Ensure that you have disconnected the electricity supply before you carry out installation work. Secure the electricity supply against being switched on again unintentionally.

---

### Connecting the power supply cords

All Fan Coil units are designed for operation with 230 volts, single phase, 50 or 60 cycles. A voltage variation of  $\pm 10\%$  with regard to the nominal voltage of 230 V is acceptable.

Each Fan Coil unit is supplied with a terminal board. Mains voltage and low voltage wiring must each be done in accordance with the applicable local electrical code and the wiring diagram corresponding to the unit model (→ 3.4.9 *Electrical connections*, p. 25).

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If electrical wiring or conduit comes through the floor, it must be sealed along its passage through the floor.



### IMPORTANT

The power supply cable section must be sufficient to provide the appropriate voltage to the unit's power supply terminals, both at start-up and under full load operating conditions.

The power supply cable shall be selected in accordance with the following criteria:

1. Power supply cable length.
2. Maximum unit starting current draw – the cables shall supply the appropriate voltage to the unit terminals for starting.
3. Power supply cables' installation mode.
4. Cables' capacity to transport the total system current draw.

Connect the power supply cables according to the following instructions:

1. Ensure that a short circuit protection is provided. This protection shall comprise fuses or circuit breakers with high breaking capacity, mounted on the distribution board.
2. Ensure that a device to disconnect all the power conductors with an approved minimum opening distance is included in the mains power supply according to best installation practices.
3. Before making the connections, be sure that the available power supply has the same voltage and phase as that shown on the Fan Coil unit nameplate.
4. Connect the mains voltage and low voltage wiring as shown in the relevant wiring diagram (→ 3.4.9 *Electrical connections*, p. 25).
5. Ensure that earthing of the unit is done correctly and is effective.



### Note

If any optional or field-supplied accessory is to be installed, e. g. a 2-way or 3-way valve, supply and/or discharge air ducts, sensors, controls etc., refer to the installation instructions of the relevant accessory. However, some basic information is given in the following sections:

- *Installing the mandatory 2-way or 3-way regulating valve*, p. 35
- *Connecting a field-supplied controller*, p. 37

## Connecting a field-supplied controller

When installing a field-supplied controller, keep the following aspects in mind:

- Make sure the device and the electricity supply are switched off prior to installation/service.
- Do not install the controller in locations that can be affected by radiant heat or in places with high levels of sunlight.
- Do not install the controller behind doors or in corners.
- Install the controller about 1.5 m above the floor.
- Protect the device from water/debris to avoid damaging the controller.

---

Mount the controller according to the following instructions:

1. If the controller is not to be embedded into the wall, proceed to the next step. Otherwise, first make sure that the concealed wiring for the controller and the hole in the wall for installing a hollow installation box have been prepared. Then lead the controller wiring into the hollow installation box and place the installation box in the hole in the wall.
2. If the controller terminal board is accessible from outside, proceed to the next step. Otherwise, open the controller housing and separate its front part including the display from its back part including the controller terminal board.
3. Connect the wires of the Fan Coil wiring with the controller terminal board (→ 3.4.10 Terminal board layouts, p. 26).
4. Fix the one-part controller or the back part of the controller housing with screws to the installation box or, if no installation box is to be used, to the wall.
5. For two-part controllers, re-connect the controller front part to the back part and close the controller housing carefully.

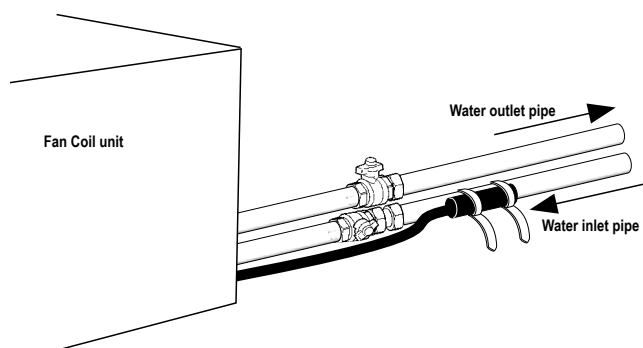


#### IMPORTANT

If the local control includes a remote ambient temperature sensor and/or a set temperature adjustment module, these shall be connected with shielded cable and shall not pass through the same conduits as the power supply cables, because the voltages induced may create reliability faults in the unit's operation.

