



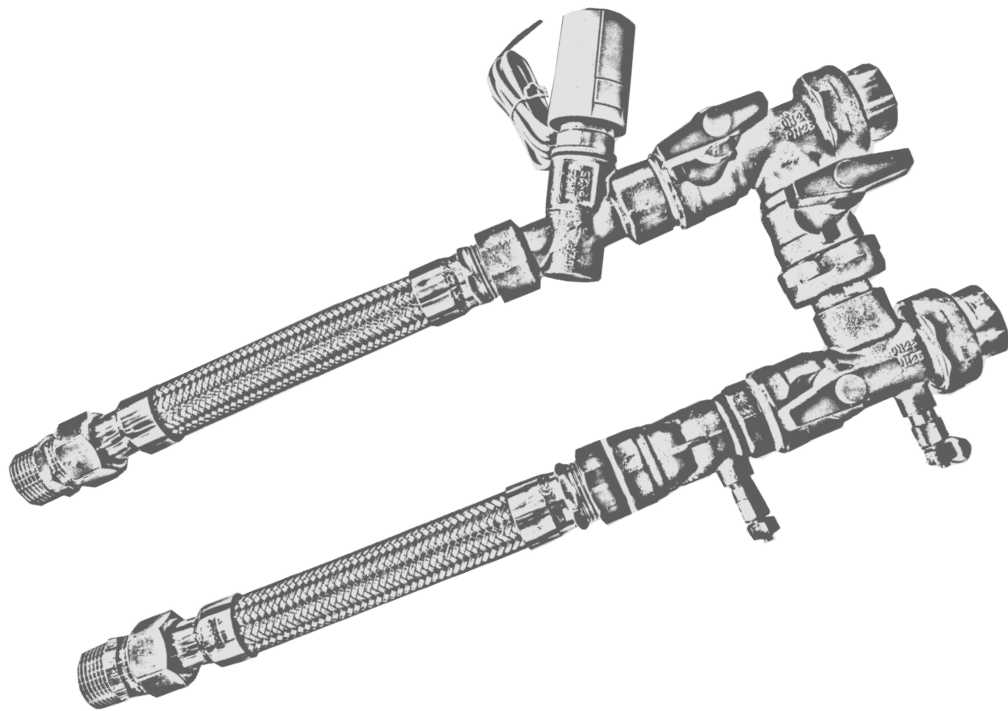
General Supplier

CONNECT FCU - ML-CFCU

Installation & Maintenance Instructions

INSTALLATION, OPERATION & MAINTENANCE GUIDELINES MANUAL

MAPLEF CONNECT-FCU





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Installation & Maintenance Instructions

Introduction

This document is for the “Connect-FCU”, one of the products of Maple General Supplier,

This product is a pre-assembled, tested valve package for Fan Coil Units, chilled water system, supplied along with moulded insulation and flexible connectors.

This manual is aimed to provide the guidelines to the installation, testing, operation and maintenance personnel of our Clients.

In This manual, for ease of reading and understanding, guidelines are grouped as following sections.

- a. Product Brief
- b. Material receiving and Storage guidelines
- c. Installation Guidelines
- d. Testing and Operation guidelines
- e. Maintenance Guidelines
- f. Recommended Spares to be stocked
- g. Service Contacts

Disclaimer:

All the contents on this manual are only guidelines and any deviation from these guidelines may result in malfunctioning, or effects on performance and guarantee on the performances. Hence kindly read and follow the instructions carefully. In case of any discrepancies between product data sheets and the guidelines please contact us. Our service contact details are provided in section (g) of this manual.



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CONNECT FCU - **ML-CFCU**

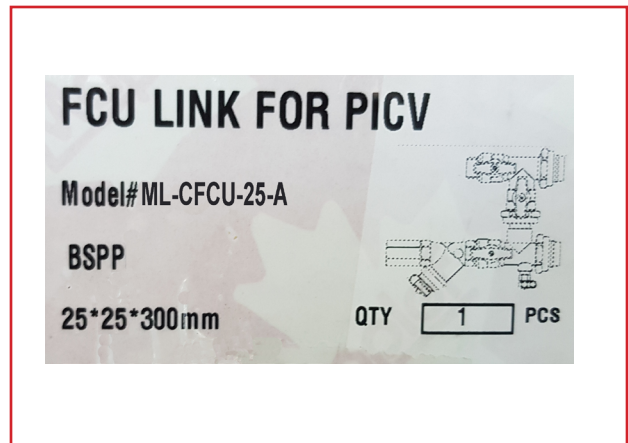
Installation & Maintenance Instructions

A. PRODUCT BRIEF

Our products that are referred in this document have an assembled valve package supplied with standard accessories (2-split Insulation box covers, 2-flexible connectors).

