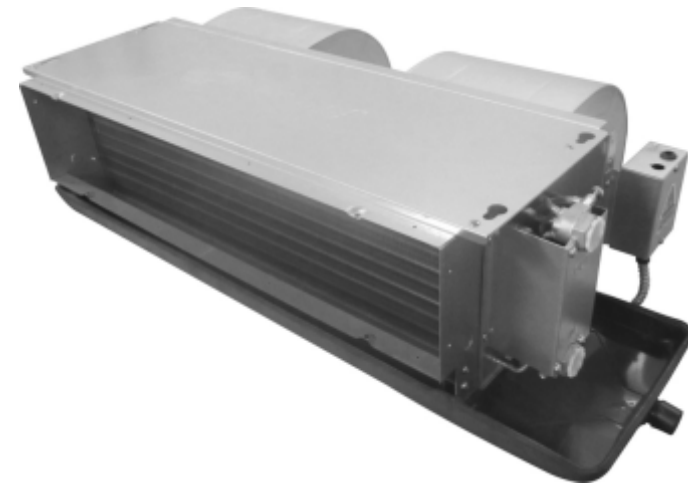




Chilled Water Fan Coil Unit Airflow Range 200~1400CFM

Installation
Operation
Maintenance



Trane optimizes the performance of homes and buildings around the world. A business of Ingersoll Rand, the leader in creating and sustaining safe, comfortable and energy efficient environments, Trane offers a broad portfolio of advanced controls and HVAC systems, comprehensive building services, and parts. For more information, visit www.Trane.com.

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Supersedes New

We are committed to using environmentally
conscious print practices that reduce waste.



SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.

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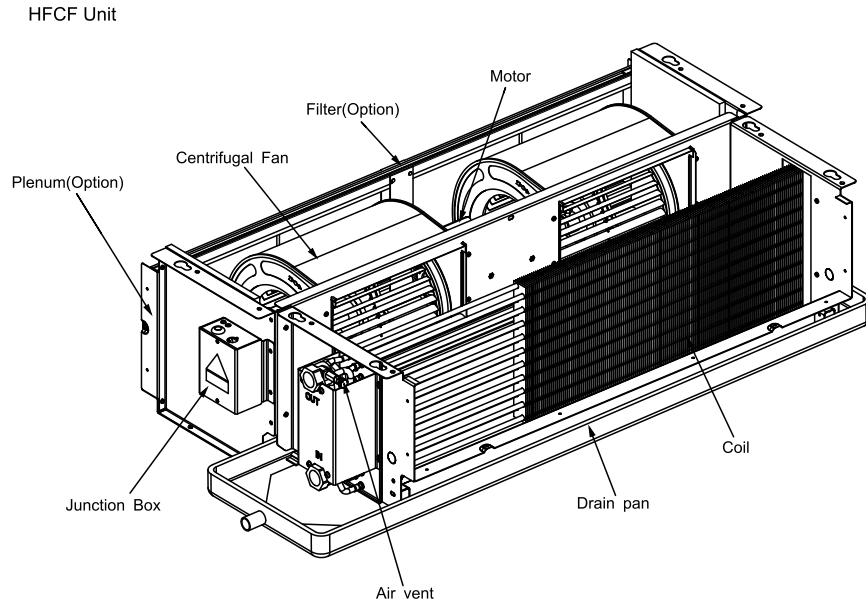