If a field-supplied thermostat or temperature sensor is to be used, mount it according to the following instructions:

1. Choose the desired mounting position for the sensor bulb on the Fan Coil unit's water inlet pipe as shown in the following scheme:



2. At the chosen position, coat the pipe with heat conducting paste to guarantee good thermal transfer.
3. Mount the sensor bulb at the chosen position on the water inlet pipe.
4. Wire the sensor bulb to the Fan Coil unit's terminal board as described in the sensor's installation instructions.

---

## 5 Commissioning

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### 5.1 Performing pre-start checks

Once all components have been installed, you can start commissioning by performing the pre-start checks.

#### Checking electrical installation

Ensure that the following conditions are met:

1. The electrical installation has been carried out according to the applicable local electrical code and the wiring diagram for the relevant model (→ *3.4.9 Electrical connections, p. 25*).
2. Correctly sized fuses or a circuit breaker have been installed on the main switchboard (→ *4.4 Connecting the electrical wiring, p. 36*).
3. The supply voltages match the voltages specified in the unit wiring diagram (→ *3.4.9 Electrical connections, p. 25*).
4. All cables are properly identified and tightly connected to the unit's terminal board (→ *3.4.10 Terminal board layouts, p. 26*).
5. All cables and wires are clear of or protected from pipework and sharp edges.

If any of the above conditions is not met, rectify the issue and repeat the check.

#### Checking hydraulic installation

Ensure that the following conditions are met:

1. The water inlet and outlet connections are correctly connected to the unit (→ *4.3 Connecting the water circuit, p. 34*).
2. The hydraulic circuit is filled correctly (→ *Water coil volume, p. 23*) and the fluid flows freely without any signs of leaks or air bubbles. When ethylene glycol anti-freeze is used, check that the concentration level is correct.
3. The water flow complies with the specifications (→ *3.4.6 Performance data, p. 19*). If this is not the case, adjust the water flow accordingly.
4. The water quality complies with the indicated standards (→ *3.4.2 Water quality, p. 15*).
5. The condensate drain hose is connected to the drain tray and the evacuation pipe and allows liquid to drain freely.
6. Check that the condensate actually drains properly by pouring water into the condensate tray.

If any of the above conditions is not met, rectify the issue and repeat the check.

#### Checking air duct installation

If air return and discharge ducts have been installed, ensure that the following conditions are met:

1. Air ducts have been attached by flexible connections. These connections are secure and detachable for service access.
2. Seams and joints are airtight.

If any of the above conditions is not met, rectify the issue and repeat the check.

---

## Performing a final visual check

Ensure that the following conditions are met:

1. Clearances around unit including outdoor air entry and discharge openings and service accesses are as specified (→ 3.4.4.2 *Minimum installation and maintenance clearances*, p. 17).
2. Unit is mounted as specified (→ 4.2 *Mounting the unit*, p. 33).
3. The air filter is clean and correctly installed.
4. The fan wheel is rotating freely on its shaft.
5. No bolts or screws are loose or missing.

If any of the above conditions is not met, rectify the issue and repeat the check.

## 5.2 Performing a test run

When all pre-start checks and the final visual check have been completed successfully, put the Fan Coil unit into operation and ensure that the following conditions are met:

1. There are no unusual noises or vibrations in the running components, particularly not in the indoor fan drive system.
2. The voltage measured at unit supply terminals matches the specified design voltage.
3. The unit is wired for correct control of unit fan, cooling and heating modes.

If any of the above conditions is not met, rectify the issue and repeat the check.

## 5.3 Performing the final tasks

When the test run has been completed successfully, perform the following final tasks:

1. If needed, fix the cables and the pipes on the wall with clamping collars.
2. Ensure that the unit is clean and free of remainder installation material.
3. Ensure that all panels and fan guards are in place and secured.
4. Operate the air conditioner in the presence of the user and explain all functions.
5. Show the user how to remove, clean and place back the filters.
6. Hand this manual over to the user and remind him that it must be kept in a safe place.



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## 6 Maintenance

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### IMPORTANT

The user is responsible for ensuring that the unit is in perfect working order and that the technical installation and minimum annual maintenance operations have been performed by a qualified technician in accordance with the procedures described in this manual.

These units have been designed for minimum maintenance through the use of permanently lubricated components. However, there are operational maintenance requirements that require regular attention to ensure optimum performance.

Depending on actual operational constraints and regulatory changes, the installer might recommend increased maintenance operations and more frequent inspections.