This product is supplied in a single sealed box (as per photo) and on the cover of the box there will be a sticker identifying model and serial number of the product.

Following identification legend system may be used to find the details of the product



Model Numbering System Legend

Model Number

	ML- CFCU- XX - X			
ML-MAPLEF	_____	_____	_____	_____
CFCU-CONNECT FCU	_____	_____	_____	_____
SIZES: 15/20/25/32mm	_____	_____	_____	_____
A-PICV	_____	_____	_____	_____



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CONNECT FCU - ML-CFCU

Installation & Maintenance Instructions

B. MATERIALS RECEIVING AND STORAGE GUIDELINES

Following are recommended while the materials are received and stored.

- Check model Number on the box matches with the delivery note along with the packing list
- Open the box and verify all items as per the packing list is available
- Confirm that the insulation boxes are fitting to the valve
- Check the strapping is working fine for the insulation box
- Check the flexible connector can be fitted easily to the valve package for checking the threads are suitable
- Check for any other physical damage
- Once received, store in an elevated platform to avoid any water entering the packs and store in a shaded and covered areas
- Do not stack more than 6 rows height
- Do not exchange the internal items between packs
- Take for installation as a pack and unpack near the FCU so that the mixing up of items can be avoided.
- Manual shifting is recommended from unloading to installation point
- Don't remove any weather protection covers provided until unpacked for installation
- As the cover box is recyclable please throw in bins collecting recyclable items
- After storing Protection from any damage, theft or fire shall be the responsibility of the Contractor
- Avoid storing near any fire hazard materials and also any sources of water leaking or condensation of moisture over the boxes
- Maximum storage temperature is +1°C to +50°C



General Supplier

CONNECT FCU - ML-CFCU

Installation & Maintenance Instructions

C. INSTALLATION GUIDELINES

Installation of the whole package is recommended when the areas of installations are less prone for any physical damage due to other constriction activities.

It is recommended to avoid the installation of cartridge diaphragm of PICV and the insulation box, as much as possible. Before false ceiling works are completed and chilled water is ready for commissioning, as the above two components of the package are very sensitive to damage and to avoid dirt blocking the pilot hole within the cartridge diaphragm.

Care shall be taken that the direction of flow to FCU and return from FCU are known. Generally the supply flow will be in bottom side and return will be from the topside of the coil of FCU.

Supply line of the Valve package will have strainer and the return line PICV.

There are three ball valves marked with covers coloured Blue, Black and Red. They are supply, By Pass and Return valves respectively.

While installing pipes from main line to the Valve Package the centre to centre distance shall be strictly maintained to avoid any strain on the joints.

Valve package to FCU connections are made using Flexible connectors.

There shall be a rigid support nearest to the Valve package to avoid sagging of the package and the weight of the package effecting in straining the joints.

Please ensure that the Bypass valve is opened and the other two valves are closed until a clearance certificate for complete flushing is done for main pipe lines. The package shall be slightly inclined towards the main piping to avoid the flushed dirt and debris accumulating after bypass section and before isolation valves.

Once the flushing of main pipe line is completed & certified for cleanliness and before allowing water to the FCU section please ensure that the strainer basket is clean and available for flushing any leftover debris from main flushing.

It is recommended to remove the cartridge diaphragm during flushing of FCU section and recommended to be installed after completing the flushing. During this period the flushing cap provided can be used.



General Supplier

CONNECT FCU - ML-CFCU

Installation & Maintenance Instructions

Once all flushing is completed and ready for allowing chilled water insulation moulds are recommended to be installed with the stripping tight to ensure that no air enters to lead for condensation and also the supplied insulation caps on test points and strainer area are installed.

Ensure that there is no sagging of the valve package and no strain in the connection point to main pipes from and to the system.

For FCU side, the connections are made through the flexible connectors and these flexible connectors are required to be insulated and ensure that the insulation is properly sealed at the location of the Valve Package connection point.

Valve Package shall be installed in such a way that all the valves, PICV and the connection are reachable for operation and maintenance through access doors and as close as possible to the access doors.

No other services shall be installed between access opening and the Valve package.

D. TESTING AND OPERATION GUIDELINES

PRESSURE TESTING

Pressure testing of the whole kit has already been done and certified for the rated pressure rating before delivery. While Contractor is testing after connecting to FCU and the piping system, the kit can be tested as a whole unit for the maximum test pressure as rated for each component. It is generally recommended not to test more than the rated pressure.

Ensure that the connections are properly made to avoid any leaks from the joints.

PERFORMANCE TESTING

There are two testing generally recommend.

Flow performance is tested through the measuring test points provided and this would measure the differential pressure across the Orifice arrangement inside the isolation valve. Refer to the chart provided for the flow measurement based on the size and the measured differential pressure.