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System Structure Drawing

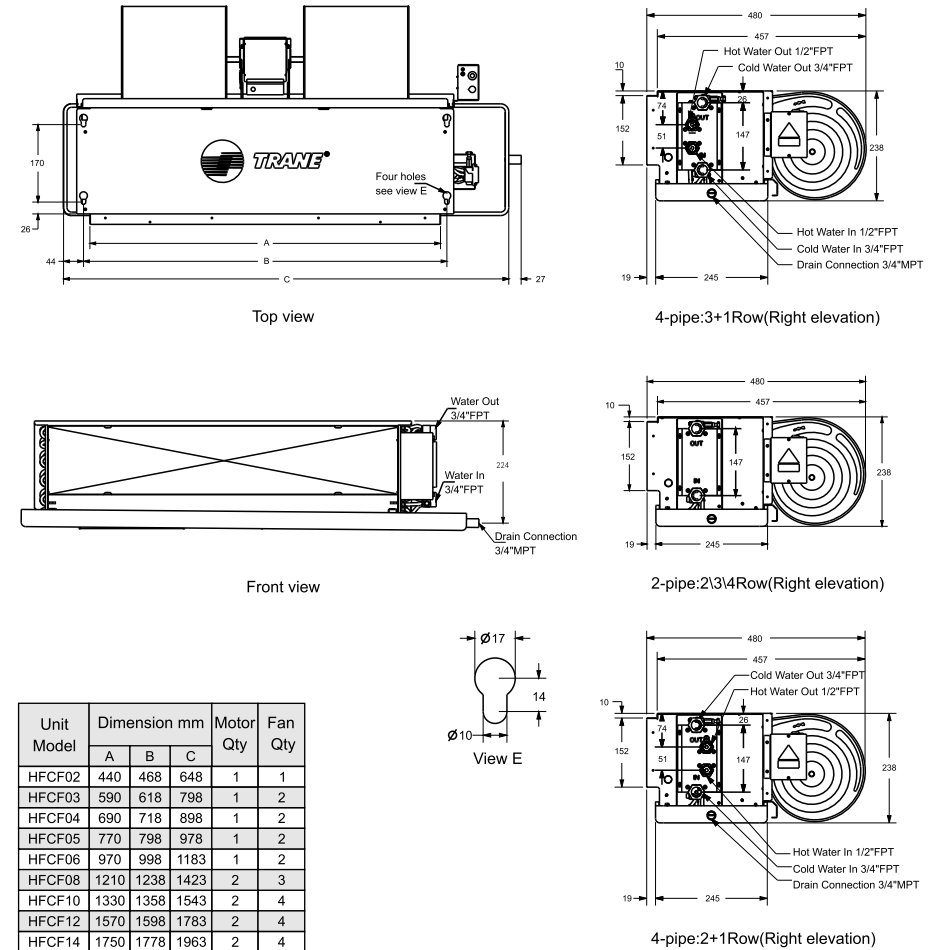
Fig 1: Structural diagram of internal unit



Unit Dimensions

Fig 2: HFCF Without Return Plenum

Dimension in mm

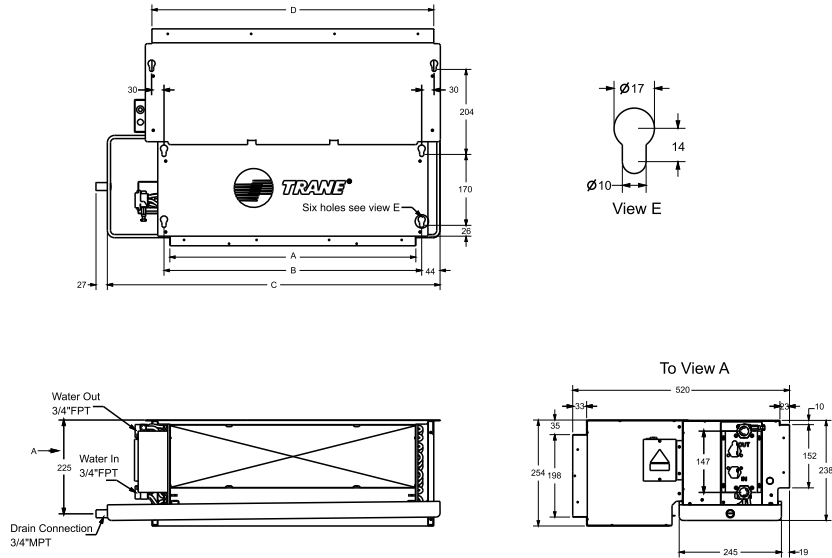


Notes:
Unit weight and performance parameters, please refer to the catalog or unit nameplate information.

