

INSTALLATION AND OPERATION INSTRUCTION

FlowCon EVC 15-25mm, 1/2"-1"

The temperature control and automatic balancing valve **FlowCon EVC** is for use as terminal valve in an air condition or heating system to control the room temperature and automatic maintain the balance of the system.

Install the **FlowCon EVC** as called for in the design drawings. Although the performance of the valve is not affected either way, industry standards call for balancing devices to be installed on the downstream side of the terminal unit.

INSTALL THE VALVE HOUSING WITH THE FLOW DIRECTIONAL ARROW POINTING IN THE CORRECT DIRECTION.

The **FlowCon EVC** is available with union end connection on the inlet and fixed female threaded outlet (see figures 1 and 2).

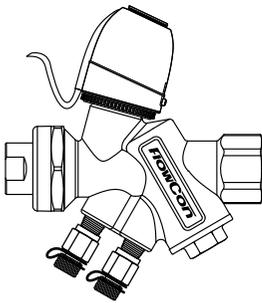


Figure 1

Two types of union end connections are available for use with the union nut:

Threaded inlet (male or female):

The thread standard is ISO 228, which is a straight metric thread (compatible with BS-2779) or NPT threading standard, depending on the end connection ordered. The threads on both the connection and piping should be cleaned carefully. The union nut and the end connection should be removed for installation.

An o-ring is supplied with the valve body and is used to seal the connection. It is recommended to grease the o-ring with a silicone grease before installation. **IMPORTANT:** Never use mineral oil or petrol based grease or oil on the o-ring. Please make sure it is in place in the o-ring groove in the inlet of the valve body, when installing the housing and **REMEMBER TO TIGHTEN THE UNION NUT TO ENSURE SEALING.**

Soldered end inlet (sweat):

REMOVE THE END CONNECTION FROM THE HOUSING BEFORE SOLDERING. THIS ENSURES THAT O-RING AND INTERNAL PARTS ARE NOT DAMAGED BY HEAT.

Threaded outlet:

The thread standard on the outlet is either ISO ISO 228, which is a straight metric thread (compatible with BS-2779) or NPT threading standard, depending on the product number ordered.

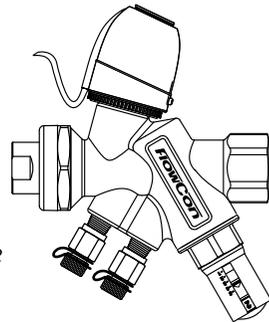


Figure 2

For all thread connections pls. clear threads on both valve and piping of debris. Sealant such as pipe dope or teflon tape is recommended. **WHEN USING HEMP AS PIPE SEALANT, ENSURE NO STRANDS ARE LEFT IN THE VALVE OR PIPING.**

Pressure/temperature fittings (p/t plugs) are available upon request for the EVC valve. Before finger mounting the p/t plugs in the body tappings please seal the threads of the p/t plugs (DO NOT OVER TIGHTEN).

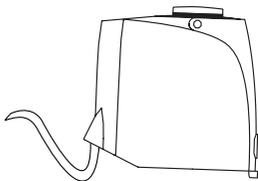
Alternatively to the p/t plugs, the valve body can be ordered with **plugs** for the body tappings. Each plug is sealed by a gasket.

Actuators:

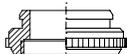
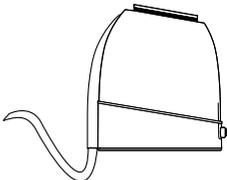
The actuator types **FlowCon EV.0.2, EV.0.3, EV.0.4 and EV.0.5** (i.e. figure 5) are supplied with a separate green colored adaptor nut. Use this adaptor nut and screw it finger tight to the connection thread at top of the EVS insert. Do not use additional tools. The actuator can now be fitted to the adaptor nut. A click noise will indicate that the actuator is fitted into a correct position.

The visor on the FlowCon EV.0.2 actuator is used to activate a release mechanism and when

Figure 3



FlowCon EV.0.2



FlowCon EV.0.3, EV.0.4 and EV.0.5

pushed, the actuator can be released and removed from the adaptor nut. By removing the visor after fitting the actuator, the actuator becomes tamper proof. Similar for the FlowCon EV.0.3, EV.0.4 and EV.0.5 actuators, these are released by pushing the button in the front side of the actuator and then removing the actuator from the adaptor nut.

To ensure that the valve is in an open position during commissioning of the system, all mentioned actuators will be delivered in a Normally Open position and remain in this position until they are electrically operated first time. During FIRST TIME POWERING operating voltage is applied for approximately 6 minutes.

Upside down installation is allowed for all mentioned actuators along with the standard horizontal and vertical installation.

Choice of cartridge:

FlowCon EVC valves can be installed with either a standard composite cartridge, internally adjustable to one of eight flow rates or the FlowCon E-JUST cartridge, externally adjustable to one of 41 different flow rates in the same cartridge. Alternatively, a factory-set stainless steel cartridge can be installed with an adaptor.

