

INSTALLATION AND OPERATION INSTRUCTION

FlowCon EVS insert

The **FlowCon EVS** plug-in insert is for use with three different FlowCon valve housings, either FlowCon A, FlowCon AB or FlowCon ABV1.

Install the selected valve housing 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. Especially for the ABV1 with its isolation ball valve, it is recommended to ensure the isolation valve is downstream of the balancing device. **INSTALL THE VALVE HOUSING WITH THE FLOW DIRECTIONAL ARROW POINTING IN THE CORRECT DIRECTION.**

The **FlowCon A** valve (Model Nos. A15.X, A20.X and A25.I.K) is available with fixed female-by-female threaded connections, i.e. figure 1.

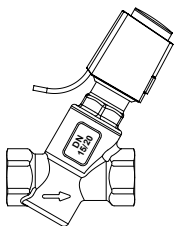


Figure 1

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

For all threaded 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.

The **FlowCon AB** valve (Model Nos. AB15.X, AB20.X and AB25.I.K) is similarly available with fixed female-by-female threaded connections, i.e. figure 2.

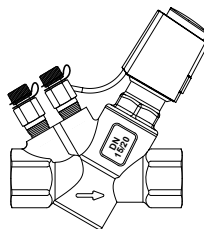


Figure 2

The thread standard for the AB model is equal to what is available for the A model.

For all threaded 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 AB valve. Before finger mounting the p/t plugs in the body tappings, pls. seal the threads of the p/t plugs (DO NOT OVER TIGHTEN).

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

The **FlowCon ABV** valve (Model No. ABV1) is available with double union end connections, i.e. figure 3.

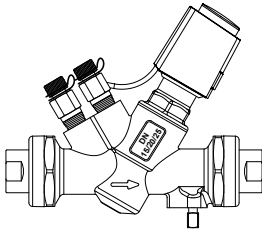


Figure 3

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

Threaded (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 connections ordered. The threads on both the connection and piping should be cleaned carefully. As these models are union end connected, the union nuts and the end connections should be removed for installation.

O-rings are supplied with the valve body and used to seal the connections. It is recommended to grease the o-rings with silicone grease before installation. **IMPORTANT:** Never use mineral oil or petrol based grease or oil on the o-rings. Please make sure these are in place in the o-ring grooves in the inlet and outlet of the valve body, when installing the housing and **REMEMBER TO TIGHTEN THE UNION NUTS TO ENSURE SEALING.**

For all threaded 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.**

Soldered end (sweat):

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

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

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

Inserting the insert

The factory pre-set stainless steel flow control insert is fitted into the EVS insert from the bottom and is held in position by the lock ring screwed onto the EVS insert.

It is recommended that the o-rings located around the EVS insert, in the bottom and in the middle, are lubricated with silicone grease, before the EVS insert is installed into the valve body.

IMPORTANT: Never use mineral oil or petrol based grease or oil on the o-rings.

NOTE: When applying the flow control insert, please make sure that the insert o-ring is placed on the inside groove at the top of the EVS insert **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 EVS insert 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.

- A: Pin
- B: EVS insert
- C: Inside groove
- D: Insert o-ring
- E: Stainless steel insert
- F: Lock ring.

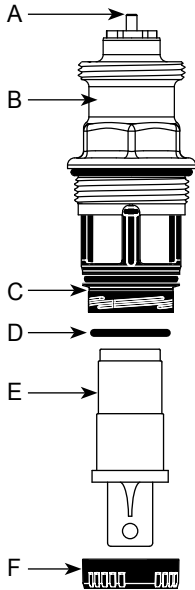


Figure 4

Stainless Steel Inserts
DN15/20/25, 1/2"-1" (3/4" insert)