Unit Dimensions

Fig 3: HFCF With Rear Plenum

Dimension in mm



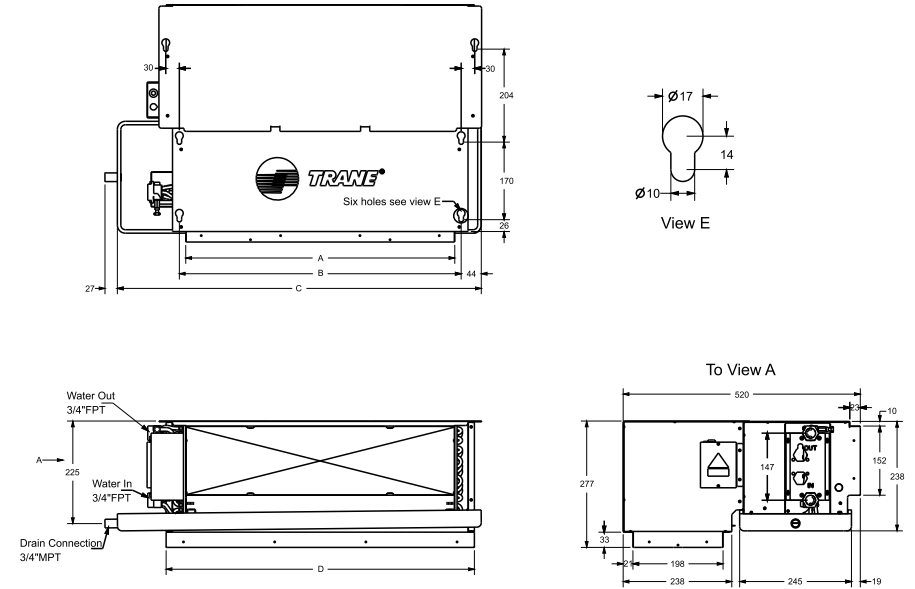
| Unit Model | Dimension mm | | | | Motor Qty | Fan Qty |
|------------|--------------|------|------|------|-----------|---------|
| | A | B | C | D | | |
| HFCF02 | 440 | 468 | 648 | 526 | 1 | 1 |
| HFCF03 | 590 | 618 | 798 | 676 | 1 | 2 |
| HFCF04 | 690 | 718 | 898 | 776 | 1 | 2 |
| HFCF05 | 770 | 798 | 978 | 856 | 1 | 2 |
| HFCF06 | 970 | 998 | 1183 | 1056 | 1 | 2 |
| HFCF08 | 1210 | 1238 | 1423 | 1296 | 2 | 3 |
| HFCF10 | 1330 | 1358 | 1543 | 1416 | 2 | 4 |
| HFCF12 | 1570 | 1598 | 1783 | 1656 | 2 | 4 |
| HFCF14 | 1750 | 1778 | 1963 | 1836 | 2 | 4 |

Notes:
Unit weight and performance parameter, please refer to the catalog or unit nameplate information.

Unit Dimensions

Fig 4: HFCF With Bottom Plenum

Dimension in mm



| Unit Model | Dimension mm | | | | Motor Qty | Fan Qty |
|------------|--------------|------|------|------|-----------|---------|
| | A | B | C | D | | |
| HFCF02 | 440 | 468 | 648 | 526 | 1 | 1 |
| HFCF03 | 590 | 618 | 798 | 676 | 1 | 2 |
| HFCF04 | 690 | 718 | 898 | 776 | 1 | 2 |
| HFCF05 | 770 | 798 | 978 | 856 | 1 | 2 |
| HFCF06 | 970 | 998 | 1183 | 1056 | 1 | 2 |
| HFCF08 | 1210 | 1238 | 1423 | 1296 | 2 | 3 |
| HFCF10 | 1330 | 1358 | 1543 | 1416 | 2 | 4 |
| HFCF12 | 1570 | 1598 | 1783 | 1656 | 2 | 4 |
| HFCF14 | 1750 | 1778 | 1963 | 1836 | 2 | 4 |

Notes:
Unit weight and performance parameter, please refer to the catalog or unit nameplate information.