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CONNECT FCU - ML-CFCU

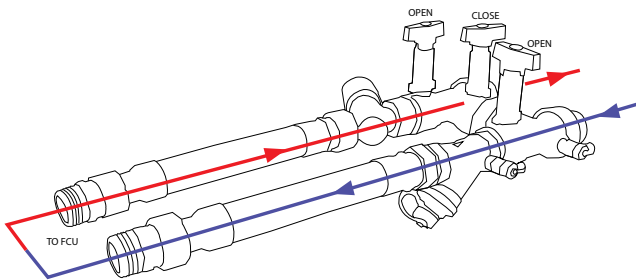
Installation & Maintenance Instructions

PICV's are set for the design flow by adjusting the pressure setting on the top of the valve. For each type of valves there is a table identifying the setting position and the flow rates.

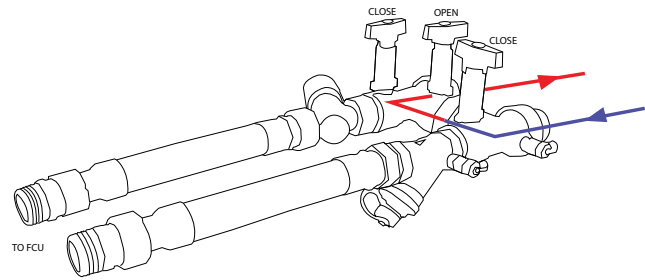
Refer to attached O&M Manuals relevant to PICVs for more details.

Please note that the PICVs in some models are supplied with teste points for measuring the differential pressure across the PICV to ensure that the PICVs are working within the maximum rated differential pressure. This is an optional and not mandatory as the flow measurement provision made on the isolation valve can be used to measure the flow.

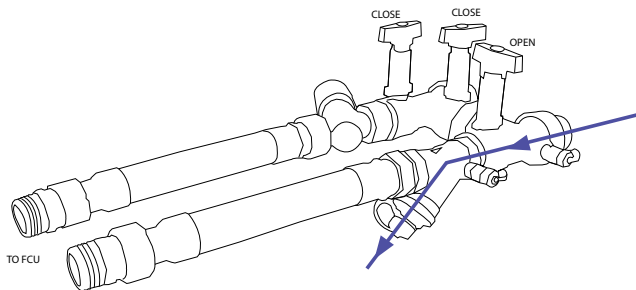
OPERATIONS



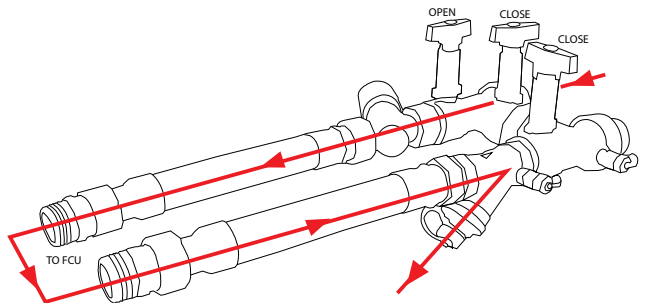
NORMAL OPERATION



BYPASS OPERATION



FORWARD OPERATION



BACKFLUSH OPERATION

Please note for above operations, Remove the PICV Insert/Catridge and put the Blind Cap and pump shall be switched off or branches connected to Connect FCU shall be isolate from Main Line.



General Supplier

CONNECT FCU - ML-CFCU

Installation & Maintenance Instructions

E. MAINTENANCE GUIDELINES

As the complete package is designed and tested to have no regular maintenance, it is recommended to have the following checks regularly.

- a. Strainers- Cleaning the basket – Recommended Bi Monthly and Mandatory Quarterly
- b. The insulation boxes are intact and the strips are holding properly- Every time the boxes are removed for any repair or operation or Maintenance
- c. Check whether the flows are as per the original setting (by keeping the PICV Valves fully open)- Half Yearly
- d. Check for any physical damage to Insulation or any condensation on joints – As frequently as possible but Monthly as Mandatory
- e. For other maintenance instructions specific to PICV please refer to attached PICV O&M Manual

F. RECOMMENDED SPARES TO BE STOCKED

Following are recommended to be stocked as spares and emergency replacement

- a. PICV Cartridge Diaphragm (at least one or two in each type)
- b. Actuator- 2 Nos in each type or 2% of total quantity whichever is maximum
- c. Insulation Boxes- 2 Nos in each type or 2% of total quantity whichever is maximum
- d. Flexible Hose-2 Nos in each type or 2% of total quantity whichever is maximum
- e. Recommended to have the complete package 1% in case of ordered quantities are more than 100 number per model.

G. SERVICE CONTACTS

In case of any further assistance or services required please feel free to contact our local representative.