



Waterside Fancoil Units Type PWX



Read the instructions prior to performing any task

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Original Instructions

General information

About this manual

This operating and installation manual enables operating or service personnel to correctly install the waterside fancoil unit and to use it safely and efficiently.

This operating and installation manual is intended for use by fitting and installation companies, in-house technicians, technical staff, properly trained persons, and qualified electricians or air conditioning technicians.

It is essential that these individuals read and fully understand this manual before starting any work. The basic prerequisite for safe working is to comply with the safety notes and all instructions in this manual.

The local regulations for health and safety at work and the general safety regulations for the area of application of the ventilation unit also apply.

This manual must be given to the system owner when handing over the system. The system owner must include the manual with the system documentation. The manual must be kept in a place that is accessible at all times.

Illustrations in this manual are mainly for information and may differ from the actual design.

Other applicable documentation



- TROX Fancoil technical schedule
- Project-specific documents (if any)

TROX Technical Service

To ensure that your request is processed as quickly as possible, please keep the following information ready:

- Product name
- TROX order number & position No.
- Delivery date
- Brief description of the fault

TROX Order No. and POS. number can be found on the label attached to each unit (see example below). Definition of the PWX order code can be found within IOM appendix: appendix: [PWX Order code](#)

Order: 100048874	Pos. 0010/0010	CE
Item:-PWH-V2.001_V2614792		
PWH-V2-6-F10-L_25A-234-CTE-S-00X216		
Operator: <input type="text"/>		
Drawing Issue: <input type="text"/>		
Date: <input type="text"/>		
		
21000488740010	FCU/03/35	
TROX UK LTD. Caxton Way, Thefford, Norfolk, IP24 3SQ Tel: +44 (0)1842 754545		WEIGHT 90 Kg Year 2022

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Limitation of liability

The information in this manual has been compiled with reference to the applicable standards and guidelines, the state of the art, and our expertise and experience of many years.

The manufacturer does not accept any liability for damages resulting from:

- Non-compliance with this manual
- Incorrect use
- Operation or handling by untrained individuals
- Unauthorised modifications
- Technical changes
- Use of non-approved replacement parts

The actual scope of delivery may differ from the information in this manual for bespoke constructions, additional order options or as a result of recent technical changes.

The obligations agreed in the order, the general terms and conditions, the manufacturer's terms of delivery, and the legal regulations in effect at the time the contract is signed shall apply.

We reserve the right to make technical changes.

Defects liability

For details regarding defects liability please refer to Section 7, Warranties, of the TROX UK Ltd Terms and Conditions of sale. Terms and Conditions of Sale are available at www.troxuk.co.uk

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1.0 PWX unit overview

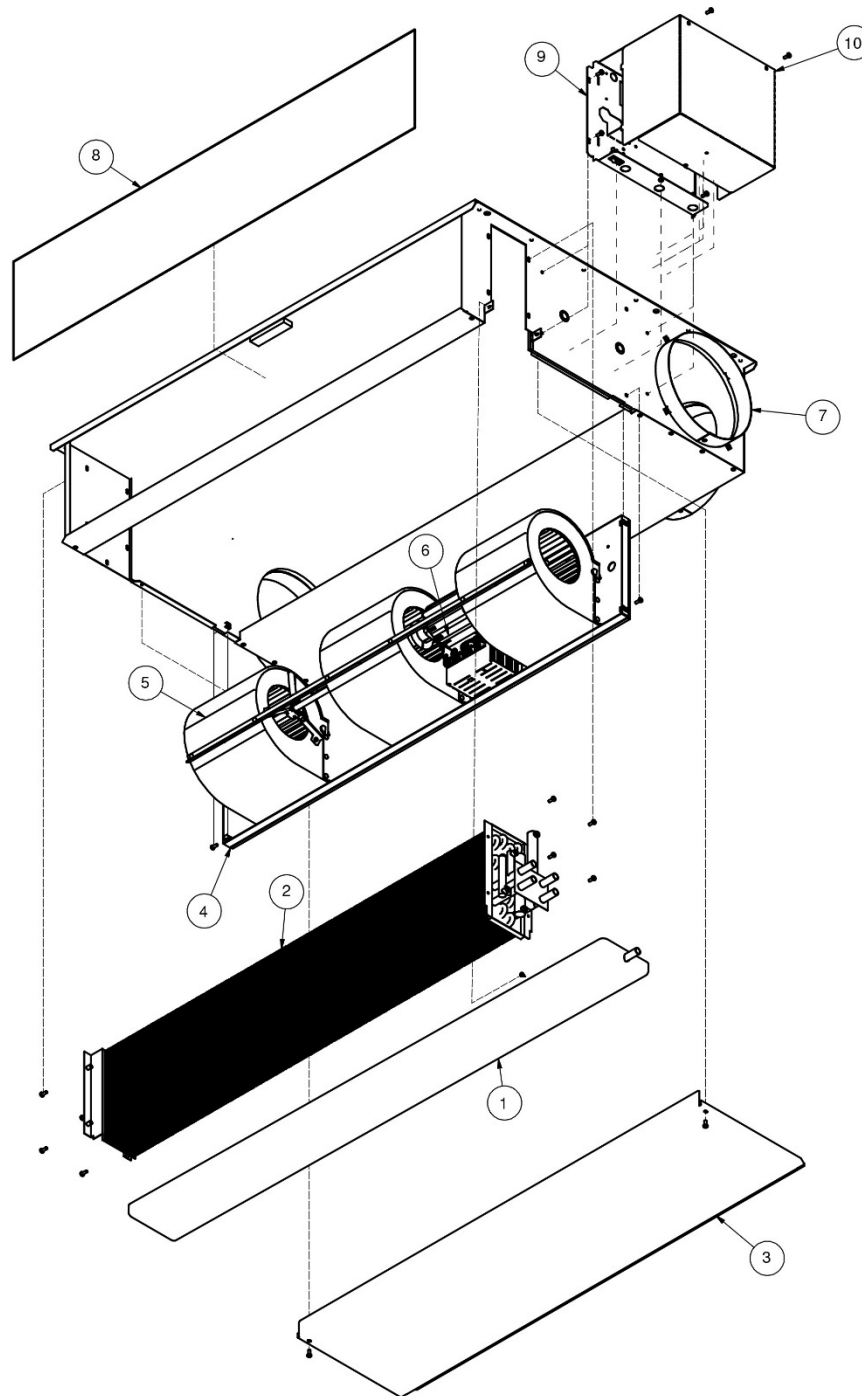


Fig 1: Waterside fancoil unit

- | | | | |
|---|----------------------|---|---------------------------------|
| ① | Condensate drip tray | ⑥ | Motor |
| ② | Heat exchanger | ⑦ | Spigot |
| ③ | Fan access panel | ⑧ | Inlet air filter |
| ④ | Fan deck | ⑨ | Controls enclosure (base) |
| ⑤ | Fan | ⑩ | Controls enclosure access panel |

2.0 Safety

2.1 Symbols used in this manual

Safety notes

Symbols are used in this manual to alert readers to areas of potential hazard. Signal words express the degree of the hazard. Comply with all safety instructions and proceed carefully to avoid accidents, injuries and damage to property.



DANGER!

Imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING!

Potentially hazardous situation which, if not avoided, may result in death or serious injury.



CAUTION!

Potentially hazardous situation which, if not avoided, may result in minor or moderate injury.



NOTICE!

Potentially hazardous situation which, if not avoided, may result in property damage.



ENVIRONMENT!

Environmental pollution hazard.

Safety notes as part of instructions

Safety notes may refer to individual instructions. In this case, safety notes will be included in the instructions and hence facilitate following the instructions. The above listed signal words will be used.

Example:

1. ▶ Untighten the screw

2. ▶



CAUTION!

Danger of finger entrapment when closing the lid.

Be careful when closing the lid.

3. ▶ Tighten the screw

Additional markers

In order to highlight instructions, results, lists, references and other elements, the following markers are used in this manual:

Marker	Explanation
—▶ 1., 2., 3. ...	Step-by-step instructions
⇒	Results of actions
↪	References to sections in this manual and to other applicable documents
■	Lists without a defined sequence
[Switch]	Operating elements (e.g. push buttons, switches), display elements (e.g. LEDs)
'Display'	Screen elements (e.g. buttons or menus)

2.2 Equipment use

2.2.1 Correct use

Waterside fancoil units are used for the air conditioning of internal spaces such as offices. Functions of the waterside fancoil Type PWX:

- Ventilation
- Heating and/or cooling

Type PWX is designed for internal horizontal installation behind false ceilings or freely suspended from the structural soffit (exposed). The unit has to be properly installed by competent, qualified operatives.

Correct use also involves complying with all the information provided in this manual. Any use that goes beyond the correct use or any different use of the unit is regarded as incorrect use.

2.2.2 Incorrect use



WARNING!

Danger due to incorrect use!

Incorrect use of the unit can lead to dangerous situations.

Incorrect use includes:

- Any use that is not described in this operating manual.
- Operation that does not comply with the technical data.
- Modifying of the unit by others, tampering with the unit.
- Use, installation, operation, maintenance or repair other than described in this manual.
- Having work carried out by unqualified individuals.
- Use of non-genuine replacement parts or accessories, whose quality and function are not equivalent to those of the original parts.
- Operation in rooms with explosive gases or gas mixtures.

- Operation in rooms where the supply or extract air contains particles that are conductive, aggressive corrosive, combustible or hazardous to health.
- Operation in rooms where the humidity is permanently high (> 60%).
- Operation outdoors.
- Use for enforced ventilation.
- Operation without return air filters.

2.3 Safety signs

The following symbols and signs are found on the unit. They apply to the very location where they are found.

Electrical voltage

Hazardous electrical voltage that is present in the ventilation unit. Only skilled qualified electricians are allowed to work on parts of the fancoil unit marked with this symbol. Such work must be carried out only by skilled qualified electricians.



Controls access panel

Hazardous electrical voltage that is present in the ventilation unit. Only skilled qualified electricians are allowed to work on parts of the fancoil unit marked with this symbol. Such work must be carried out only by skilled qualified electricians.



2.4 Residual risks

2.4.1 Electric current

! DANGER!

Danger of death due to electric current!

Danger of electric shock! Do not touch any live components!

- Have work on the electrical system carried out only by skilled qualified electricians.
- If the insulation is damaged, disconnect the power supply immediately and have the insulation repaired.
- Before you start working on electric systems and equipment, switch off the supply voltage and secure it against being switched on accidentally. Comply with the 5 safety rules:
 - Disconnect.
 - Secure it against being switched on accidentally.
 - Ensure that no voltage is present.
 - Connect to the earth; short circuit connection
 - Cover nearby parts that carry a voltage or install barriers.
- Do not bypass / disable any circuit breakers. Maintain the correct current rating when you replace a circuit breaker.
- Ensure that live parts do not come into contact with moisture. Moisture can cause a short circuit.

2.4.2 Dirt and objects lying around

! CAUTION!

Risk of injury from falling as a result of dirt or objects lying around!

Dirt and objects lying around can lead to the risk of slipping and tripping. Injuries can be caused by falling.

- Work areas should always be kept clean.
- Objects that are no longer required should be removed from the work area, particularly those that are near the floor.
- Tripping hazards that cannot be avoided should be marked with yellow and black marking tape.

2.4.3 Rotating parts

! WARNING!

Risk of injury from rotating parts!

Rotating parts in the fan can cause serious injuries.

- Do not reach into or handle the moving impeller wheel during operation.
- Do not open inspection access doors and covers during operation.
- Ensure that the impeller wheel is not accessible during operation.
- Observe the run-down time! Check that no parts are moving before you open an inspection access door or cover.
- Switch off the unit and secure it against being switched back on again before starting any work on moving fan components. Wait until all parts have come to a standstill.

2.4.4 Hygiene

! CAUTION!

Health risk due to hygiene!

When the unit is not used for several weeks, bacteria and germs may start growing in the air filter and in the heat exchanger.

- Change the air filters and clean the heat exchanger after lengthy idle periods.
- Change filters and clean the heat exchanger at the recommended intervals.

2.4.5 Tools

! CAUTION!

Risk of injury as a result of the negligent handling of tools!

Negligent handling of tools can lead to crushing or cuts.

- Tools must be handled carefully and as intended.
- The weight must be considered when transporting tools.
- Protective gloves and safety shoes should be worn.

2.4.6 Unsuitable installation location



WARNING!

Risks caused by an unsuitable installation location!

Installing the unit in an unsuitable location can lead to dangerous situations.