### 6.1 Regular servicing tasks



### WARNING



#### Danger to life from electric shock

The devices are operated with 230-V alternating current. Any contact with live conductors can present a danger to life from electric shock.

- ▶ Electrical maintenance work must be undertaken by a trained electrician.
- ▶ Ensure that you have disconnected the electricity supply before you carry out any maintenance work. Secure the electricity supply against being switched on again unintentionally.

In order to ensure the safe and trouble-free operation of the Fan Coil unit, perform the following maintenance tasks at regular intervals.

#### General inspection

Carry out a visual inspection of the complete installation in service.

Check and ensure the general cleanness of the installation.

Check the condition of the condensate tray by pulling it out of the casing, and ensure that the condensate evacuation pipe is not blocked.

#### Air filter



### IMPORTANT

The fan coil unit shall have a filter installed in the return air side. When the filter is not fitted inside the unit, the installer shall install a field-supplied filter in the return grill or duct.

Changing the filter is a maintenance operation that should only be performed by qualified personnel.

To avoid clogging of the air filter, it is recommended to clean it regularly.

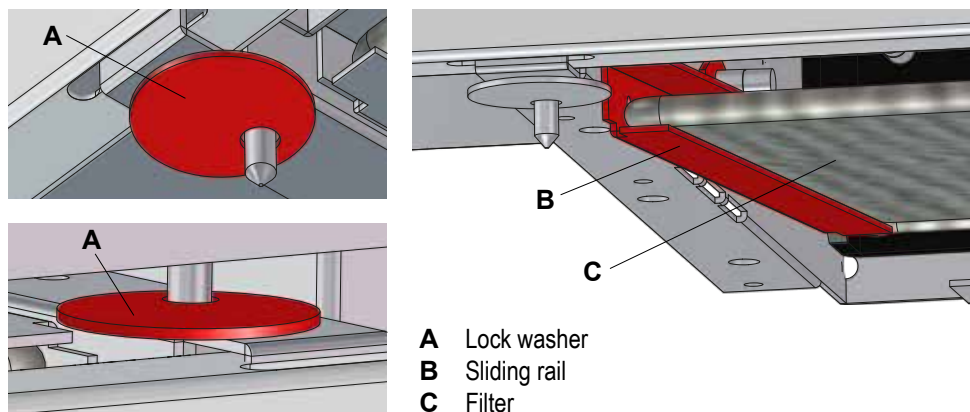
Filter changes are required at regular intervals. The time period between changes will depend upon the specific operating conditions. Some applications such as hotels, where there is a lot of lint from carpeting, will require more frequent filter changes.

If light cannot be seen through the filter, when held up to sunlight or a bright light, it should be washed or changed.

Remove and re-mount the air filter according to the following instructions.

#### D-type models

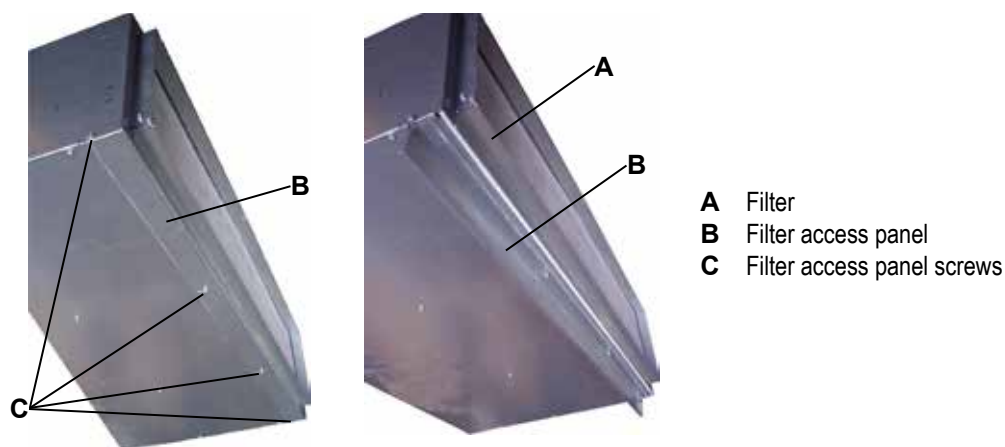
1. On the return air side of the unit, release the “lock washers” (A) on each side before pushing the sliding rails (B) outwards.