Unit Dimensions

Equipment acceptance and arrangement

Each fan coil unit is packaged by corrugated paper so as to avoid damages during transportation, loading/unloading and installation on construction site. To ensure there aren't any damages during transportation, please check them carefully according to the following steps upon acceptance:

1. Before signing, please check and ensure there is no abnormal noise on each unit and the edge of cartons is good without any obvious damages.
2. If the carton has obvious damages, please open it immediately and check the unit body. If the body is indeed damaged, please note the fact on the acceptance list and reject it. Meanwhile, please check fan blade, coil, drain pan, filter and all the other accessories.
3. Please check the concealed damages.
4. If possible, please do not move the units on acceptance site. The recipient has the obligation to prove that the concealed damages do not occur after delivery.
5. If found concealed damages, stop unloading and take photos for duplicates.
6. If found damages, please inform the carrier, and ask the carrier to carry out joint inspection with the recipient.
7. Inform TRANE sales representative to repair. Do not repair voluntarily before checking and confirmation by the carrier representative.

Installation considerations

To ensure successfully install and work, please check the following items before the unit is in position:

1. There must be enough space for the unit to position and maintain. For unit dimensions, please refer to Fig.2~4. There must have removable ceiling for daily maintenance.(See Fig.5)

2. Please confirm the pipeline and electrical wiring positions prior to installation.
3. Please check and ensure whether the hoisting structure can bear the unit.
4. All units must be installed horizontally so as to ensure swimmingly discharge and normally work. (Because of the drain pan has been designed to have a certain slope, to facilitate drainage)
5. Units connected with the coils must be within the permissible external static pressure.
6. Thermal insulation for chilled water valve and pipeline shall be provided by the contractor.

Positioning

For installation of fan coil unit, please refer to Fig. 2~4. There is positioning hole on the top of unit, which can be suspended on the board through suspension rod (with diameter 3/8",provided by the contractor). When positioning, please complete the following steps:

1. Install the installation suspension rod or other suspension devices provided by the contractor(Suggestion: Rubber cushion should be added for suspension rod or suspension device).
2. Screw in the upper nut and gasket so as to avoid the unit jiggling during operation.
3. Position the unit.
4. Screw in the lower nut and gasket so as to fix the unit (See Fig.5).
5. Rotate the lower nut and adjust the levelness of the unit to ensure the chilled water is drained out, then tighten the upper nut.

NOTE:

When hoisting the unit with return air box, 6 suspension rods must be used for bearing.

Unit Dimensions

The drain pan water containing test should not last more than 48 hours. Levelness adjustment must be based on the enclosure of fan coil, because there is certain gradient designed for drainage between the coil and drain pan.

Air duct connection

The duct and duct connector which provided by the contractor should be made per national standard and other related standard.

The connection between fan coil and duct or opening should be soft connection with the duct proper insulated and air leakage proof.

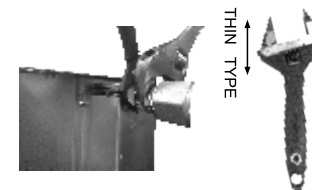
It should be noticed to avoid the return air duct touches the fan housing when connecting the fan coil with no return plenum with the return air duct.

Pipeline connection

Connection of chilled water pipeline

To complete piping connections suggest using the soft pipe for the coil connection. Water inlet of fan coil is at the lower part, and water outlet is at the upper part. Please do not above the max. torque 205.6N.M when complete the piping connection is more important, See Fig. 2~4 for dimension of coil connection.