- The waterside fancoil unit should be installed in a thermally insulated, low-leakage building.
- Frost free and dry installation location.
- Install the unit in a manner to protect the unit from being tampered with by unauthorised individuals.
- The unit must remain accessible for maintenance and cleaning.

2.5 Qualified staff



WARNING!

Danger of injury or risk of damage to property due to insufficiently qualified individuals!

Insufficiently qualified individuals are not aware of the risks involved in working with the fancoil unit and are hence likely to put themselves or others into danger, causing severe or fatal injuries.

- Have any work carried out only by qualified personnel.
- Keep insufficiently qualified individuals away from the work area.

The work described in this manual has to be carried out by individuals with the qualification, training, knowledge and experience described below:

Facility manager

Facility managers are trained individuals who understand any potential hazards related to the work under consideration, and who recognise and avoid any risks involved. Facility managers must not carry out any jobs beyond regular operation unless explicitly stated in this manual and unless the system owner has specifically agreed to them.

Training to a facility manager is provided by the HVAC contractor when the system is handed over. A facility manager's tasks include cleaning the unit, performing functional tests and regular checks, and carrying out maintenance and adjustment work.

HVAC technician

HVAC technicians are individuals who have sufficient professional or technical training in the field they are working in to enable them to carry out their assigned duties at the level of responsibility allocated to them and in compliance with the relevant guidelines, safety regulations and instructions.

HVAC technicians are individuals who have in-depth knowledge and skills related to HVAC systems; they are also responsible for the professional completion of the work under consideration.

HVAC technicians are individuals who have sufficient professional or technical training, knowledge and actual experience to enable them to work on HVAC systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Network administrator

Network administrators design, install, configure and maintain the IT infrastructure in companies or organisations.

Skilled qualified electrician

Skilled qualified electricians are individuals who have sufficient professional or technical training, knowledge, experience and qualifications to relevant local wiring regulations to enable them to work on electrical systems, understand any potential hazards related to the work under consideration, and recognise and avoid any risks involved.

Any work has to be carried out by individuals who can be expected to carry out their assigned duties reliably. Individuals whose reaction time is delayed due to alcohol, drugs or other medication must not carry out any work.

2.6 Personal protective equipment

2.6.1 Description of personal protective equipment

Personal protective equipment is equipment that protects the user against health or safety risks at work.

Personal protective equipment must be worn for various types of work; the protective equipment required is listed in this manual together with the description of each type of work.

Industrial safety helmet

Industrial safety helmets protect the head from falling objects, suspended loads, and the effects of striking the head against stationary objects.



Industrial safety glasses

Industrial safety glasses protect the eyes from materials or debris and the effects of striking the head against stationary objects.



Protective gloves

Protective gloves protect hands from friction, abrasions, punctures, deep cuts, and direct contact with hot surfaces.



Safety shoes

Safety shoes protect the feet from crushing, falling parts and prevent slipping on a slippery floor.



Protective clothing

Protective clothing is close-fitting, with low tear resistance, close-fitting sleeves, and no projecting parts.



2.7 Behaviour in the event of accidents

Preventative measures

- Always be prepared for accidents or fire!
- Keep first aid equipment (first aid kit, blankets, etc.) and fire extinguishers close at hand.
- Familiarise personnel with accident reporting, first aid and rescue equipment.
- Keep access paths for rescue vehicles clear.

Measures in the event of accidents

- Trigger an emergency stop immediately, and isolate power supply to the fancoil unit.
- Implement first aid measures.
- Rescue individuals from the hazardous area.
- Inform the responsible person at the operation site.
- Notify the emergency services.
- Clear access paths for rescue vehicles.

3.0 Transport and storage

3.1 Delivery of the fancoil unit

3.1.1 Complete and partial units

Upon delivery, check the fancoil unit for transport damage and completeness, [Chapter 3.2 'Delivery check'](#).

The fancoil unit is shipped fully assembled or, for units with pre-wired actuators and/or condensate pumps, with the individual components packaged with the fancoil for site installation. All loose components will be identified on the pallet labelling.



External components may be shipped un-assembled to protect them from getting damaged during the transportation and installation process. These components have to be properly installed, in accordance with the manufacturer's installation instructions by others before energising the unit.

3.1.2 Symbols on the packaging

The packaging carries the following marks and symbols. Be sure to follow them when you are moving the unit.



The packaging may also carry other symbols, notes, and information. These must also be followed.

The contents of the delivery and packaging materials are not designed to support additional weight.



The contents of the delivery and packaging materials are not designed to prevent the ingress of moisture.



3.2 Delivery check



File a complaint as soon as you detect any damage. Claims for compensation can be filed only within the complaint period. Refer to TROX Terms and conditions of sale.

Check delivered items immediately after arrival for transport damage and completeness against the delivery documentation. In case of any damage or an incomplete shipment, contact the shipping company and TROX immediately.

If any parts are missing, have the driver confirm them on the consignment note. For any claims it is necessary that you follow the procedure below. In each of the following cases do contact TROX before you start installing a unit.

The packaging has been damaged

- Unpack the goods in the presence of the person who has delivered them and have them confirm the damage on the shipping order.
- Photograph the damage.
- Report the damage to TROX immediately in writing.

No external damage to packaging, contents damaged

- Photograph the damage.
- Report the damage to TROX immediately in writing.

3.3 Moving packages

3.3.1 Safety notes regarding transport

Improper transport equipment



DANGER!

Danger of death due to suspended loads!

Falling loads may cause serious injury or death therefore:

- Never walk under suspended loads.
- Only move loads under supervision.
- Observe the specifications for the intended lifting points.
- Do not attach the lifting gear to protruding parts or lugs on attached components.
- Ensure that the lifting gear is secure.
- Only use approved hoisting devices and lifting gear with sufficient load-bearing capacity.
- Do not use any damaged or worn lifting gear.
- Do not place ropes or belts near sharp edges or corners; do not knot or twist.
- Secure and permanently fix the load to the building structure before leaving the workplace

Unbalanced loads and centre of gravity



WARNING!

Risk of injury from falling or toppling loads!

Loads may be unbalanced, i.e. the centre of gravity may not be obvious. If the load is not properly attached to the lifting equipment, it may topple and fall. Falling or toppling loads can cause serious injuries.

- Lift any load carefully and keep an eye on it to see whether it will stay in place. If required, change the lashing point(s).
- Use additional means to secure the unit to the lifting gear, e.g. ratchet straps (by others).
- Keep the unit secured against shifting and falling until installation is complete.

Sharp edges, sharp corners and thin sheet metal parts



CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts of the heat exchanger or of the cooling or heating coil may cause cuts or grazes.

- Be careful when working on these components.
- Wear protective gloves, safety shoes, hard hat and safety glasses.

Damage to good being moved



Risk of damage to property due to the incorrect handling or lifting of units!

If you handle or move packages incorrectly, they may topple or fall. This can cause considerable damage to property.

- Do not put down packages hard and do not knock against them with force. Watch out for protruding parts.
- When you are moving units around the building, be careful that the unit or protruding parts are not damaged by the lifting gear.

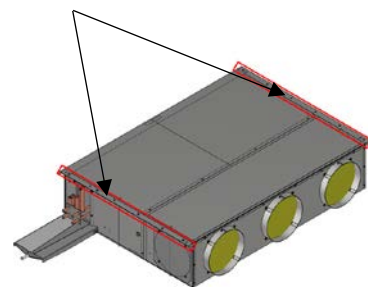
of slings do not damage any protruding parts of the package.

Pallets may contain more than 1 unit so total weight of the package should be verified prior to lifting.

Distribution

Units should be transported from the unloading area to the installation area in the delivery packaging. Mechanical handling equipment used to unload the fancoil from its delivery packaging should be suitably rated for the weight of the unit.

DO NOT lift the fancoil unit using the drip tray, valve assemblies, spigots or inlet openings as this may result in damage to the unit. If lifting by hand, use only the flanges along each side of the FCU;



Product weight

Unit size / designation	Weight (dry) [kg]
PWX-60	35
PWX-90	50
PWX-120	63
PWX-150	73
PWX-180	86
PWX-205	96

- If possible, take the unit in its transport packaging up to the installation location.
- Use only lifting and transport gear designed for the required load.
- Always secure the load against tipping and falling.
- Do not move bulky items just by yourself. Get help to prevent injuries and damage. Weight limit for single person manual handling is generally <25kg.

Storage Area

Please note:

- The area is internal and will not be affected by the weather.
- The surface where the equipment is to be placed is flat.
- The equipment will be raised from the floor to allow airflow and stop the risk of water ingress.
- The area is well covered and protected.
- The area is well ventilated and has no risk of high humidity.
- The area is clean & dust-free.

Storage

Please note:

- Units must not have materials stacked / stored on them.
- All ancillaries must be placed in a safe and secure location, so items do not go missing or get damaged.
- Store the unit only in its original packaging.
- Pipework caps are not removed.
- Ductwork connections are covered to stop the ingress of dirt and foreign objects.
- Protect the unit from the effects of weather.
- Protect the unit from humidity, dust and contamination.
- Protect the unit from vibration.
- Storage temperature: 5°C to 35 °C.
- Relative humidity: 75 % max., no condensation.
- Maximum storage period: 12 months.

Packaging

Properly dispose of packaging material, using recycling facilities where available.

4.0 Installation

Personnel:

- HVAC technician

Protective equipment:

- Industrial safety helmet
- Protective gloves
- Safety shoes
- Safety glasses



CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes, hard hat and safety glasses.



DANGER!

Danger of death due to suspended loads!

Falling loads may cause serious injury or death therefore:

- Never walk under suspended loads.
- Only move loads under supervision.
- Observe the specifications for the intended lifting points.
- Do not attach the lifting gear to protruding parts or lugs on attached components.
- Ensure that the lifting gear is secure.
- Only use approved hoisting devices and lifting gear with sufficient load-bearing capacity.
- Do not use any damaged or worn lifting gear.
- Do not place ropes or belts near sharp edges or corners; do not knot or twist.
- Secure and permanently fix the load to the building structure before leaving the workplace



WARNING!

Risk of injury from falling or toppling loads!

Loads may be unbalanced, i.e. the centre of gravity may not be obvious. If the load is not properly attached to the lifting equipment, it may topple and fall. Falling or toppling loads can cause serious injuries.

- Lift any load carefully and keep an eye on it to see whether it will stay in place. If required, change the lashing point(s).
- Use additional means to secure the unit to the lifting gear, e.g. ratchet straps (by others).
- Keep the unit secured against shifting and falling until installation is complete.

4.1 General installation information

The fancoil unit and attachments are to be installed and fixed to the building structure, horizontally. Suspension components for installing the fancoil unit are not included in the supply package, but have to be selected by others and fit for the project specific installation.

4.1.1 Before installation

Before you install the unit, the following should be checked;

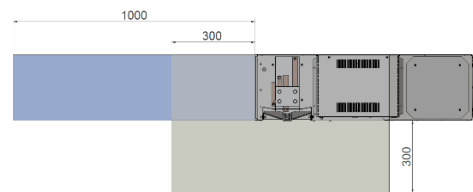
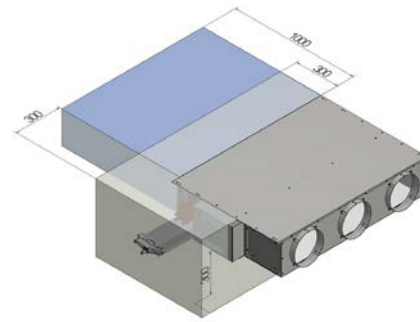
- The slab is ready, flat, level & can bear the weight of the installation and bracketry.
- If being installed above an existing ceiling, ensure that there is enough space through the ceiling grid to install the unit and attachments.
- The room/area is dry, watertight, clean and dust-free. If there is dust/construction work, then the unit openings should be protected from contamination. In this case you have to ensure that the unit cannot be started.
- Ensure that all components are clean before you install them. If necessary, clean them thoroughly. If you have to interrupt the installation procedure, protect all openings from the ingress of dust or moisture.
- Installation of the unit must not impede the installation of the condensate trap/pipework and the pipework run vs. fall required can be achieved (refer to local regulations for minimum fall).
- All connections, pipework/ductwork, etc., can be independently supported and not supported by the unit. The best practice is to install self-supporting brackets prior to the connection of the unit.
- There is enough space allowed around and above/below the unit once installed to perform maintenance and remove components (refer to minimum maintenance access).
- If the unit is mounted at high level, confirm that there is a safe manner to remove the parts and components and that there is enough space at high level and at the floor level to allow this.