2. Take the filter (C) off and clean or replace it.
3. Re-mount the filter following the above instructions in reverse order. Make sure that the attachment systems are safely relocked in place after changing the filter.

#### H-type model

1. Make sure that the filter (A) cannot fall out, once the fixing screws have been unscrewed.



2. Slightly unscrew the 4 fixing screws (C), to release the filter access panel (B).
3. Make the filter access panel swivel, so that you can reach the filter (A).
4. Take the filter off and clean or replace it.
5. Re-mount the filter following the above instructions in reverse order.

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## Condensate tray

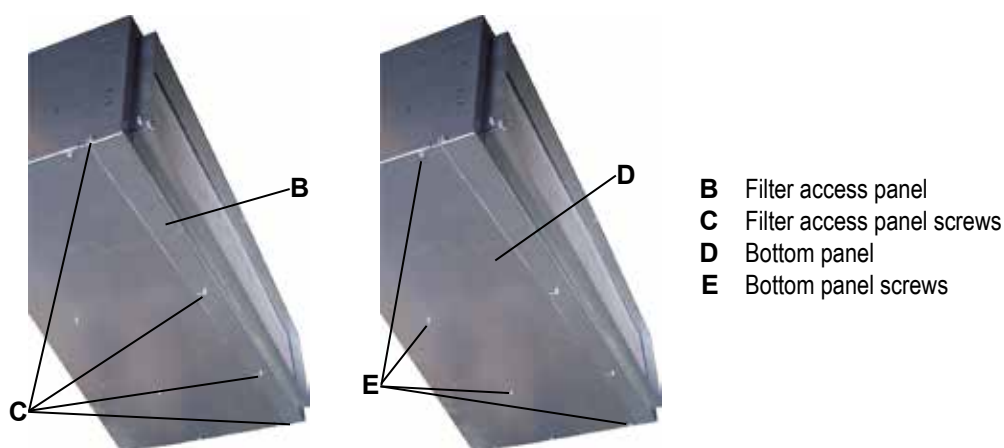
Check that the drain hole, evacuation pipe and siphon are not blocked.

Eliminate all accumulated dirt and check that no traces of rust are present. If required, clean the tray or wash it with water.

For the H-type model, the condensate tray can be removed and re-mounted according to the following instructions.

### H-type model

1. Make sure that the condensate tray cannot fall out, once the fixing screws have been unscrewed.



2. Remove the filter access panel (B) by unscrewing the filter access panel screws (C) as described above for the maintenance of the air filter.
3. Unscrew the bottom panel screws (E) and remove the bottom panel (D).
4. Pull out the condensate tray and clean it.
5. Re-mount the condensate tray following the above instructions in reverse order.

## Coils

Check that the fins are not clogged or damaged.

To avoid the coils becoming mouldy with an accumulation of tiny impurities, it is recommended that they are cleaned regularly. If necessary, brush the coils with an appropriate tool. Take care not to damage the fins during cleaning.

## Fan motor assembly

The fan motor assembly does not require any particular maintenance. All fan coil units utilize permanently lubricated fan motor bearings or sliding bearing. Adding oil is not necessary.

However, during periodic maintenance perform the following steps:

1. Check and ensure that the fan wheel turns freely without friction. If necessary, adjust the clearance between the fan and the housing.
2. Check for signs of wear on the fan bearings.
3. Check the condition of the fan and the fan motor.



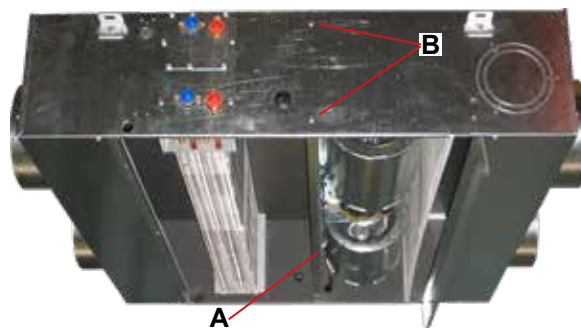
### IMPORTANT

In the event of the fan motor overload protection device engaging, wait for the automatic protection to reset itself and seek out the cause of the protection device being triggered.

---

To remove the fan motor assembly, perform the following steps:

1. Remove the bottom panel as described above for the maintenance of the condensate tray.
2. Disconnect the fan motor assembly power supply starting from the electric box.
3. Make sure that the fan motor assembly cannot fall out, once the fixing screws have been unscrewed.
4. Unscrew the four fan motor assembly fixing screws (2 on each side of the unit) and take out the fan motor assembly.