When fixing the pipe connector, one thin type adjustable wrench must be used to fix the square connector base on the coil, Jaw thickness is no more than 3mm (Diagram below) and the other to tighten the water connector. Please do not fasten the connector directly, otherwise, the connector area shall be deformed or even damaged.(As shown below)



Condensate water pipeline connection

Condensate water pipe can be PVC materials or steels. Connect condensate water pipe to the water outlet of the drain pan by 3/4" female thread connector. The joint should be sealed by adhesive tape so as to avoid leakage. It's suggested that the gradient of drainage pipe should be at least 1:50.

Electrical connection

Forwiring and Installation, please refer to the wiring diagram along with the unit.

A grounding point, which must be properly connected to the building grounding system,has been provided with a mark on the vertical side of the inlet collar.

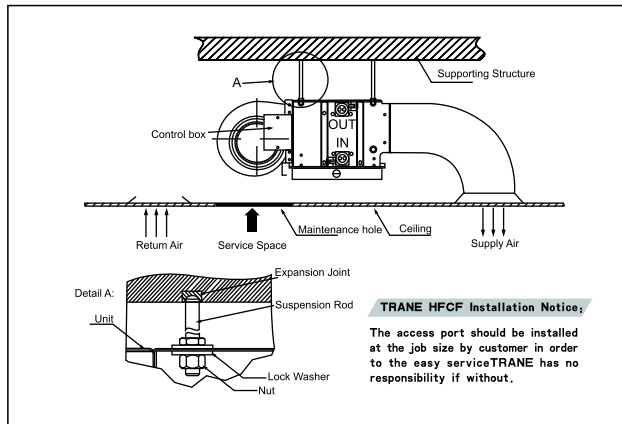
All electrical connection should conform to local electrical installation specifications.

WARNING:

Before maintenance, power supply should be cut off to prevent personal injuries. The connector should adopt copper materials; other conductors may cause overheating or unit damages.

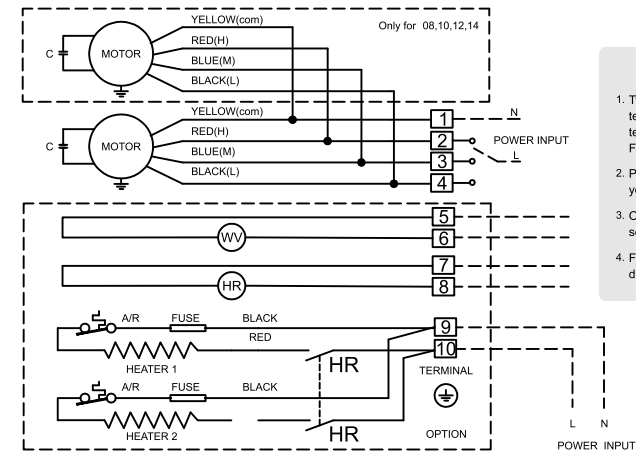
Unit Dimensions

Fig.5: Typical Installation



Electrical Control Installation

Wiring Diagram



WARNING:

1. Two or more different model FCU be line in one temperature controller is forbidden, and one temperature controller used for two same model FCU is maximum.
2. Please cut off the power before repairing, or you will cause severe electrical shock!
3. Only qualified personnel should install and service the equipment.
4. For wiring and installation, refer to the wiring diagram decals on each unit.

| | |
|---------------------------|---|
| C-Fan Capacitor | —— Unit Wiring |
| HR-Heater relay | - - - - Field Wiring |
| WV-Water Valve | |
| AR/Auto Reset Temp Cutout | Please find the power form from the nameplate |

Installation Checklist

Installation Check

The following checklist is provided as an abbreviated guide to the detailed installation procedures given in this manual. This list should be used by the installer to ensure that all necessary procedures have been completed. For more complete information, refer to the appropriate sections in this manual.