4.1.2 Installation information

- Install the fancoil unit in a thermally insulated, low-leakage building, free from frost and dry.
- Install the unit only on structural elements that can carry the load of the unit using only certified fixing systems.
- The underside of the unit must remain completely accessible for maintenance and cleaning.
- Ensure sufficient clearance around the FCU to facilitate future inspection / maintenance. A recommended 300mm maintenance clearance below the FCU, and around controls enclosure should be observed.

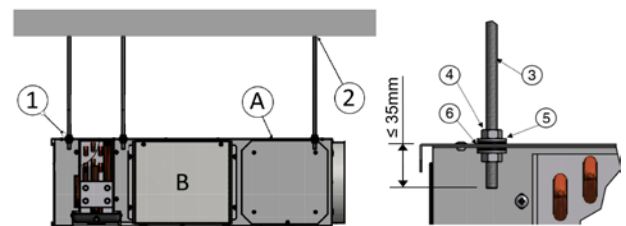
4.1.3 Minimum maintenance access

To allow clear maintenance access to the fancoil, a minimum 300mm zone should be maintained in front of the inlet, below the fan access panel and in front of the control enclosure. Failure to observe this access will restrict future maintenance of the fancoil.



For correct air entry conditions, a minimum of 1000mm should be provided on the inlet of the fancoil to allow free passage of air into the unit. Failure to observe this access will restrict airflow into the fancoil increasing noise level and decreasing electrical efficiency.

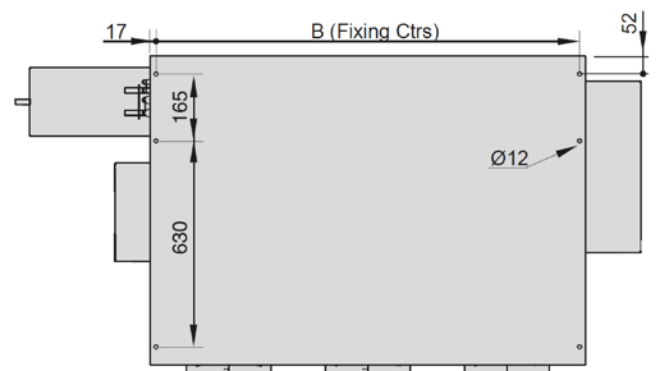
4.2 Installing the fancoil unit



- | | |
|----------------------------------|-------------------------------|
| Ⓐ Fancoil unit | ③ Ø10 mm drop rod |
| Ⓑ Controls enclosure | ④ Lock nut |
| ① Ø12 mm pre-formed fixing holes | ⑤ "C" washer (Ø25mm) |
| ② Certified anchor | ⑥ Rubber washer (Ø28mm x 3mm) |

Installation

Each unit is provided with 6x Ø12 mm pre-formed holes within the top flange (3 per side). All fixing locations must be used to ensure correct distribution of weight.



Unit size / designation	Fixing Centres 'B' [mm]	Weight (dry) [kg]
PWX-60	634	35
PWX-90	934	50
PWX-120	1234	63
PWX-150	1534	73
PWX-180	1834	86
PWX-205	2084	96

Weights exclude valve assemblies or free-issue equipment

- ▶ Using a certified fixing system, suitable for the building substrate and rated for the unit weight, install 6x M10 drop rods in the correct positions to suit the unit size. The length of the drop rod should be ≤ 35mm below the top of the fancoil casing. Install lock nut ④ on to the drop rods.
- ▶ Using suitable access equipment to lift the fancoil and support its weight, manoeuvre the fancoil into position, aligning the holes within the fancoil casing with the installed drop rods.
- ▶ Place the rubber washer ⑥ and "C" washer ⑤ over the holes within the fancoil casing at each mounting point before lifting the fancoil onto the drop rods. With the drops passing through the fancoil casing, install rubber washer ⑥, "C" washer ⑤ and lock nut ④ to each drop rod making sure the nut is fully engaged with the drop rod with at least 5mm of threaded rod visible below the nut.
- ▶ Slowly lower the access equipment below the fancoil and allow the weight of the unit to be taken by the lock nuts. Correct the height and level of the fancoil by adjusting the lower lock nut up or down as necessary. The unit must be level in all planes. A slight decline (1° or 2°) towards the condensate drip tray connection is allowed.
- ▶ When the unit is level, tighten the top lock nut down onto the fancoil casing ensuring the lower lock nut is secured against moving.
- ▶ Protect the fancoil openings with suitable plastic film or protective wrapping.



Contamination

If there is a gap between installation and commissioning of the unit, the following measures should be taken in order to avoid cumbersome cleaning procedures at the time of commissioning;

- Cover all openings of the unit, e.g. with plastic film, to prevent the ingress of dust, including the drip tray.
- Remove the filters and store them in a dry place protected from dust; cover the filter openings.
- Switch off the power supply to the unit.

4.3 Installing fancoil attachments

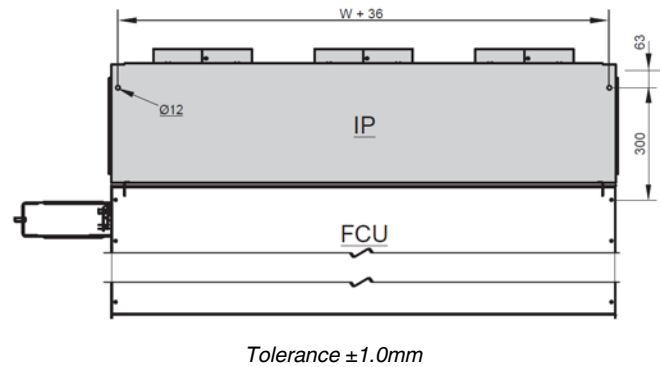
4.3.1 Inlet Plenum (IP)



Inlet plenums can be used to provide a sealed connection to the fancoil from return air diffusers or to connect fresh air from the AHU.

Installation

Each unit is provided with 2x Ø12 mm pre-formed holes within the top flange (1 per side) suitable for M10 threaded rods and 6 fixings holes to facilitate connection to the fancoil (3 per side). All fixing locations must be used to ensure correct distribution of weight.



4.3.2 Inlet Attenuator (IA) / Discharge Attenuator (DA)

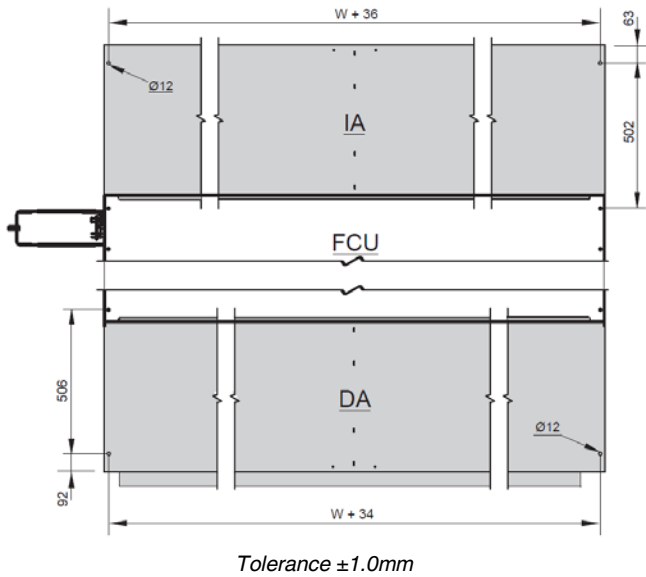


Inlet / discharge attenuators can be used to provide additional attenuation to the inlet or discharge noise generated by the fancoil.

- **Type IA:** Filter from fancoil must be removed and installed at front of IA attachment. 1000mm clearance for air entry must be maintained in front of IA.
- **Type DA** suitable for fancoil units with rectangular spigot only.

Installation

Each unit is provided with 2x Ø12 mm pre-formed holes within the top flange (1 per side) suitable for M10 threaded rods and 6 fixings holes to facilitate connection to the fancoil (3 per side). All fixing locations must be used to ensure correct distribution of weight.



4.3.3 Discharge Attenuator (DAR)

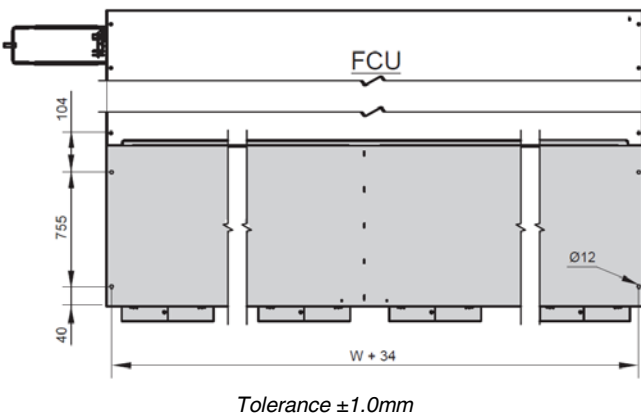


DAR Discharge attenuators are used to provide additional attenuation to the discharge noise generated by the fancoil and provide circular spigots for connection to secondary ductwork.

- **Type DAR** suitable for fancoil units with rectangular spigot only.

Installation

Each unit is provided with 4x $\text{Ø}12$ mm pre-formed holes within the top flange (2 per side) suitable for M10 threaded rods and 6 fixings holes to facilitate connection to the fancoil (3 per side). All fixing locations must be used to ensure correct distribution of weight.



4.3.4 Attachment weights and fixing centres

Unit size / designation	'W' [mm]	Weight [kg]		
		IP	IA/DA	DAR
60	600	12	14	26
90	900	16	19	35
120	1200	21	24	45
150	1500	26	31	57
180	1800	32	38	69
205	2050	37	44	81

4.3.5 Attachment installation

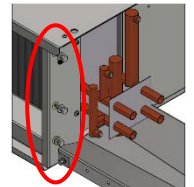


PWX attachment fixings

If the fancoil unit was not supplied with fixings, these must be sourced (by others) before installation can be completed.

- M6 Rivnut (x6)
- M6 x 16 screws/bolts & washers (x6)

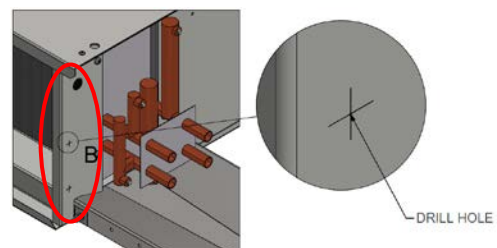
- ▶ Inspect the fancoil unit and ensure any packing materials are removed from the inlet or discharge opening to which the attachment is to be installed. For IA installation, the inlet filter must be removed from the fancoil before installation of the IA attachment. The inlet filter must be installed to the front of the IA when installed.
- ▶ Where the fancoil has been supplied ready for attachment installation, 6No. M6x16 bolts and washers (3 per side) will be installed at the specified attachment point (inlet / discharge).



Remove these screws/washers and store safely as these will be required to connect the attachment to the fancoil.

If the unit is not pre-installed with attachment fixings, the fancoil casing must be modified to accept the attachment.

Locate the 'cross marks' (3 each side) on the inlet or discharge (discharge attachments only suitable for fancoil units with rectangular spigot)



Taking precautions to protect the fancoil (remove inlet filter if necessary), drill each point (3 per side) with hole size to suit M6 rivnut and install M6 rivnuts.

3. ▶ Using a certified fixing system, suitable for the building substrate and rated for the unit weight, install x2 (IP, IA, DA) or x4 (DAR) M10 drop rods in the correct positions to suit the attachment size. The length of the drop rod should be ≤ 35mm below the top of the casing. Install lock nut ④ on to the drop rods.
4. ▶ Using suitable access equipment to lift the attachment and support its weight, manoeuvre the attachment into position, aligning the holes within the casing with the installed drop rods and attachment fixing points on fancoil casing.
5. ▶ Place the rubber washer ⑥ and “C” washer ⑤ over the holes within the attachment casing at each mounting point before lifting the attachment onto the drop rods. With the drops passing through the attachment casing, install rubber washer ⑥, “C” washer ⑤ and lock nut ④ to each drop rod making sure the nut is fully engaged with the drop rod with at least 5mm of threaded rod visible below the nut.
6. ▶ Install the M6x16 screws/washers through the attachment side panel and secure into the rivnuts within the fancoil. Ensure the units are aligned and pushed together to form a seal. The required torque setting for the fixings is 10 Nm.
7. ▶ Slowly lower the access equipment below the attachment and allow the weight to be taken by the lock nuts. Correct the height and level of the attachment by adjusting the lower lock nut up or down as necessary. The unit must be level in all planes.
8. ▶ When the attachment is level, tighten the top lock nut down onto the casing, ensuring the lower lock nut is secured against moving.
9. ▶ Protect the openings with suitable plastic film or protective wrapping.