- A** Fan motor assembly  
**B** Fixing screws

5. Re-mount the fan motor assembly following the above instructions in reverse order.

### Electrical equipment

1. Ensure that the main power supply cable is not damaged or altered in such a way as to affect the insulation.
2. Ensure the tightness of the screw terminals.
3. Ensure the general tightness of all cable connections.
4. Perform a visual check of the condition of the contacts.
5. Inspect the relay contact surfaces and the contactors and replace them if necessary.
6. Check nominal current draw and the condition of the fuses and replace them if necessary.
7. Clean the control box with compressed air to remove any build-ups of dust or dirt.
8. Ensure that the earth grounding connection is intact.

### Water circuit

Once a year, drain the water pipes and check for scale formation. De-scale the pipes if required.

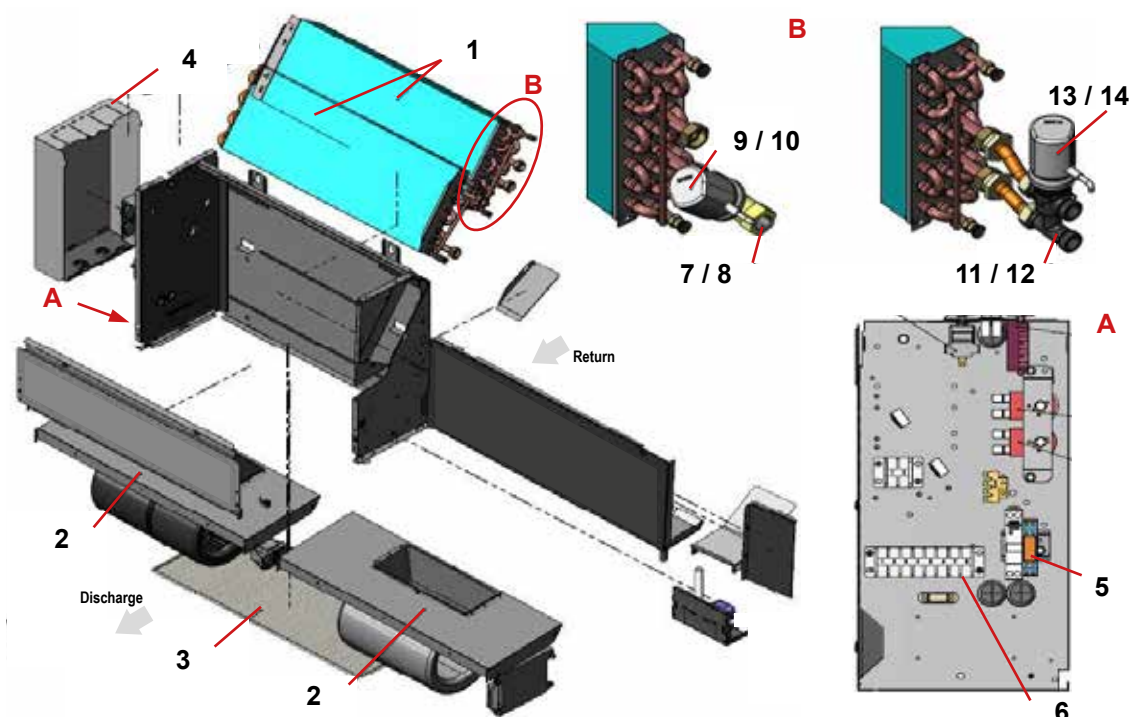
Ensure that the hydraulic circuit is filled correctly and that the fluid circulates freely without any sign of leaks or air bubbles.

## 7 Appendix

### 7.1 Exploded views

The following exploded views are just schematics serving as examples to illustrate the general construction of the Fan Coil units. Deviations from the actual model types distributed by Panasonic will be explicitly mentioned with each schematic.

#### Exploded view – D-type models



**Notes:** D-type models enable vertical or horizontal installation. Schematic shows a vertical installation example with right-hand service side configuration.

