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).

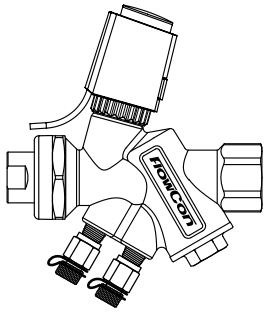


Figure 1

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.

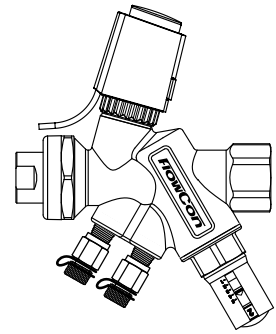


Figure 2

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).

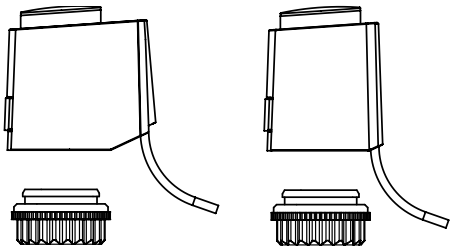
Alternatively to the p/t plugs, the valve body can be ordered with **plugs** for the body tappings. Each plug is sealed by a gasket.

Actuators

The actuator types **FlowCon EV.0.2, EV.0.3, EV.0.4, EV.0.5, EV.1.3 and EV.1.4** (i.e. figure 3) are supplied with a separate light grey colored adaptor ring incl. a dark blue spindle adaptor.Use this adaptor ring 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 ring. A click noise will indicate that the actuator is fitted into a correct position.

All FlowCon EV-actuators are equipped with a front push button to activate the release mechanism. When pushed, the actuator is released and can be removed from the adaptor ring.

Figure 3



FlowCon EV.0.2, EV.1.3 and EV.1.4

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

A special feature on FlowCon EV.0.2 will allow the actuator becomes tamper proof as the push button is removable.

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.
FIRST TIME POWERING requires operating voltage applied for approximately 6 minutes.

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

Choice of insert

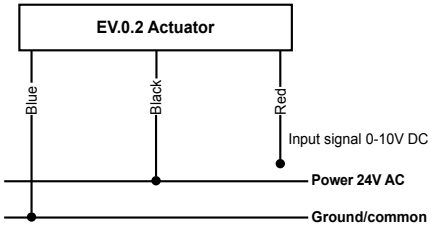
FlowCon EVC valves can be installed with either a standard composite insert, internally adjustable to one of eight flow rates or the FlowCon E-JUST insert, externally adjustable to one of 41 different flow rates in the same insert.
Alternatively, a factory-set stainless steel cartridge can be installed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

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

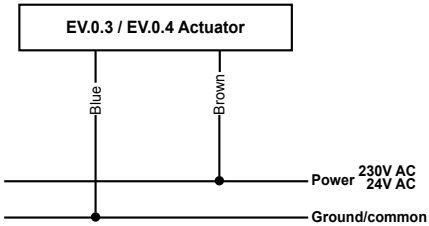
If a stainless steel insert is used, please make sure that the insert o-ring is placed on the inside groove at the top of the adaptor BEFORE inserting the insert! Hereafter the insert is easily inserted with a hard push. Once pushed in fully, the insert is correctly fitted. Screw on the lock ring and insert the adaptor into the valve body. The insert can be removed by unscrewing the lock ring and pulling out the insert. The insert o-ring will also come out. Insert the new o-ring and afterwards insert the new insert as described above.

Wiring diagram

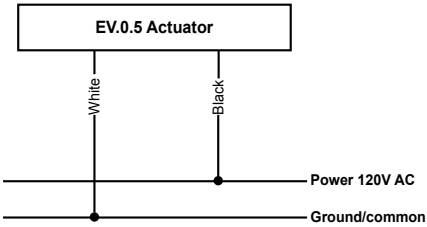
FlowCon EV.0.2



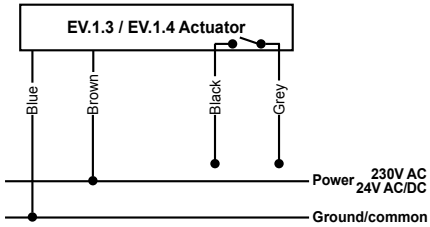
FlowCon EV.0.3 and EV.0.4



FlowCon EV.0.5



FlowCon EV.1.3 and EV.1.4



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

L = K x 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:

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

n = number of actuators.

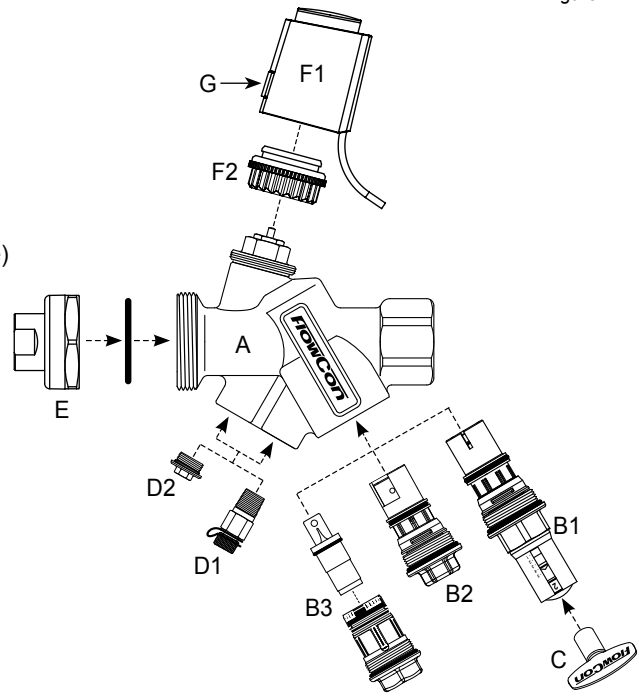
It is recommended the following lines for installing a **120 V / 230 V system:**

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

Assembly drawing FlowCon EVC

A: Valve housing
B1: E-JUST insert
B2: Standard composite insert
B3: Stainless steel insert 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 ring (grey)
G: Push button.

Figure 4



General

It is recommended flushing the system before installing the insert 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 insert, particularly for the diaphragm type.

Warranty obligation

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

For latest updates please see www.flowcon.com

FlowCon International assumes no responsibility for mistakes, if any, in any printed material.