4.4 Connecting the water pipes

4.4.1 General information

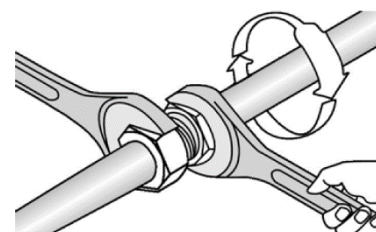
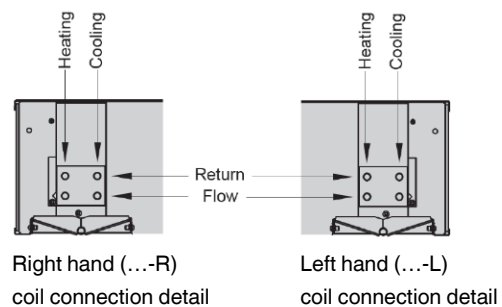
- Review the drawings to understand the pipework layout, pipework size, and valves/ancillaries that will be required to be installed.
- Ensure you have the correct tools and materials, pipework and ancillaries to complete the installation.
- The unit may be supplied with factory installed valve sets. Ensure unions to suit the site pipework system are correct and available.
- If site installation of valve sets is necessary, ensure the unit is protected to prevent damage during installation.
- Control valves, gate valves and safety valves are required; if they are not part of the supply package, they have to be provided by others.

- Drain valves and vent valves are required; if they are not part of the supply package, they have to be provided by others.
- Using the correct brackets, install the pipework up to the FCU with only final connections being required, be careful that do not obstruct the condensate pipework and drip pan that is to be installed later.
- All pipework and connections must be independently supported and not supported by the unit. The best practice is to install self-supporting brackets prior to the connection of the unit.
- Before final connection, ensure that the mains pipework has been flushed, inspected and installation approved by the relevant parties.
- Final connection of the fancoil to the mains system should only be completed following sign off to ensure contaminants from the installation of mains pipework on site are not flushed into the valve assemblies and heat exchanger.
- Using flexible hoses instead of rigid water pipes to connect the heat exchanger will allow adjustment between heat exchanger & mains connections.
- Once complete, connect to the FCU the flow and return pipework. Ensure to keep the valves closed as the Fan Coil unit will need to be pressure tested, flushed, and back flushed.
- Insulate the pipework as necessary.

4.4.2 Heat exchanger connection



Heat exchanger and pipes may easily become damaged. Always use a suitable tool to counter the tightening force in order to prevent any damage.



Tightening the connection

Tighten threaded connections, including valves and lockshields, with a spanner.

Interfaces	Dimensions	Connection options
Heat Exchanger CHW/LTHW connection	Ø15mm or Ø22mm plain copper tails	Compression coupling (rigid) Capillary solder (rigid)
Valve Set (TROX) CHW/LTHW connection	3/4" Euroconus connection	3/4" flat face adaptors for pipe systems with 3/4" swivel nut (option) 3/4" Euroconus x Ø15 mm or Ø22 mm capillary solder fittings (option) 3/4" Euroconus x 1/2 male BSP, taper union fittings (option)
Condensate Drain Drip tray connection	Spigot Ø15mm	Hose (by others)

4.4.3 Installation of condensate drainage

Each fancoil unit is installed with an integral condensate drip tray to facilitate collection of condensed water from the cooling cycle and removal from the unit.

The condensate system can be gravity fed, requiring the correct fall from the fancoil to the collection/discharge point or a pumped system utilising an electronic pump.

- For gravity fed condensate systems, refer to local regulations for guidance on minimum fall to collection/discharge point and ensure pipework installation conforms.
- For systems utilising electronic pumps, install the pump according to the manufacturers literature.
- The condensate pipework must be installed, connected and tested before use.

4.4.4 Filling the heat exchanger



Sub-zero temperatures will damage the heat exchanger!

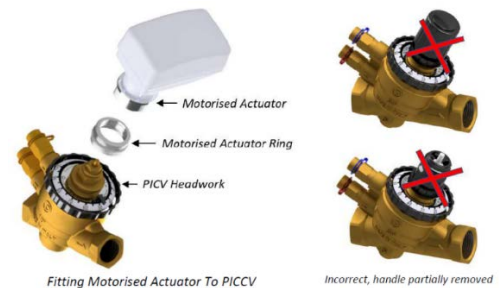
Only fill the heat exchanger if there is no danger of freezing.

Following sign off for the pipework installation, the heat exchanger can be filled and vented.

- Ensure to keep the valves closed as the Fan Coil unit will need to be pressure tested, flushed, and back flushed before opening to the mains pipework system.
- Fill the heat exchanger and vent it. To fill the system, use clean tap water (pH value 6.5 to 9) or a water glycol mixture (max. 30 % glycol). Heat exchangers are fitted with bleed screws for venting.

- Check the system for leaks immediately after filling and then at regular intervals.
- Backflush the heat exchanger, avoiding flushing through the valve sets, until the water is clear. Refer to local regulations / guides for procedure and sign off.
- Following sign off for each FCU, open valves and close bypass.

4.4.5 Actuator head connection (TROX) – Typical



- Do not attempt to fit the actuator if the black handle has not been fully removed.
- Sometimes the lower portion of the handle is too tight to remove by hand, in this case gently use a pair of grips to remove the handle.



WARNING!

THE ACTUATOR MUST BE FITTED TO THE VALVE BEFORE ANY POWER IS APPLIED TO IT.

Damage may occur if the actuator is powered up without being fitted to the valve!

4.5 Connecting the ductwork

4.5.1 General information

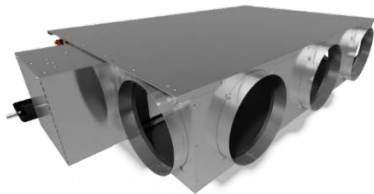
To allow the transfer of conditioned air from the fancoil into the space, each fancoil has an integral supply air plenum, installed with 1 - 7 circular spigots or 1 rectangular spigot to connect out to supply air terminal devices (ATD's), depending on the design requirements.

As a guide, the velocity of air through each spigot should be limited to ≤ 2.5m/s. Installations resulting in duct velocities > 2.5m/s can affect the noise level of the FCU.

- Review the drawings to understand the duct layout, duct size, and if there are any requirements for volume control dampers to be installed within the ducting.
- The plenum should have spigots installed to connect out, via ducting to the ATD's. Check the number and location of spigots against the drawings.

- Install the spiral galvanized ducting, or rectangular if needed, connecting to the fancoil unit out to the location of the supply ATD's.
- Where the use of acoustic flexible connections between the fancoil and ATD's is required, ensure they are installed according to the manufacturer's instructions avoiding compression and sharp bends resulting in higher pressure differential.
- Use brackets and fixings as per requirements to ensure weight of the ductwork is not transferred to the fancoil.
- It is good practice that the ducting is installed in a straight line for a minimum of 3x ØD from the unit before any bends, volume control damper or other devices are installed.
- The ducts are usually connected/fastened with sheet metal screws/clamps and some form of duct mastic/sealant purposefully manufactured for the application to provide an airtight seal.
- All ductwork should be equipotentially bonded. The bonding should be visible on visible ductwork and easily identified.

4.5.2 Fancoil discharge spigots



Connection of the secondary ductwork system to the fancoil unit should be completed by skilled, qualified operatives in accordance with good engineering practices and local standards.

- Ensure all secondary ductwork installations are correctly sized to match the fancoil unit connection size and installed in accordance with DW144 or other local regulations, and should take note of minimum duct bend radii.
- Ductwork lengths should be minimised where possible to limit external pressure to the fancoil unit. Where flexible ducts are used, these should be stretched to ensure expansion of the internal spiral and should be supported along the full length to prevent sagging.

Interfaces	Dimensions	Connection options
FCU discharge	Ø198 mm, Ø248 mm or 198 mm high x 'R'	Spiral ductwork (rigid) Acoustic, flexible ductwork (recommended)

Unit size / designation	Rectangular Spigot length 'R' [mm]	Max. Circular Spigot Qty
PWX-60	498	4
PWX-90	798	4
PWX-120	1098	5
PWX-150	1398	6
PWX-180	1698	6
PWX-205	1948	7



Acoustic ductwork!

The use of 0.5m or 1.0m acoustic flexible ductwork is recommended within the site installation for the reduction of discharge noise and to assist with the coordination of services. Please check the project specification to ensure acoustic ductwork is used where specified.

4.5.3 Ductwork insulation

To ensure that the vapor barrier is maintained, condensation does not form on the cold surfaces of the installation and there is no cold bridging, the supply air from the fancoil should be insulated. In some instances, the return air should be as well.

4.5.4 Discharge spigot modification

Each fancoil unit is delivered with a specific spigot configuration to suit the secondary ductwork configuration. If necessary, additional spigots can be added to the FCU by removing the spigot blanking plates and installing additional spigots.

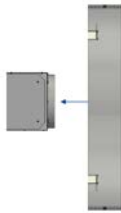
Before working on the fancoil, ensure the unit is stopped and is isolated from the mains power supply. To remove the spigot blanking plate;

1. ▶ Remove the screws from the blanking plate (x4 per plate) and store safely.



2. ▶ Gently pull the blanking plate away from the fancoil casing ensuring the insulation is removed.

3. ▶ Place the new spigot into the opening, aligning the tabs with the holes within the fancoil casing. The short end of the spigot should be inserted into the fancoil

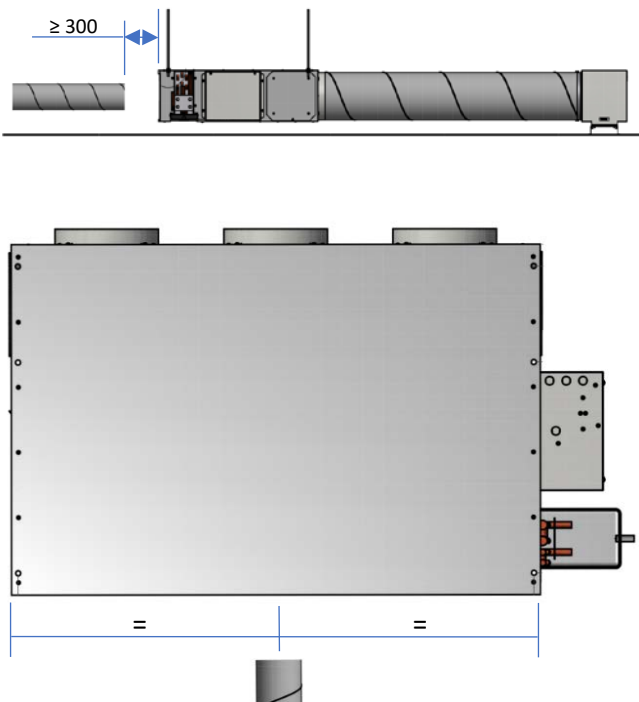


4. ▶ Using the screws removed from the blanking plate, secure the spigot to the fancoil and apply an airtight sealant around the joint between the spigot and fancoil. Allow sufficient time for the sealant to cure before energising the fancoil

If spigot relocation is required, existing spigots and blanking plates can be switched on site. Additional spigots or blanking plates can be ordered from TROX, [↪ Chapter 8 'Replacement Parts List'](#).

4.5.5 Fresh air connection

Where fresh air from the central air handling unit is to be ducted to the back of the fancoil unit (not connecting using inlet plenum accessory) to allow induction through the fancoil, the duct should be installed centrally on both unit height and length with a minimum clearance of 300mm.



The discharge velocity from the fresh air duct should be maintained at ≤ 2.0 m/s.

5.0 Making electrical connections

Personnel:

- Skilled qualified electrician

Protective equipment:

- Industrial safety helmet
- Protective gloves
- Safety shoes
- Safety glasses



DANGER!

Danger of death due to electric current!

Danger of electric shock! Do not touch any live components!

- Have work on the electrical system carried out only by skilled qualified electricians.
- If the insulation is damaged, disconnect the power supply immediately and have the insulation repaired.
- Before you start working on electric systems and equipment, switch off the supply voltage and secure it against being switched on accidentally. Comply with the 5 safety rules:
 - Disconnect.
 - Secure it against being switched on accidentally.
 - Ensure that no voltage is present.
 - Connect to the earth; short circuit connection
 - Cover nearby parts that carry a voltage or install barriers.
- Do not bypass / disable any circuit breakers. Maintain the correct current rating when you replace a circuit breaker.
- Ensure that live parts do not come into contact with moisture. Moisture can cause a short circuit.