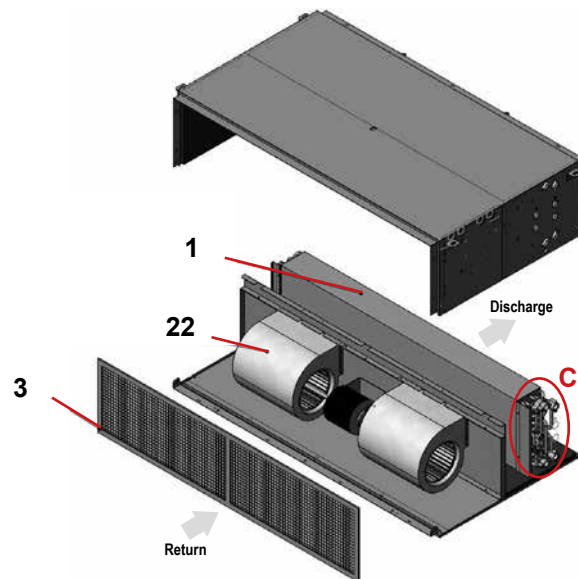
Also, the schematic shows a model with two fan motor assemblies (D28-1(-R) to D65-1(-R)), while D11-1(-R) to D24-1(-R) have only one and D90-1(-R) has three.

- 1 2-pipe heat exchanger coil
- 2 Fan motor assembly
- 3 Air filter (G2)
- 4 Electrical side protection cap

- A Detail view:** PCB with terminal board and fan speed relay
- 5 Relay
  - 6 Terminal board

- B Detail view:** 2-pipe water connections with regulating valves
- 7 Cold water 2-way valve
  - 8 Hot water 2-way valve
  - 9 Thermal actuator for 2-way valve (230 V)
  - 10 Thermal actuator for 2-way valve (24 V)
  - 11 Cold water 3-way valve
  - 12 Hot water 3-way valve
  - 13 Thermal actuator for 3-way valve (230 V)
  - 14 Thermal actuator for 3-way valve (24 V)

### Exploded view – H-type model



- 1 2-pipe heat exchanger coil
- 2 Fan motor assembly
- 3 Air filter (G3)

**C Note:** Schematic shows a 4-pipe H150 model (with left-hand service side configuration), while Panasonic distributes only 2-pipe models.

## 7.2 Spare parts lists

Ref. No.	Designation	D11-1(-R)	D15-1(-R)	D24-1(-R)	D28-1(-R)	D40-1(-R)	D55-1(-R)	D65-1(-R)	D90-1(-R)	H150(-R)	Spare part order number
1	2-pipe heat exchanger coil	1									580043
			1								580044
				1							580045
					1						580046
						1					580047
							1				580048
								1			580049
									1		580050
2	Fan motor assembly									1	385130
		1	1								394339
				1							394360
					1						394341
						1					394358
							1				394343
								1			394344
									1		398602
3	Air filter G2									1	394354
		1	1								392966
				1							392968
					1						392970
						1		1			392972
							1		1		392974
	Air filter G3									1	360760

Ref. No.	Designation	D11-1(-R)	D15-1(-R)	D24-1(-R)	D28-1(-R)	D40-1(-R)	D55-1(-R)	D65-1(-R)	D90-1(-R)	H150(-R)	Spare part order number
5	Relay	1	1	1	1	1	1	1	1		388778
–										3	388775
7	Cold water 2-way valve	1	1	1	1	1	1				304118
								1	1		390047
8	Hot water 2-way valve	1	1	1	1	1	1	1	1		304118
–	2-way valve									1	389861
9	Actuator for 2-way valve (230 V)	1	1	1	1	1	1	1	1		361882
10	Actuator for 2-way valve (24 V)	1	1	1	1	1	1	1	1		390046
11	Cold water 3-way valve	1	1	1	1	1	1				582001
								1	1		390077
12	Hot water 3-way valve	1	1	1	1	1	1	1	1		582001
–	3-way valve									1	389864
13	Actuator for 3-way valve (230 V)	1	1	1	1	1	1	1	1		359913
14	Actuator for 3-way valve (24 V)	1	1	1	1	1	1	1	1		389844
–	Actuator for valve									1	359795
–	Drain pan									1	557251
–	Condensate tray plug									1	385526

## 7.3 CE certificate



Fabricant : **Systemair AC SAS**  
Manufactureur : **Route de Verneuil**  
Hersteller : **27570 TILLIERES SUR AVRE**  
Produttore : **France**  
Fabricante :



**DECLARATION UE DE CONFORMITE / UE DECLARATION OF CONFORMITY**  
**UE-Konformitätserklärung / Dichiarazione di conformità UE /**  
**Declaración UE de conformidad**