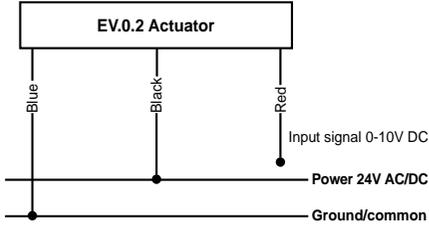
It is recommended that the o-rings located around the cartridge and adaptor are lubricated with silicone grease, before the cartridge/adaptor is installed into the valve body. **IMPORTANT:** Never use mineral oil or petrol based grease or oil on the o-rings.

If the stainless steel cartridge needs to be exchanged, it is necessary to slightly cut the sides of the grips on the adaptor with a box knife and remove the cartridge by pulling the two now flexible grips outwards on each side of the adaptor with one hand and pulling the stainless steel cartridge from the adaptor with the other. The o-ring will come out as well.

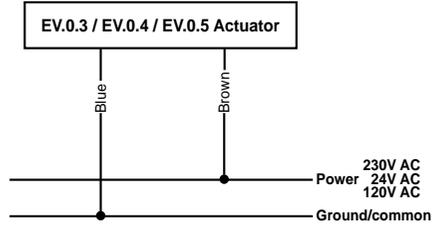
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Wiring diagram:

FlowCon EV.0.2



FlowCon EV.0.3, EV.0.4 and EV.0.5



Calculation of maximum cable length (copper cable) for **24 V rated voltage**

$$L = K \times A / n$$

- A Conductor cross-section in mm²
- n Number of actuators
- K Constant (269m/mm²)
- L Cable length in m

It is recommended the following lines for installing a 24 V system:

- Bell wire: Y(R) 0,6/0,8 mm²
- Light plastic-sheathed cable: NYM 1,5 mm²
- Flat webbed building wire: NYIF 1,5 mm²

A safety isolation transformer according to EN 61558-2-6 must always be used. Transformer dimensioning results from the making capacity of the actuators and based on the rule-of-thumb formula:

$$P_{\text{Transformer}} = 6W \times n$$

n = number of actuators.

It is recommended the following lines for installing a **120 V / 230 V system:**

- Light plastic-sheathed cable: NYM 1,5 mm²
- Flat webbed building wire: NYIF 1,5 mm²

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Before installing the replacement cartridge, the black composite part also needs to be replaced. Simply remove the composite part using a small piece of steel or brass bar or similar tool (ø10mm and 150mm length). Place the ancillary tool through the composite part and push down until the part loosens a little; no need to use much force. Then do the exact same thing from the opposite side of the part and the composite part is now free and can be easily removed from the brass head nut by hand.

The new composite part is placed into the brass head nut. Please be aware of the two marks on each side of the composite part; these must fit into the two grooves on the brass head nut. When in place, push the two parts together until they click and the adaptor is ready for use.

General.

It is recommended flushing the system before installing the cartridge in the valve body. Suitable flushing caps are available. Water must always be suitable treated, clean and free of debris. It is recommended that a strainer be installed prior to the valve body to prevent damage or blockage due to debris. Ensure that the valve is not in the fully closed position when filling the system with water. Further it is recommended not to exceed maximum differential pressure control range for the cartridge, particularly for the diaphragm type.

Warranty obligation.

Failure to abide by all recommendations as per this installation and operation instruction will void warranty.

Assembly drawing FlowCon EVC:

- A: Valve housing
- B1: E-JUST cartridge
- B2: Standard composite cartridge
- B3: Stainless steel cartridge with adaptor
- C: Adjustment key
- D1: P/t plug (2 pcs.)
- D2: Plug and gasket (2 of each)
- E: Union end connection
- F1: Actuator (here EV.0.3 to 5-type)
- F2: Adaptor nut
- G: Push button.

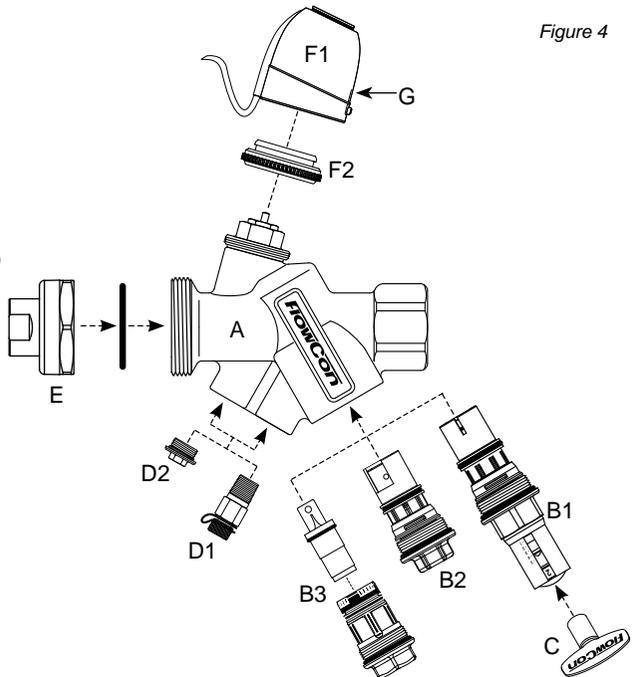


Figure 4