General information

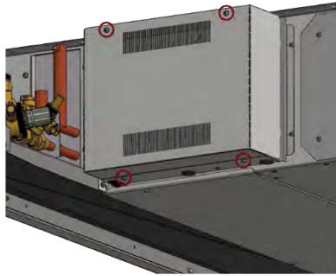
Any cables must be designed for the supply voltage for which they will be used. The length and cross section as well as any contact resistance may increase voltage losses. The power rating of each unit must also be considered.

A skilled qualified electrician has to select the correct cable types and sizes. This job must only be carried out by specialist electrical companies.

- The electrical connection must comply with local wiring regulations and codes of practice. Be sure to comply with BS 7671 IET wiring regulations.
- The connection data can be found on the wiring diagram supplied with each unit.
- Protect any connections from physical damage.
- Use cable glands to secure cables entering the fancoil unit.
- Only skilled qualified electricians are allowed to open the controls access panel. Ensure that the unit is safely isolated before you open the cover to access the terminal connections. Verify there is no voltage present using an approved voltage indicator.
- For units without integral controls from TROX follow the instructions of the control's provider.

5.1 Wiring

- 1. ▶ Take off the control enclosure lid; to do so, loosen the M5 POZI screws on the bottom and remove the M5 POZI screws from the front of the enclosure, then remove the lid. An earth connection to the control panel lid is provided, this can be removed to allow the complete removal of the lid.



- 2. ▶ Connect the fancoil unit to the mains supply according to the wiring diagram which will be included inside the control panel.

Refer to TROX wiring diagram within controls enclosure on each unit. In the event that the wiring diagram cannot be located, please contact TROX who can provide replacement unit specific wiring diagrams.

Use sheathed cable, ensuring the cable is suitably secured and supported (e.g. cable gland). A Ø20mm hole is provided for mains electrical entry to the control enclosure.

- 3. ▶ Reinstall the earth cable connection to the spade connector on the control panel lid then reinstall the lid to the control panel. Ensure all fixings are used and tightened.

5.2 Electric heating



DANGER!

Running or attempting to run the PWX fan coil below the minimum heating airflows detailed is dangerous!



WARNING!

Running type PWX fan coil units below minimum heating cycle volume can result in overheating & risk of fire!

- For safety reasons the minimum design volume (Vmin) must not be lower than the minimum heating cycle volume.
- Control strategy for the heating cycle must allow a minimum 10 min. run-on time to allow the heater element to safely cool at the end of the heating cycle. During this time, the minimum heating cycle volume must be maintained.
- If auto high temperature cut out (HTCO) operates due to temperature over limit, it is recommended that the HTCO be replaced before making the heater element operational again.
- For safety reasons, if the HTCO manual reset operates due to temperature over limit, the HTCO must be replaced before making the heater element operational again.

TROX PWX fancoil units, equipped with an integral electric heater, include Kanthal D (or equivalent) element, magnesium oxide insulation contained within 304 grade stainless steel tube and stainless-steel helical fin surround.

To maintain safe operation, the following features are included as standard;

- High temperature cut out set to ~40°C with auto reset at ~30°C
- Airflow proving via integral PCB or CT switch to prevent heating element activation when fan is stopped
- Variable element output (0-10Vdc required) via TROX supplied solid state thyristor

The **MAXIMUM** heater size and **MINIMUM** volume flow required for each unit size can be found within the table;

Unit size	MAX Heater size [kW]	MIN Volume [l/s]
PWX-60/1	0.8	46
PWX-90/1	1.5	77
PWX-90/2	1.5	108
PWX-120/2	2.0	133
PWX-120/3	2.0	136
PWX-150/3	3.0	159
PWX-180/3	3.0	136
PWX-180/4	3.0	154
PWX-205/4	4.0	246



WARNING!

Where integrated controls are not provided by TROX (control type 0 or F), safety interlocks must be provided by the controls supplier to prevent energising the electric heater where the volume flow falls below the minimum stated.!

- Control strategy for the heating cycle must allow a minimum 10 min. run-on time to allow the heater element to safely cool at the end of the heating cycle. During this time, the minimum heating cycle volume must be maintained.
- The minimum design volume (Vmin) must not be lower than the minimum heating cycle volume.

6.0 Initial commissioning

Personnel:

- Skilled qualified electrician
- HVAC technician

Protective equipment:

- Industrial safety helmet
- Protective gloves
- Safety shoes
- Safety glasses



CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes, hard hat and safety glasses.



DANGER!

Electric shock hazard! Electrical equipment carries a dangerous electrical voltage!

- Only skilled qualified electricians are allowed to work on the electrical system and to connect the unit to the mains
- Isolate the unit from the mains (all phases) and secure the unit against inadvertently being energized on again.
- Verify that no voltage is present using an approved voltage indicator.
- Carry out assembly or connection jobs only as long as no voltage is present.

6.1 Unit inspection

6.1.1 Before initial commissioning:

Once the equipment has been installed and prior to the functional testing and commissioning phase taking place, the following checks should be completed;

General

- Remove protective film, wrapping, if any. Ensure that the unit is clean. If necessary, clean the faces of the inlet filter and heat exchanger and drip tray.
- Inlet filters are installed, clean, and are of the correct grade. Check filters for correct fit and contamination ↪ [‘Checking and replacing the filter’](#). Should the filters have been contaminated even before commissioning, replace them.
- Fan/motor rotates in the correct direction with no obstructions (by hand) to ensure free rotation and to check impeller is not rubbing on the inlet ring or on any part of the scroll housing. Fan, blades, and motors are clean and dust-free.
- Heat exchanger is clean, in good condition, and the fins undamaged.

- Pipework is connected correctly (flow, return, heating, cooling etc.) and does not put stress on the fancoil connections or create vibrations.
- The mains water system has been hydraulically balanced.
- Pipework is insulated, vapor sealed and labelled.
- All valves/control valves, commissioning devices and strainers are installed, and the correct direction and strainers are clean. Ensure actuators are installed before energising.
- Ensure condensate pipework is installed to the correct fall (refer to local regulations or guides). If condensate pumps are installed, ensure these are primed according to the manufacturer’s instructions before energising.

Electrical General

- Unit and components are fully earthed in line with the TROX wiring diagram and earthing has been tested.
- All wiring must comply with local wiring regulations. PWX internal wiring complies with BS 7671: IET wiring regulations.
- Isolation switch / fused spur installed for each unit in line with local regulations to enable isolation of the unit control panel from the mains supply.
- Electrical voltage from the site matches the unit required voltage (230Vac, 1ph 50 - 60Hz) and correct protection fuse size is installed (refer to TROX wiring diagram).
- All cabling is installed & connected according to TROX wiring diagram and is not damaged and has been tested/torque tested.
- Operation of the electric heating element is fan controlled and interlocked with the control system.
- Fan delay incorporated into the control's logic, allowing the fan to run [10 mins] after the heater has deactivated/switched off.
- All safety components are connected and operational, including all thermostats to cut power to the heater if needed.
- Check that the controls enclosure lid is installed and securely fastened.
- Comms / BMS wiring should be separated from power, controls and signal wiring.

6.2 Initial start-up

Once all unit inspection checks have been completed and any issues identified are rectified, the unit can be energised.

- ▶ Ensure all volume control dampers connected within the secondary ductwork are fully open.
- ▶ Switch on the mains power supply to the fancoil and switch on the fancoil using the switch located on the control panel.
 - ⇒ The fancoil unit is **ON**
- ▶ To start the fan, the correct control voltage must be applied to the fan. Refer to TROX technical schedule for confirmation of guide control voltage.

↪ [Appendix C: Local setting of fan speed](#)

The control voltage (0-10Vdc) can be applied to the fan from the integrated controller (BMS) or from a potentiometer (if fitted). The typical control voltage should be between 4 – 7.5Vdc.

- 4. ▶ Once the fans have run for 10 minutes, FCU volume flow rate and external static pressure should be checked against design values. Refer to TROX technical schedule for confirmation of design flow rate and external pressure.
- 5. ▶ If necessary, adjust the fan speed to match design Vmax value and record control voltage within commissioning records. To set Vmin (turndown), refer to minimum volume flow rate for connected air terminal devices or minimum volume for electric heating.
- 6. ▶ Check and adjust the CHW & LTHW flow and return temperatures and validate flow rates against design values.
- 7. ▶ For PWX units with electric heating, check the thyristor, located within the control panel is working. There should be an LED indication to show operation. If no LED indication is given;

Check the 0-10Vdc control signal is being applied correctly to the thyristor. CONTROL and LOAD LED's indicate as follows:

Green - Control input (0-10Vdc)
 Control signal 0V: Flashing 0.5s ON/OFF
 Control signal >0V: Solid green (fully on)

Yellow - Load
 OFF: No load
 ON: Load
- 8. ▶ For PWX units with electric heating, check the high temperature cut out (HTCO) is set at 40°C and has not tripped. Check the airflow is set to design (Vmax). Check the unit fuses have not ruptured.

6.3 Post start-up checks

Following a 2-week continuous running period of the commissioned units, the following checks are recommended;

- Inspect condition of inlet filters and heat exchanger surface.
- Inspect condensate drip tray for debris, free flow and leaks.
- Inspect valves and heat exchanger connections for leaks.
- Inspect electric heating element (if fitted), HTCO and associated controls.
- Validate volumetric flow rate and external static pressure against design / commissioning records.

7.0 Maintenance and cleaning

Personnel:

- Skilled qualified electrician
- HVAC technician
- Facility manager

Protective equipment:

- Industrial safety helmet
- Protective gloves
- Safety shoes
- Safety glasses



DANGER!

Danger of electric shock! Do not touch any live components!

Electrical equipment carries a dangerous electrical voltage.

- Before any maintenance work is carried out, ensure equipment is isolated and completely disconnected from the mains power supply. The unit on/off switch does not provide adequate means of isolation.
- Verify that no voltage is present using an approved voltage indicator.
- A minimum period of 1 minute should be observed following disconnection from mains power supply to allow capacitors to fully discharge.
- Only skilled qualified electricians are allowed to work on the electrical system.



CAUTION!

Risk of injury from rotating parts!

Rotating parts in the fan can cause severe injuries.

- Following disconnection from the mains power supply, a minimum period of 1 minute should be observed to allow fan impellers to stop rotating.
- The fan does not stop immediately! Check that no parts are moving once you have opened the access panel.



CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes, hard hat and safety glasses.



Task lighting!

The installation location of the fancoil could be above general lighting installed within the building. Ensure task lighting, appropriate to the works being undertaken is provided.

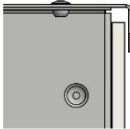
7.1 Maintenance

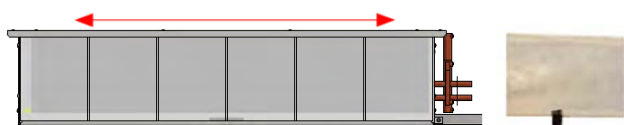
Any components removed from the fancoil unit during inspection and maintenance should be stored away securely, at low level. Ensure all components are reinstalled in the correct orientation and to the same unit with fixings securely tightened.

7.1.1 Checking and replacing the filter

Filters should be maintained on a regular basis as part of the building Planned Preventative Maintenance process to maintain efficiency of the fancoil and to ensure correct operating condition. The frequency of filter change will be dependent on operating environment however it is recommended to inspect, clean and replace if necessary on a 3-month cycle for the first year of operation, increasing to every 6 months if operating conditions allow.

Use only original filters. Replacement filters can be ordered from TROX UK; state the FCU product code on the unit label. The filter part number is given in the replacement parts list ↗ [Chapter 8 'Replacement parts list'](#).

1. ▶ The filter is installed on the inlet of each fancoil unit and is retained at the top and bottom edge within returns formed by the fancoil casing. 
2. ▶ To remove the filter, slide out horizontally to either side or alternatively, the filter can be removed vertically by lifting up from the bottom using the fabric tab to disengage from the lower return and dropping vertically down. Ensure the area is clear from obstructions and support the filter whilst removing.



Note: Vertical wire frame on inlet filter should be installed towards the heat exchanger (wire frame masked by filter media when installed) and fabric tab at the bottom.

3. ▶ To clean the filter, gently tap the filter to remove loose deposits or vacuum lightly taking care not to apply pressure to the filter media.
4. ▶ To clean washable filters, fully submerge in warm water with a mild detergent solution. Allow to soak for 2 minutes before agitating the water to remove remaining contaminants. The filter should then be rinsed in clean water and allowed to air dry before reinstallation.
5. ▶ In the event that the filter has become damaged or cannot be cleaned, the filter should be replaced. Contact TROX for replacement filters to ensure correct operation.
6. ▶ To re-install the filter, ensure the correct orientation. Filter should be installed with the wire frame facing the heat exchanger with the filter media covering the frame and the tag should be located at the bottom.