### PAW-FC

**Model : see model in page 2**

**Nous déclarons sous notre responsabilité que les produits désignés dans la présente notice sont conformes aux dispositions des directives UE énoncées ci- après et aux législations nationales les transposant.**

*Under our own responsibility, we declare that the product designated in this manual comply with the provisions of the EU directives listed hereafter and with the national legislation into which these directives have been transposed.*

*Wir erklären unsere Verantwortung, dass die in diesem Handbuch beschriebenen Produkte Sind mit EU Richtlinien Ci - nach und nationalen Rechtsvorschriften entsprechen sie.*

*Dichiariamo sotto la nostra responsabilità che i prodotti descritti in questo manuale sono conformi ci direttive UE - legislazioni nazionali e dopo li.*

*Declaramos bajo nuestra responsabilidad que los productos descritos en este manual son conformes a las directivas UE anunciadas y las legislaciones nacionales y después.*

**2006/42/CE DIRECTIVE MACHINES**

*Machinery directive  
Direttiva machine*

*Richtlinie maschinen  
Directiva maquinas*

**2014/30/UE DIRECTIVE COMPATIBILITE ELECTROMAGNETIQUE**

*Electromagnetic compatibility directive  
Direttiva bassa tensione*

*Richtlinie elektromagnetische verträglichkeit  
Directiva compatibilidad electromagnetica*

**2011/65/EU DIRECTIVE RoHS**

*RoHS directive  
Direttiva RoHS*

*Richtlinie RoHS  
Directiva RoHS*

**Et que les paragraphes suivants des normes harmonisées ont été appliqués.**

*And that the following paragraphs of the harmonised standards have been applied.*

*Und dass die folgenden Paragraphen der vereinheitlichten Normen Angewandt wurden.*

*E che sono stati applicati i seguenti paragrafi delle norme armonizzate.*

*Y que se han aplicado los siguientes apartados de las normas armonizadas.*

**EN 60 335-1 : 2012**

**EN 55 014-1 : 2006 +A1, A2**

**EN 61 000-3-3 : 2013**

**EN 60 335-2-40 : 2003 +A1, A2, A11, A12, A13**

**EN 55 014-2 : 1997 +A1, A2**

**EN 60 335-2-30 : 2009 +A11**

**EN 61 000-3-2 : 2014**

**La documentation technique est disponible auprès du fabricant.**

*The technical documentation is available at the manufacturer.*

*Die technische Dokumentation ist beim Hersteller erhältlich.*

*La documentazione tecnica è disponibile presso il produttore.*

*Solicite la información tecnica al fabricante.*

Tillières-sur Avre, 27570 - FRANCE

02/05/19

Patrick Bernard

Quality Manager

**FAN COILS Model / Description**

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Systemair AC SAS – Route de Verneuil – 27570 Tillières-sur-Avre – Tél +33(0)232 606 100 – Fax +33(0)232 325 513 – [www.systemair.com](http://www.systemair.com)