WARNING:

Disconnect electrical power source and secure in disconnected position before servicing the unit. Failure to do so may result in personal injury or death from electrical shock

- Units are checked for shipping damage. Units location is prepared for weight, leveling and service access.
- Units are mounted securely to the ceiling support rods.
- Ductwork connections are complete.
- Coil connections are complete and tight.
- Condensate drain pan connections are complete and tight.
- Electrical connections completed (fan switches, thermostats, heaters).
- Ground connection completed. Unit casing is level. Motor-blower assembly rotates freely.
- Units after hydrostatic test and air vent.
- Debris on the fan wheel and drain pan are cleared.
- Start-up preparation is complete and unit is in the proper operating mode.
- Owner-operator is instructed on unit operation.

Start and run

Working Condition

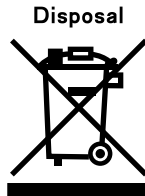
Circumstance: altitude should not be higher than 1000 meter; air dry bulb temperature is $\leq 40^{\circ}\text{C}$, relative humidity is $\leq 95\%$.

Water temperature: chilled water is $\geq 5^{\circ}\text{C}$, hot water is $\leq 80^{\circ}\text{C}$ (generally 60°C).

Water pressure: maximum working pressure of coil is 1.8Mpa.

Power supply: single phase 220~240V/50Hz or 220~240V/60Hz or 100~127V/60Hz.

Disposal



Do not dispose this product as unsorted municipal waste, collection of such waste separately for special treatment is necessary.

Preparation

Before starting the unit, complete the above mentioned INSTALLATION CHECKLIST to ensure the proper start-up preparation is completed.

Installation Checklist

Operation

Fan coil operation can be controlled by a simple motor switch or a thermostat unit.

The wall-mounted thermostat unit usually includes a motor speed switch, an on/off switch and a thermostat. The on/off switch turns the unit on and off and the motor speed switch controls the fan speed. The thermostat controls the water valve and usually has a dial to select an approximate setting temperature.

If the associated thermostat is not used for control, the installer should choose other type of thermostat which complies with the safety codes.

The simple motor speed switch, labeled Off-Hi-Med-Low, controls the fan coil by turning the switch to different speed for adjusting the air flow.

Venting

When water is first introduced into a coil, air is sometimes trapped in the coil tubing. This trapped air has a tendency to collect at the highest point in the coil. Therefore a manual air vent is installed at the highest point of the header. When there appears to be air trapped in the coil, resulting in "bubbling" or "clanking" noises within the unit, release air from the manual air vent by rotating the knob. A pair of pliers can be used if the knob is too tight to turn by hand. Turn knob counter clockwise 1-2 turns and allow air to flow out of the air vent until a steady stream of water appears. Then retighten knob.

Unit Maintenance

Fig 6: Rear Plenum Assembly-Filter Tear Down (Option)

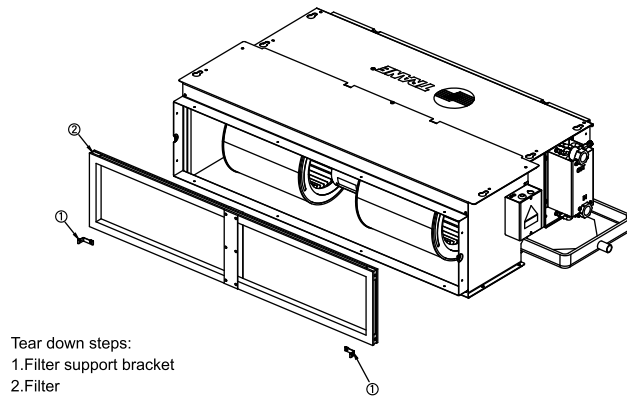
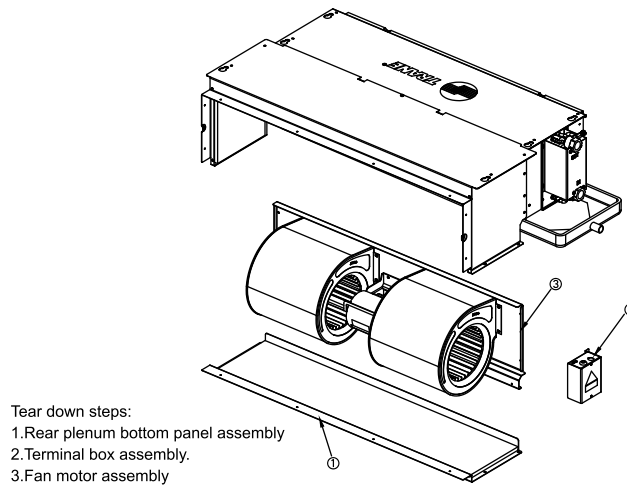