7.1.2 Inspecting and replacing the fans

DANGER!

Danger of electric shock! Do not touch any live components!

Electrical equipment carries a dangerous electrical voltage.

- Before any maintenance work is carried out, ensure equipment is isolated and completely disconnected from the mains power supply. The unit on/off switch does not provide adequate means of isolation.
- Verify that no voltage is present using an approved voltage indicator.
- A minimum period of 1 minute should be observed following disconnection from mains power supply to allow capacitors to fully discharge.
- Only skilled qualified electricians are allowed to work on the electrical system.

CAUTION!

Risk of injury from rotating parts!

Rotating parts in the fan can cause severe injuries.

- Following disconnection from the mains power supply, a minimum period of 1 minute should be observed to allow fan impellers to stop rotating.
- The fan does not stop immediately! Check that no parts are moving once you have opened the access panel.

CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes, hard hat and safety glasses.

WARNING!

Risk of injury from falling parts!

Care should be taken during the removal of the fan access panel to prevent falling objects.

- Work should be assessed and the number of operatives required to safely perform the task established based on the equipment size and access.
- A minimum of 2 operatives is recommended.

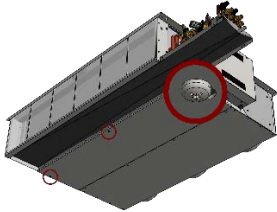
Any components removed from the fancoil unit during inspection and maintenance should be stored away securely, at low level.

Ensure all components are re-installed in the correct orientation and to the same unit with fixings securely tightened.

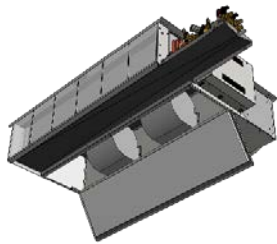
7.1.2.1 Removing fan access panel

To allow inspection of the fan assemblies, the fan access panel must be removed as follows;

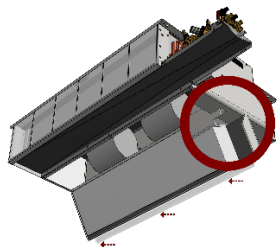
- ▶ The fan access panel is secured via 2, 3 or 4 'M5x12' POZI PAN HD screws. The screws are located on the underside of the fancoil;



- ▶ Whilst supporting the front edge of the fan access panel (adjacent to the drip tray), remove the screws, starting from the outer edges first and store safely for use during reinstallation of the fan access panel.
- ▶ With the screws removed, the fan access panel will swing down and will be retained on integral hinge. Support should be provided to the access panel until it reaches its rest position.



- ▶ To fully remove the fan access panel, pull the panel towards the drip tray until the hinge return reaches the notch within each side of the fancoil casing. Manoeuvre each hinge flange out of the notch and store access panel safely at floor level to avoid injury or damage.



- ▶ To re-install the fan access panel, carefully offer up the access panel hinge flange into each notch on the fancoil casing. Once engaged, slide the access panel towards the discharge plenum (away from the drip tray) and rotate up to its closed position. Secure the access hatch in place using the M5x12 POZI PAN HD screws and tighten securely.

7.1.2.2 Inspecting the fans

Regular inspection of the fan assemblies within each fancoil should be undertaken as part of the building Planned preventative maintenance (PPM) routine.

- ▶ Ensure the unit is isolated from the mains power supply and secured against reenergisation.
- ▶ Remove the access panel and store safely for reinstallation.
- ▶ With the access panel removed, each fan should be inspected for the build-up of contaminants on the impeller(s) and motor assembly.

Any dust or build-up of contaminants should be removed with a cloth or micro vacuum attachment. With heavily contaminated fans, it may be necessary to remove the fan from the unit in order to clean all surfaces.

- ▶ Inspect all fixings used to secure the fan(s) to the fancoil casing. M5x12 POZI PAN HD screws are used to secure the fan(s) to the fancoil casing. If any screws are found to be loose, these should be replaced. [↪ Chapter 8 'Replacement parts list'](#).

All fan assemblies have sealed-for-life bearings meaning no specific maintenance is required. Under normal operating conditions, the fans have an anticipated life of 40,000 hours. The condition of fan bearings should be checked at regular intervals to ensure correct running condition.

- ▶ Slowly rotate each fan impeller by hand to detect any undue friction or flat spots within the bearings.
- ▶ Apply gentle lateral force back-and-forth to each impeller or common impeller shaft to detect excessive play within the bearing housing. Should any undue friction, flat spots or excessive play be detected, the fan(s) should be replaced.

7.1.2.3 Replacing the fans



DANGER!

Danger of electric shock! Do not touch any live components!

Electrical equipment carries a dangerous electrical voltage.

- Before any maintenance work is carried out, ensure equipment is isolated and completely disconnected from the mains power supply. The unit on/off switch does not provide adequate means of isolation.
- Verify that no voltage is present using an approved voltage indicator.
- A minimum period of 1 minute should be observed following disconnection from mains power supply to allow capacitors to fully discharge.
- Only skilled qualified electricians are allowed to work on the electrical system.

Type PWX fancoil units are supplied with either individual fan/motor assemblies (...F7) or common shaft fan assemblies (...F10). Both fan types can be removed and/or replaced using the procedure below;

Use only original fans. Replacement fans can be ordered from TROX UK; state the FCU product code on the unit label. The fan part number is given in the replacement parts list [Chapter 8 'Replacement parts list'](#).

1. ▶ Ensure the unit is isolated from the mains power supply.
2. ▶ Remove the access panel and store safely for reinstallation.



WARNING!

Danger of electric shock! Do not touch any live components!

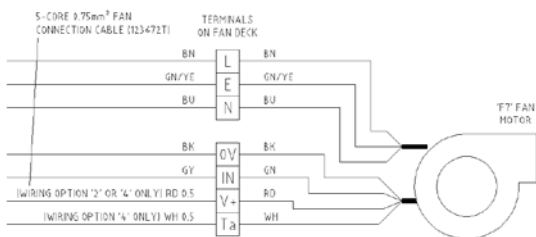
Where the fancoil contains more than 1 motor, it may be necessary to temporarily power on the unit with the access hatch removed to identify faulty fan/motor. This should only be completed following assessment of risks associated with operating unguarded live equipment and by a competent, qualified engineer.

Ensure unit is isolated from mains supply and secured from re-energisation immediately following the above test.

3. ▶ Before disconnection of any wiring, ensure a wiring diagram is available. Make note of individual motor wiring before disconnection.

Fan type F7:

Each motor is wired directly into connection terminal blocks located on the fan deck. To disconnect, loosen each cable from connection block taking care not to dislodge any other cable connections.



Fan Type F10:

Each motor is connected using x2 push-in connectors, located on the motor housing. To disconnect, unplug the 2 green connection plugs from motor and remove earth wire from 3 pole connector (do not disconnect earth wire fixed to motor housing)

4. ▶ Supporting the weight of the fan assembly, remove M5x12 screws around perimeter of fan assembly. Take care to support the full weight of the fan assembly to avoid damage to the internal components.

5. ▶ Remove the fan assembly through the access opening taking care not to damage any of the surrounding insulation material, sealing gaskets or internal wiring.
6. ▶ Inspect the replacement fan assembly to ensure it carries the same manufacturing code(s), sealing gasket and insulation material(s) prior to installation.
7. ▶ For F10 fan decks, inspect the replacement fan DIP switch settings and adjust these to match the settings of the removed fan.

Locate the DIP switches within the fan motor inverter (black box), between green connection sockets.



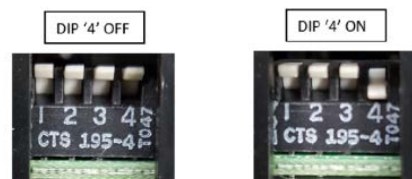
Depending on the control configuration, DIP '4' will be set to **ON** or **OFF**



WARNING!

Do not adjust any of DIP switches 1, 2 or 3 as this can cause incorrect operation of the fan deck.

8. ▶ If DIP '4' needs to be switched to match the removed fan, use a miniature flat bladed screwdriver (2 mm recommended)



9. ▶ Offer up the new fan assembly into the access opening and secure using new M5x12 screws supplied with the replacement fan assembly. Ensure all screws are tightened correctly.
- 10.▶ Re-connect all wiring to the motor / connection block and ensure all terminations are tight. For ...-F10 fan variants, ensure earth wire from motor housing is installed into 3-pole green connector.
- 11.▶ Re-install fan access hatch and ensure all fixings are tightened correctly.

7.1.3 Cleaning the heat exchanger



CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes, hard hat and safety glasses.



Keep the heat exchanger clean as contamination will impair the efficiency of the fancoil unit.

Check the heat exchanger for contamination at least every 6 months. Clean the heat exchanger, if necessary.

1. ▶ To enable inspection and maintenance to both sides of the heat exchanger, the inlet filter and fan access panel should be removed.

If attachments are fitted to the fancoil (inlet attenuator / plenum), inspection to the inlet side of the heat exchanger will be through the inlet attenuator, by removal of ducts from the inlet plenum or by removal of the attenuator / plenum assembly.

2. ▶ All visible surfaces of the heat exchanger should be inspected for accumulation contaminants. The heat exchanger should also be inspected for any signs of leaks within the finned area, hairpin return bends or connections. In the event of a leak being detected, the heat exchanger should be immediately isolated from the mains water supply.
3. ▶ Any light soiling should be removed from the heat exchanger using a vacuum cleaner with soft, long hair attachment. Care should be taken not to damage the surface of the heat exchanger during cleaning.
4. ▶ Stubborn contamination not removed by vacuum can be removed using a cloth dampened with warm water and mild detergent. Care should be taken not to damage the surface of the heat exchanger due to excessive force. Any detergent used for cleaning must be suitable for the materials (copper tube / aluminium fins).
5. ▶ Care should be taken to ensure any excess water used for cleaning is dried using a soft cloth and not allowed to saturate insulation within the fancoil casing. The fancoil should be allowed to dry out before re-use.

7.1.3.1 Replacing the heat exchanger



CAUTION!

Danger of injury from sharp edges, sharp corners and thin sheet metal parts!

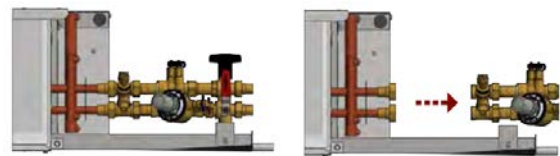
Sharp edges, sharp corners and thin sheet metal parts may cause cuts or grazes.

- Be careful when carrying out any work.
- Wear protective gloves, safety shoes, hard hat and safety glasses.

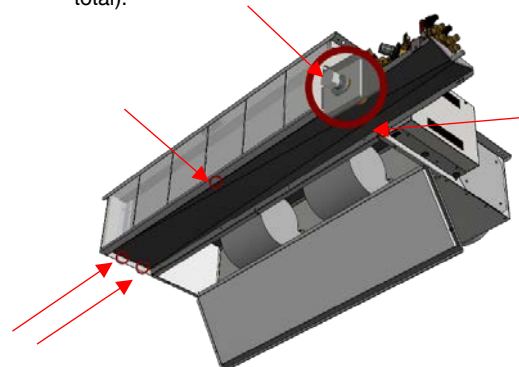
Any components removed from the fancoil unit during inspection and maintenance should be stored away securely, at low level.

Ensure all components are reinstalled in the correct orientation and to the same unit with fixings securely tightened.

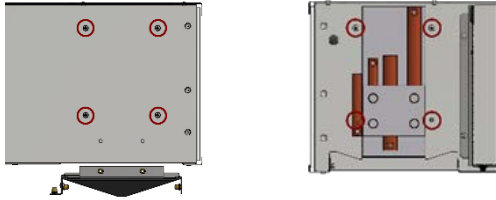
1. ▶ To enable removal of the heat exchanger, the fan access panel, drip tray and control valve assemblies must be removed.
2. ▶ Isolate water supply from FCU and drain water from heat exchanger. Ensure that waste water from FCU that may contain additives is correctly disposed of according to local standards / regulations.
3. ▶ With the heat exchanger drained, undo union couplings between valve set and heat exchanger. Take care not to twist or damage valve components or coil pipes during removal.