Continued on next page



Model	Description
PAW-FC-D11-1	PAW-FC-D11-1.HN.2P.L.G2.IP
PAW-FC-D11-1-R	PAW-FC-D11-1-R.HN.2P.R.G2.IP
PAW-FC-D11-1-V2	PAW-FC-D11-1V2.HN.2P.L.G2.2W.IP
PAW-FC-D11-1-V2-R	PAW-FC-D11-1V2-R.HN.2P.R.G2.2W.IP
PAW-FC-D11-1-V3	PAW-FC-D11-1V3.HN.2P.L.G2.3W.IP
PAW-FC-D11-1-V3-R	PAW-FC-D11-1V3-R.HN.2P.R.G2.3W.IP
PAW-FC-D15-1	PAW-FC-D15-1.HN.2P.L.G2.IP
PAW-FC-D15-1-R	PAW-FC-D15-1-R.HN.2P.R.G2.IP
PAW-FC-D15-1-V2	PAW-FC-D15-1V2.HN.2P.L.G2.2W.IP
PAW-FC-D15-1-V2-R	PAW-FC-D15-1V2-R.HN.2P.R.G2.2W.IP
PAW-FC-D15-1-V3	PAW-FC-D15-1V3.HN.2P.L.G2.3W.IP
PAW-FC-D15-1-V3-R	PAW-FC-D15-1V3-R.HN.2P.R.G2.3W.IP
PAW-FC-D24-1	PAW-FC-D24-1.HN.2P.L.G2.IP
PAW-FC-D24-1-R	PAW-FC-D24-1-R.HN.2P.R.G2.IP
PAW-FC-D24-1-V2	PAW-FC-D24-1V2.HN.2P.L.G2.2W.IP
PAW-FC-D24-1-V2-R	PAW-FC-D24-1V2-R.HN.2P.R.G2.2W.IP
PAW-FC-D24-1-V3	PAW-FC-D24-1V3.HN.2P.L.G2.3W.IP
PAW-FC-D24-1-V3-R	PAW-FC-D24-1V3-R.HN.2P.R.G2.3W.IP
PAW-FC-D28-1	PAW-FC-D28-1.HN.2P.L.G2.IP
PAW-FC-D28-1-R	PAW-FC-D28-1-R.HN.2P.R.G2.IP
PAW-FC-D28-1-V2	PAW-FC-D28-1V2.HN.2P.L.G2.2W.IP
PAW-FC-D28-1-V2-R	PAW-FC-D28-1V2-R.HN.2P.R.G2.2W.IP
PAW-FC-D28-1-V3	PAW-FC-D28-1V3.HN.2P.L.G2.3W.IP
PAW-FC-D28-1-V3-R	PAW-FC-D28-1V3-R.HN.2P.R.G2.3W.IP
PAW-FC-D40-1	PAW-FC-D40-1.HN.2P.L.G2.IP
PAW-FC-D40-1-R	PAW-FC-D40-1-R.HN.2P.L.G2.IP
PAW-FC-D40-1-V2	PAW-FC-D40-1V2.HN.2P.L.G2.2W.IP
PAW-FC-D40-1-V2-R	PAW-FC-D40-1V2-R.HN.2P.R.G2.2W.IP
PAW-FC-D40-1-V3	PAW-FC-D40-1V3.HN.2P.L.G2.3W.IP
PAW-FC-D40-1-V3-R	PAW-FC-D40-1V3-R.HN.2P.R.G2.3W.IP
PAW-FC-D55-1	PAW-FC-D55-1.HN.2P.L.G2.IP
PAW-FC-D55-1	PAW-FC-D55-1-R.HN.2P.R.G2.IP
PAW-FC-D55-1-V2	PAW-FC-D55-1V2.HN.2P.L.G2.2W.IP
PAW-FC-D55-1-V2-R	PAW-FC-D55-1V2-R.HN.2P.R.G2.2W.IP
PAW-FC-D55-1-V3	PAW-FC-D55-1V3.HN.2P.L.G2.3W.IP
PAW-FC-D55-1-V3-R	PAW-FC-D55-1V3-R.HN.2P.R.G2.3W.IP
PAW-FC-D65-1	PAW-FC-D65-1.HN.2P.L.G2.IP
PAW-FC-D65-1-R	PAW-FC-D65-1-R.HN.2P.R.G2.IP
PAW-FC-D65-1V2	PAW-FC-D65-1V2.HN.2P.L.G2.2W.IP
PAW-FC-D65-1V2-R	PAW-FC-D65-1-V2-R.HN.2P.R.G2.2W.IP
PAW-FC-H150	PAW-FC-H150.2P.HL/ER.G3.IP
PAW-FC-H150V2	PAW-FC-H150V2.2P.HL/ER.G3.2W.IP
PAW-FC-H150V3	PAW-FC-H150V3.2P.HL/ER.G3.3W.IP
PAW-FC-D90-1	PAW-FC-D90-1.HN.2P.L.G2.IP
PAW-FC-D90-1-R	PAW-FC-D90-1-R.HN.2P.R.G2.IP
PAW-FC-D90-1V2	PAW-FC-D90-1V2.HN.2P.L.G2.2W.IP
PAW-FC-D90-1V2-R	PAW-FC-D90-1V2-R.HN.2P.R.G2.2W.IP
PAW-FC-D90-1V3	PAW-FC-D90-1V3.HN.2P.L.G2.3W.IP
PAW-FC-D90-1V3R	PAW-FC-D90-1V3-R.HN.2P.R.G2.3W.IP



**Notes:**

· This document is valid from May 2019. · We reserve the right to make technical changes without notice. · No guarantee for completeness and accuracy of the information.  
· The printed colours of the equipment may differ from the actual device colours. · Copying in full or in parts is prohibited.