Fig 7: Rear Plenum Unit-Fan Motor Assembly Tear Down



Kindly reminder:

For your personal safety, please wear the related PPE and take some related safety protection measure when you do the product fix and maintain work!

Unit Maintenance

Fig 8: Bottom Return Plenum Assembly-Filter Tear Down (Option)

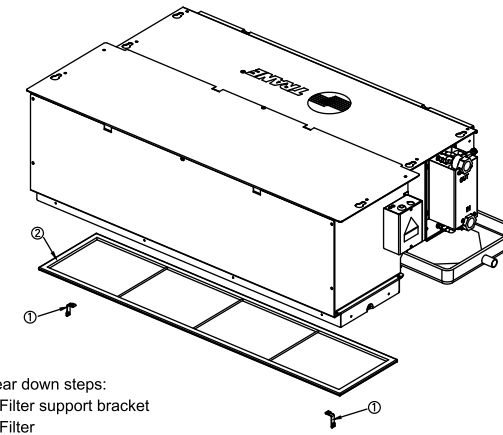
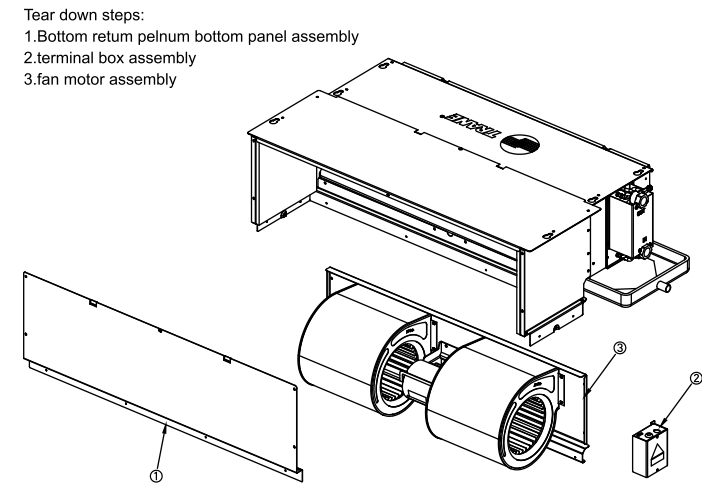


Fig 9: Bottom Return Plenum Unit-Fan Motor Assembly Tear Down

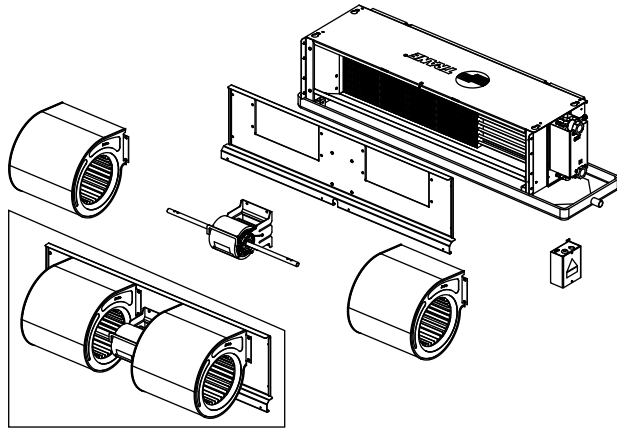


Kindly reminder:

For your personal safety, please wear the related PPE and take some related safety protection measure when you do the product fix and maintain work!