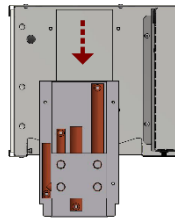
4. ▶ Remove the valve support bracket. This may be fixed to the drip tray via rivets that will require drilling to enable removal or alternatively, secured around the valve set using screws.
5. ▶ With the valve support bracket removed, gently pull the valve assembly away from the heat exchanger and support independently from the FCU.
6. ▶ To remove the drip tray, identify and remove all fixings used to fix the drip tray to the FCU casework (5 fixings in total).



- 7. ▶ Gently lower the drip tray away from the FCU and store safely for re-installation.
- 8. ▶ To remove the heat exchanger, provide support along the full length. Identify and remove all fixings used to secure the heat exchanger to the FCU casework (x4 each side)



- 9. ▶ Supporting the weight of the heat exchanger along the length, gently lower vertically down from the FCU.



- 10. ▶ Before installation of new heat exchanger, suitable unions must be attached to the copper tails. Ensure unions are of the correct size and thread pattern to suit valve assembly before fixing.
- 11. ▶ Offer up heat exchanger into FCU casing. Take care not to damage any surrounding insulation material or sealing gaskets. Secure heat exchanger using x8 screws and tighten.
- 12. ▶ Inspect both sides of the heat exchanger for damage to the fin material. Any damage to the fins should be combed out using appropriate tools.
- 13. ▶ Re-install drip tray, valve support bracket and valve sets, ensuring all fixings and unions are securely tightened.
- 14. ▶ Refill the heat exchanger and flush / vent to prevent airlock or contamination within the heat exchanger or valve assembly.
- 15. ▶ Pressure test the heat exchanger and valve assembly. Check for signs of leaks around heat exchanger, valves and mains connections.

8.0 Replacement parts list

Ordering replacement parts

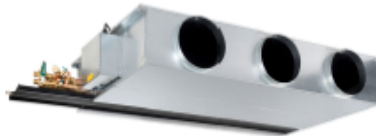
You can identify order-specific components of the fancoil unit either by a code on the component itself or by the FCU reference number detailed on the label or TROX technical schedule.

Name	Replacement part No.				Unit size
	'S'	'M'	'F'	'S3'	
Inlet filter	117201T	122701-1	122765-1	123820-1	PWX-60
	117202T	122701-2	122765-2	123820-2	PWX-90
	117203T	122703-3	122765-3	123820-3	PWX-120
	117204T	122701-4	122765-4	123820-4	PWX-150
	117206T	122701-6	122765-6	123820-6	PWX-180
	117516T	122701-7	122765-7	123820-7	PWX-205
	4 pipe heat exchangers	117796T			
117797T				PWX-90	
117578T				PWX-120	
117579T (22/15), 125457 (15/15)				PWX-150	
117185T (22/15), 125458 (15/15)				PWX-180	
117581T (22/15), 125459 (15/15)				PWX-205	
F7 Fan	123810T				All 'F7' units
F10 fan (twin fan)	124218T				PWX-90/2, 120/2, 180/4, 205/4
F10 fan (triple fan)	124219T				PWX-120/3, 150/3
	124220T				PWX-180/3
Ø248 spigot	334346				All units
Ø198mm spigot	340455				All units
Spigot blanking plate	334322				All units
Fan assembly installation screws	122944T				All units
Electrical Parts	Refer to TROX wiring diagram for part Numbers <i>High Temperature Cut Out (HTCO), relays, transformer, fuses etc.</i>				All units

Appendix A Declaration of Incorporation / Conformity

UKCA Declaration of Incorporation

Declaration of incorporation



Declaration of incorporation	Supply of Machinery (Safety) Regulations 2008 No. 1597
Typ	PWX
Product	Fancoil Unit
Function	Horizontal fancoil unit to provide forced circulation of indoor air, for the purpose of heating, cooling and dehumidification, for the thermal comfort of human beings
Variant	Horizontal fancoil units without integrated control equipment; Type 0: Site fitted controls Type F: Free issue controls
Manufacturer	TROX UK Ltd. Caxton Way, Thetford Norfolk, IP24 3SQ
UKCA Documentation Authorised Person	Mike Gosling

Declaration:

We declare that the following essential requirements of S.I. 2008 No. 1597 on the supply of machinery (safety) have been fulfilled: 1.1.2, 1.1.3, 1.1.4, 1.1.5, 1.3.1, 1.3.2, 1.3.3, 1.3.4, 1.3.7, 1.4.1, 1.4.2, 1.5.1, 1.5.2, 1.5.5, 1.5.8, 1.5.9, 1.6.1, 1.7.1, 1.7.2, 1.7.3, 1.7.4

The relevant technical documentation is compiled in accordance with part B of Annex VII.

It is expressly declared that the partly completed machinery fulfils all relevant provisions of the following UK Statutory Instruments:

- 2016 No. 1091 Electromagnetic Compatibility Regulations 2016
- * 2016 No. 1101 Electrical Equipment (Safety) Regulations 2016

Reference to the harmonised standards used, as referred to in Article 7 (2):

- BS EN ISO 12100:2010-11 Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO12100:2010)
- BS EN 60204-1:2018 Safety of machinery - Electrical equipment of machines - General requirements
- BS EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Generic standards - Immunity for residential, commercial and light industrial environments
- * BS EN 61000-6-2:2005 Electromagnetic compatibility (EMC) - Generic standards - Immunity for industrial environments
- * BS EN 61000-6-3:2007+A1:2011 Electromagnetic compatibility (EMC) - Generic standards - Emission standard for residential, commercial and light industrial environments

Reference to other standards used:

- * BS EN 61000-3-2:2014, BS EN 61000-3-3:2013, BS EN 61000-4-2:2009, BS EN 61000-4-3:2006+A2:2010, BS EN 61000-4-4:2012, BS EN 61000-4-5:2014, BS EN 61000-4-6:2014, BS EN 61000-4-11:2004

The manufacturer or his authorised representative undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery. This transmission takes place by post. This does not affect the intellectual property rights.

Note!

The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of this Directive, where appropriate.

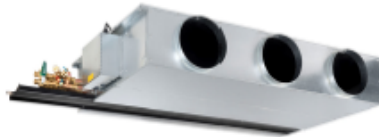
Thetford, Norfolk, 01.11.2022



Mike Gosling
Authorised Representative * UKCA-marked products

UKCA Declaration of Conformity

Declaration of conformity



Declaration of Conformity	Supply of Machinery (Safety) Regulations 2008 No. 1597
Typ	PWX
Product	Fancoil Unit
Function	Horizontal fancoil unit to provide forced circulation of indoor air, for the purpose of heating, cooling and dehumidification, for the thermal comfort of human beings
Variant	Horizontal fancoil units without integrated control equipment; Type 1: BACnet for BMS control Type 2: Standalone room control
Manufacturer	TROX UK Ltd. Caxton Way, Thetford Norfolk, IP24 3SQ
UKCA Documentation Authorised Person	Mike Gosling

Declaration:

Only the manufacturer – TROX UK Ltd – is responsible for this declaration of conformity
The product meets the relevant provisions of the UK EU harmonisation regulations:

- 2008 No. 1597 The Supply of Machinery (Safety) Regulations 2008
- 2016 No. 1991 Electromagnetic Compatibility Regulations 2016
- 2016 No. 1101 Electrical Equipment (Safety) Regulations 2016

The relevant technical documentation is compiled in accordance with part A of Annex VII.

Reference to the harmonised standards used, as referred to in Article 7 (2):

- BS EN ISO 12100:2010-11 Safety of machinery - General principles for design - Risk assessment and risk reduction (ISO12100:2010)
- BS EN 60204-1:2018 Safety of machinery - Electrical equipment of machines - General requirements
- BS EN 61000-6-1:2007 Electromagnetic compatibility (EMC) - Generic standards - Immunity for residential, commercial and light industrial environments
- * BS EN 61000-6-2:2005 Electromagnetic compatibility (EMC) - Generic standards - Immunity for industrial environments
- * BS EN 61000-6-3:2007+A1:2011 Electromagnetic compatibility (EMC) - Generic standards - Emission standard for residential, commercial and light industrial environments

Reference to other standards used:

- BS EN 61000-3-2:2014, BS EN 61000-3-3:2013, BS EN 61000-4-2:2009, BS EN 61000-4-3:2006+A2:2010, BS EN 61000-4-4:2012, BS EN 61000-4-5:2014, BS EN 61000-4-6:2014, BS EN 61000-4-11:2004

The manufacturer or his authorised representative undertake to transmit, in response to a reasoned request by the national authorities, relevant information on the partly completed machinery. This transmission takes place by post. This does not affect the intellectual property rights.

Note!

If the machinery/subassembly is modified without our approval, this UKCA declaration of conformity shall no longer apply.

The machinery must not be put into service until the final machinery into which it is to be incorporated has been declared to be in conformity with the provisions of The Supply of Machinery (Safety) Regulations 2008, where appropriate.

Thetford, Norfolk, 01.11.2022

Mike Gosling
Authorised Representative • UKCA-marked products

Appendix B Commissioning / Maintenance Report

Building Name:	Floor:	Unit Ref:
Commissioning <input type="checkbox"/>	Maintenance <input type="checkbox"/>	Date:

Item to be checked	Measures	Interval [months]			Complete	
		3	6	12	Yes	No
Cleaning / replacing inlet filters	Remove dust and contamination from the inlet filter and replace if necessary	X 1)	X		<input type="checkbox"/>	<input type="checkbox"/>
Checking the heat exchanger, condensate drip tray and condensate drain	Clean; if necessary, repair.		X		<input type="checkbox"/>	<input type="checkbox"/>
Checking the fans	Check for contaminant build-up on impellers. Check mechanical fixings and tighten if necessary		X		<input type="checkbox"/>	<input type="checkbox"/>
Checking valves for function and leakages (random check)	Check whether the heating and cooling valves open and close correctly and whether the effect of the actuator action is correct			X	<input type="checkbox"/>	<input type="checkbox"/>
Checking the control panel (random check)	Check switching function, set- point shift			X	<input type="checkbox"/>	<input type="checkbox"/>
Cleaning the fancoil unit	Casing and access panel to be checked for signs of corrosion. Any affected areas should be cleaned and treated.			X	<input type="checkbox"/>	<input type="checkbox"/>

1) initial inspection period. After 12 month running period, inspection / replacement of filters could increase to 6-month cycle depending on building usage.

Comments:	
Next maintenance scheduled for:	
Signature: (Technician)	
Company / Organisation: (Stamp)	

Appendix C Initial Start-Up

C1 Initial start-up and addressing

Personnel:

- Skilled qualified electrician
- Facility manager
- HVAC technician



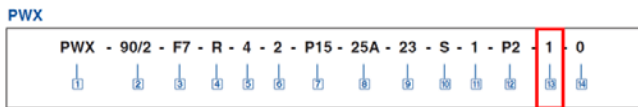
DANGER!

Danger of electric shock! Do not touch any live components!

Electrical equipment carries a dangerous electrical voltage.

- Before any maintenance work is carried out, ensure equipment is isolated and completely disconnected from the mains power supply. The unit on/off switch does not provide adequate means of isolation.
- Verify that no voltage is present using an approved voltage indicator.
- A minimum period of 1 minute should be observed following disconnection from mains power supply to allow capacitors to fully discharge.
- Only skilled qualified electricians are allowed to work on the electrical system.

The initial start-up procedure for the fancoil unit will be dependent on the type of controls fitted. The control type can be determined from the product order code;



C1.1 Control Type 0 (Site Fitted Controls)

Fancoil units supplied with control type '0' are supplied with electrical terminations within the controls enclosure to facilitate installation of 3rd party controls on site. These controls are not factory installed or supplied by TROX. For information and guidance on initial start-up and fan speed control, refer to the controls specialist or building O&M manual.

C1.2 Control Type 1 (BACnet)

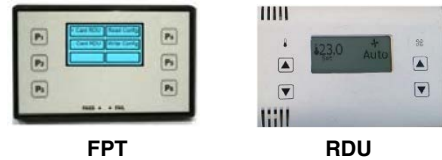
Fancoil units supplied with control type '1' are supplied with factory installed TROX BACnet controls. These units have been tested with default commissioning configuration to ensure when supplied from the factory, the valve actuator stems are fully retracted ready for installation onto the valve bodies.

This guide covers the initial start-up, addressing and programming of the design air volumes, and exiting the valve commissioning mode.

Before powering up the fan coil unit, it is necessary to;

- Connect valve actuator(s) to valve bodies in accordance with valve installation instructions. [↪ Chapter 4.4 'Connecting the water pipes'](#).
- If there is a condensate pump, the pump cables should not be connected until the pump has been primed with water. Refer to the installation instructions supplied with the pump and the leaflet "Condensate Pump" published online.
- Isolate mains power, then remove controls enclosure cover and connect the RDU (TROX part number 124918T) to the FCU controller RJ11 socket using the cable provided.

Before the fancoil unit can be initialised on the BMS network, each fancoil controller must be configured using a hand-held field programming tool (FPT) or room display unit (RDU).

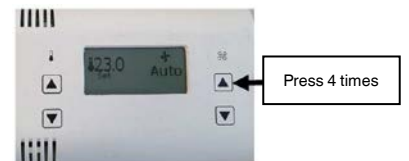


The FPT or RDU plugs directly into the fancoil controller RJ11 socket via its flying lead and is used as a commissioning aid.



With the RDU connected to the FCU controller, re-install the control panel cover and power on the fancoil.

- ▶ The fan should start to run in 'Auto' mode. Press the top right button 4 times to set the fan to manual 'High' speed.



- ▶ Press all 4 buttons simultaneously and hold for 2 seconds to enter the **Maintenance Menu**. Important: ensure the 'High' fan speed symbol is maintained whilst doing this.



- 3. ▶ Use the top left button to navigate to '8 Setup menu' then press the bottom right button.



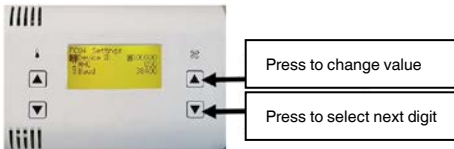
- 4. ▶ Press the bottom right button to enter 1 Unit Specific



- 5. ▶ Press the bottom right button to enter 1 FCU4



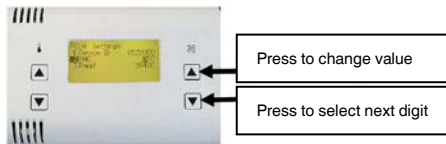
- 6. ▶ The Device ID is a unique 7-digit number (in the range 0000000 to 4194302) for each device in the building connected to the BMS.



- 7. ▶ Press the bottom left button to select 2 MAC.



- 8. ▶ The MAC is a unique number (in the range 1-127) for each device on the local RS485 MS/TP bus.



- 9. ▶ Provided the Device ID and MAC numbers have been entered, use the top left button to navigate to '8 Return to Previous' then press the bottom right button.



- 10. ▶ Use the bottom left button to navigate to '2 Return to Previous' then press the bottom right button.



Once back to the Setup Menu, there are now a number of options for the next step:

Exit the Commissioning mode for the valve actuators

- 11. ▶ Use the top left button to navigate to '4 Output Status' then press the bottom right button.



- 12. ▶ Use the bottom left button to navigate within 'Output Status' menu. Use right hand buttons to change setting from 'Yes' to 'No'.



To exit commissioning mode and allow automatic actuator control, 1 Commissioning Heat and 2 Commissioning Cool must be set to 'No'

Note: to use the valve commission mode, 1 Commission Heat and/or 2 Commission Cool should be set to Yes. It is then possible to adjust the 3 Heat O.R. % and 4 Cool O.R. % settings between 0-100% to control the valve actuator(s) manually. The default setting is 100% (TROX valve open / actuator stem fully retracted)

- 13. ▶ Use the top left button to navigate to '5 Return to Previous' then press the bottom right button.

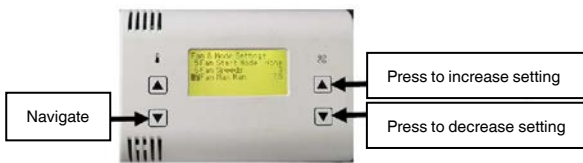


Enter Fan & Mode Settings to adjust the fan volume

- 14. ▶ From the Setup Menu, use the top left button to navigate to '**8 Fan & Mode Settings**' then press the bottom right button.



- 15. ▶ Use the bottom left button to navigate to '**7 Fan Max. Man**' then use the right-hand buttons to increase or decrease the fan control voltage.



Increase or decrease the fan speed voltage to achieve the design air volume. Make a note of this (**Fan Max**) voltage.

If the fan coil unit is also specified to operate with a 'set-back' or 'turn-down' volume (within a 'dead band' when the set-point temperature is achieved) to save energy, then use the right-hand buttons to decrease the fan voltage to achieve this air volume, and make a note of this (**Fan Min**) voltage.

Note: The (**Fan Min**) volume must be limited to the minimum volume flow of the connected air terminal device or the minimum volume flow related to the electric heater (if fitted), whichever is the highest.

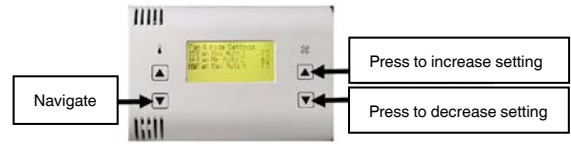
- 16. ▶ Provided the (**Fan Max**) and (**Fan Min**) voltages are known, set '**7 Fan Max. Man**' to the (**Fan Max**) voltage and then use the bottom left button to navigate to '**15 Fan Max. Auto C**' then use the right-hand buttons to set the (**Fan Max**) previously noted voltage.



- 17. ▶ Use the bottom left button to navigate to '**16 Fan Min. Auto C**' then use the right-hand buttons to set the (**Fan Min**) previously noted voltage.



- 18. ▶ Use the bottom left button to navigate to '**17 Fan Max. Auto H**' then use the right-hand buttons to set the (**Fan Max**) previously noted voltage.



- 19. ▶ Use the bottom left button to navigate to '**18 Fan Min. Auto H**' then use the right-hand buttons to set the (**Fan Min**) previously noted voltage.



- 20. ▶ Use the bottom left button to navigate to '**20 Return to Previous**' then press bottom right button.



Exit Setup Menu and save changes

- 21. ▶ From the Setup Menu, use the bottom left button to navigate to '**12 Exit Menu**' then press the bottom right button.



- 22. ▶ Use the top left button to navigate to '**1 Yes**' then press the bottom right button.



The RDU will show **OFF** for a few seconds whilst the FCU controller resets, then will return to the start screen.

- Switch off the fan coil unit and isolate the power supply.
- Remove the controls enclosure cover, and disconnect the RJ11 cable from the controller.
- Replace the controls enclosure cover and switch on the power supply.

C1.3 Control Type 2 (Standalone)

Each RDG-160T controller is delivered with FCU specific configuration preloaded within each controller.

1. Room temperature / set point

2. Mode indicator

- Cooling
- Heating

3. Room temperature indicator

4. Operating mode selection

5. Operating mode indicator

- Comfort
- Economy

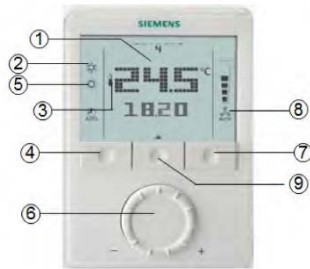
6. Dial for adjusting room temperature set point

7. Fan speed selection

8. Fan mode display

- Automatic
- Manual

9. Time / timer setting



Each controller is factory configured in line with the following table;

Unit Configuration	Config. Type
Heating & Cooling	B
Cooling only	C
Heating only	D
Heating (EL) & Cooling	E
Heating (EL) only	E
Heating & Cooling + P1/P2 Cond. pump	F
Cooling only + P1/P2 Cond. pump	G
Heating (EL) & Cooling + P1/P2 Cond. pump	H
Heating (EL) only + P1/P2 Cond. pump	H

The pre-configured setting will be identified on the room controller and box supplied with the unit;



The controller should be installed within the room (control zone) and wired back to the FCU controls enclosure in accordance with the TROX wiring diagram.

WIRING NOTE: 1x 0.5...1.5mm² (16 gauge). Max cable length 80m.

Should any of the controller parameters require modification to facilitate future adaptations, please contact TROX UK for guidance.

Alternatively, refer to Siemens RDG160T Basic Documentation for further clarification on controller configuration.

To modify parameter ('P') settings, follow the steps below;

1. ▶ Press left button and right button simultaneously for 4 seconds. Release and press the left button again within 2 seconds until the temperature disappears. Turn the rotary knob counter clockwise min. ½ rotation.
 - ⇒ Display shows "Pxx".
2. ▶ Select the required parameter by turning the rotary knob.
3. ▶ Press button (OK); the current value of the selected parameter starts blinking and can be changed by turning the rotary knob.
4. ▶ Press button (OK) to confirm the adjusted value or press button (Esc) to cancel the change.
5. ▶ If you wish to adjust additional parameters, repeat steps 2...4.
6. ▶ Press button (Esc) to leave the parameter setting mode.

C1.4 Control Type F (Free-Issue Controls)

Fancoil units supplied with control type 'F' are supplied with free issue controls, supplied to TROX by the project controls supplier and factory installed to an approved wiring diagram. These controls are not supplied by TROX. For information and guidance on initial start-up and fan speed control, refer to the controls specialist or building O&M manual.

C1.5 Manual potentiometer (Constant Volume)

Where a 0-10v potentiometer is fitted, the local fan speed control can be adjusted by the commissioning engineer. The potentiometer should be set between 40% & 75% to allow verification of volume flow rate.

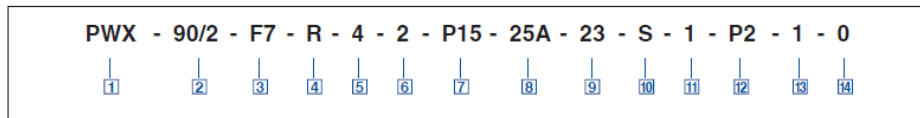


Refer to TROX Technical schedule for guide control voltage set point.

If the potentiometer is used during initial commissioning before enabling BMS control, make a note of the control voltage set point to input into the BMS and set the potentiometer to MAX after design volume flow has been established and control voltage noted.

Appendix D Order Code

PWX



1 Unit type

PWX

2 Unit size

60/1, 90/1, 90/2, 120/2, 120/3, 150/3, 180/3, 180/4, 205/4

3 Fan type

F7 Pod fans (1 fan per motor)
F10 Deck fans (Up to 3 fans per motor)

4 Unit handing

L Left hand controls
R Right hand controls

5 Heat exchanger type

4 3½ row cooling + ½ row heating
2 4 row cooling
E2 4 row cooling + electric heating
E4 3½ row cooling + electric heating

6 Valve package

0 Without valves
1 Cooling only
2 Cooling & heating (coil type 4 only)
3 Heating only (coil type 4 only)
F1 Factory-fit free issue cooling valve
F2 Factory-fit free issue cooling & heating
F3 Factory-fit free issue heating valve

7 Condensate tray

P15 Galv. steel tray (PPC RAL9005) with horizontal end outlet Ø15mm OD. spigot (PA6 GF20 polymer UL 94V-0)
P15E Extended P15 (+100mm) (PWX 60-180 only)

8 Discharge outlet type

20A Ø198 spigots
25A Ø248 spigots
20R 198mm rectangular spigot

9 Active Spigots

PWX-60 A,2,3,B
PWX-90 A,2,3,B
PWX-120 A,2,3,4,B
PWX-150 A,2,3,4,5,B
PWX-180 A,2,3,4,5,B
PWX-205 A,2,3,4,5,6,B

10 Inlet filter

S Standard (fabric) EU2/G2
S3 Fabric EU3/G3
M Mesh screen (S/steel)
F Foam EU2/G2 `Class 0`

11 Accessory fixing

0 Standard
1 Inlet accessory fittings
2 Discharge accessory fittings
3 Inlet & discharge accessory fittings

12 Condensate pump

0 Without
P1 Condensate pump, supplied loose for installation, wiring & commissioning (by others)
P2 Condensate pump, supplied loose for installation, wiring & commissioning (by others). Pump power cable prewired to controls enclosure.

13 Controls

0 Controls enclosure with provision for site fitted controls
1 BACnet controls
2 Room control (standalone)
F Factory-fit free issue controls

14 Packaging

0 Standard (batch wrapped)
A Individually wrapped (shrink wrap)
B Active spigots capped (batch wrapped)

PWX-ATTACHMENT



1 Unit size

60, 90, 120, 150, 180, 205

2 Type

DA Discharge Attenuator (rectangular spigot)
DAR20 Discharge Attenuator (Ø198mm circular spigots)
DAR25 Discharge Attenuator (Ø248mm circular spigots)
IA Inlet Attenuator
I20 Inlet Plenum Ø 198
I25 Inlet Plenum Ø 248

3 Active spigots*

60 A,2,3,B
90 A,2,3,B
120 A,2,3,4,B
150 A,2,3,4,5,B
180 A,2,3,4,5,B
205 A,2,3,4,5,6,B

*(Type 120, I25, DARxx only)

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