Unit Maintenance

Fig 10: Fan Motor Assembly Tear Down



Kindly reminder:

For your personal safety, please wear the related PPE and take some related safety protection measure when you do the product fix and maintain work!

Unit Maintenance

Check list of periodic maintenance

The following is recommended maintenance plan.

WARNING:

Before unit maintenance, power supply should be cut off to prevent personal injuries.

Monthly:

1. Check unit filter screen, clean or replace it. (See Fig. 6 or Fig. 8).
2. Check whether drain pan is clean and condensate water can flow to drainage pipe freely.

Yearly:

1. Check whether unit enclosure is corrupted, clean and repair it.
2. Check whether fan blades and volute are damaged. Rotate fan blades manually to ensure that there is no foreign matters blocking its movement.
3. Check whether coil fin is too dirt or damaged.
4. Clean and screw all electric connection.
5. Drain out chilled water of the whole system, descale and renew.
6. Winter unit stop running, If need to drain out the residual chilled water in the heat exchanger, please open the drain valve, ventilate the compressed air through exhaust valve so as to drain out the chilled water. (Refer to below picture for drain valve)

WARNING:

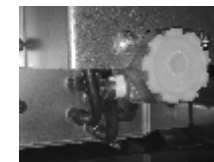
Using untreated water will lead to unit fouling, corruption and water quality deterioration. System commissioning and maintenance must be instructed by water treatment specialist. TRANE bears no liability for any result caused by poor water quality.

Maintenance Steps

Replace/clean filter screen

Do it at least twice a year, more frequent maintenance shall be made when the system operates under high load or the air is a little dirty. Dirty filter screen shall reduce air volume, cooling capacity and increase energy consumption. Washable or disposable filter screen can be used for all units.

1. Cut off the power supply.
2. Loosen the screw used to fix the filter screen pin at the rear side of return air box. (See Fig. 6 or Fig. 8).
3. Remove the filter screen pin.
4. Remove the filter screen.
5. Replace new filter materials.
6. Re-install.
7. Restore electricity.





Unit Maintenance

NOTE:

If need to clean filter screen, remove filter materials and put them into water for removing dust, then put them back after drying.

Motor lubrication

The motor bearing is sealed type, so there is no need to make periodic lubrication.

Clean coil

Blocked or dirty coil shall reduce cooling capacity, please clean it according to the following steps:

- 1.Cut off the power supply and motor electrical wiring to make the blade stop running.
- 2.Remove the whole fan motor assembly and clean it from air inlet. (See Fig. 7, Fig. 9, Fig. 10).
- 3.Brush the coil fin with rigid nylon brush.
- 4.Clean it with dust collector.
- 5.If there is compressed air, clean it with high pressure nozzle.
- 6.Straighten the bending fin.
- 7.Connect the power supply.

NOTE:

If the unit equipped with filter screen and be cleaned periodically, then there is no need to clean the coil.

Drain pan

The drain pan must be clean so as to drain out condensate water, otherwise, it must be cleaned immediately.

Control

The control for thermostat and motor speed selector switch shall be provided on site, and its repair shall be guided by the supplier.

Maintenance parts

TRANE company or its local sales representative shall provide the replacement parts. Models and names shall be provided upon ordering.

Maintenance agreement

It's suggested that the owner should sign maintenance agreement with the local after-sales service center. The agreement stipulates that periodical maintenance for the unit shall be provided by TRANE trained personnel. Periodical maintenance can find out the majority of faults and timely correct them as well as reduce the possibilities of serious problems, thus, the unit can gain the maximum service life and efficiency.

Training

The products involved in this manual are the fruits of TRANE company for so many years' research and development. The local sales office of TRANE company shall provide corresponding training(charge some fees). The training aims to provide the operators and maintenance technicians with relevant knowledge. For more information, please contact the sales office of TRANE.