l/sec	l/hr	GPM	Type 1	Type 2	Type 4
			10-95 kPaD	22-210 kPaD	40-390 kPaD
0.0210	75.7	0.333	F360111		
0.0315	114	0.500	F360101		
0.0347	125	0.550		F360211	
0.0421	151	0.667	F360102		
0.0473	170	0.750		F360201	F360411
0.0631	227	1.00	F360103	F360202	F360401
0.0694	250	1.10			
0.0841	303	1.33	F360104		F360402
0.0946	341	1.50		F360203	
0.105	379	1.67	F360105		
0.126	454	2.00	F360106	F360204	F360403
0.147	530	2.33	F360107		
0.158	568	2.50		F360205	
0.168	606	2.67	F360108		F360404
0.189	681	3.00		F360206	
0.210	757	3.33	F360110		F360405
0.221	795	3.50		F360207	
0.252	908	4.00	F360112	F360208	F360406
0.294	1060	4.67	F360114		F360407
0.315	1140	5.00	F360116	F360210	
0.336	1210	5.33			F360408
0.379	1360	6.00		F360212	
0.421	1510	6.67			F360410
0.442	1590	7.00		F360214	
0.505	1820	8.00		F360216	F360412
0.589	2120	9.33			F360414
0.631	2270	10.0			F360416
0.757	2730	12.0			
0.883	3180	14.0			
1.01	3630	16.0			

Accuracy ±5%

Actuators

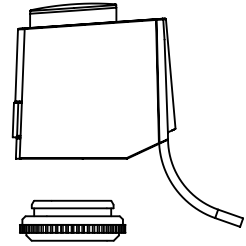
The actuator types **FlowCon EV.0.2, EV.0.3, EV.0.4, EV.0.5, EV.1.3** and **EV.1.4** (i.e. figure 5) are supplied with a separate black colored adaptor ring. Use this adaptor ring and screw it finger tight to the connection thread at top of the EVS insert. Do not use additional tools. The actuator can 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. A special feature on FlowCon EV.0.2 will allow the actuator becomes tamper proof as the push button is removable.

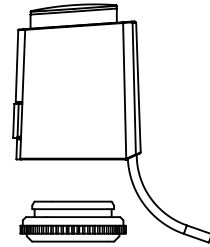
To ensure that the valve is in an open position during commissioning of the system, all mentioned actuators will be delivered in a Normally Open position and remain in this position until they are electrically operated first time. **FIRST TIME POWERING** requires operating voltage applied for approximately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

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

Figure 5



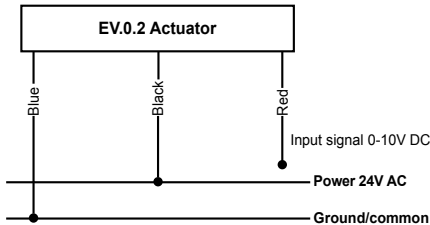
FlowCon EV.0.2, EV.1.3 and EV.1.4



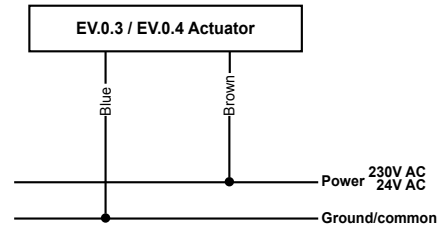
FlowCon EV.0.3, EV.0.4 and EV.0.5

Wiring diagram

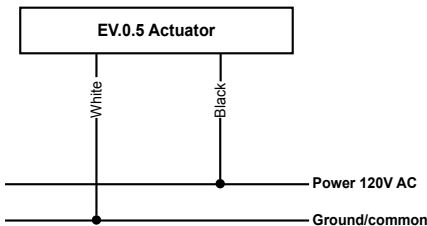
FlowCon EV.0.2



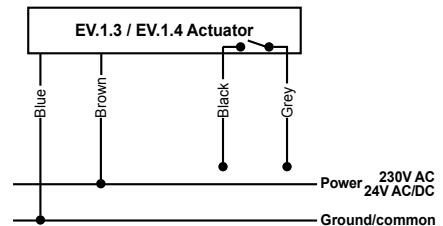
FlowCon EV.0.3 and EV.0.4



FlowCon EV.0.5



FlowCon EV.1.3 and EV.1.4



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

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

A Conductor cross-section in mm²

n Number of actuators

K Constant (269m/mm²)

L Cable length in m

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 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

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 EVS
in ABV1 housing**

- A: Valve housing
 B1: Stainless steel insert
 B2: O-ring
 C: Adjustment key
 D1: P/t plug (2 pcs.)
 D2: Plug and gasket (2 of each)
 E: Union end connections
 F1: Actuator (here EV.0.3 to EV.0.5-type)
 F2: Adaptor ring (black)
 G: Pushbutton
 H1: EVS insert
 H2: Lock ring to EVS insert.

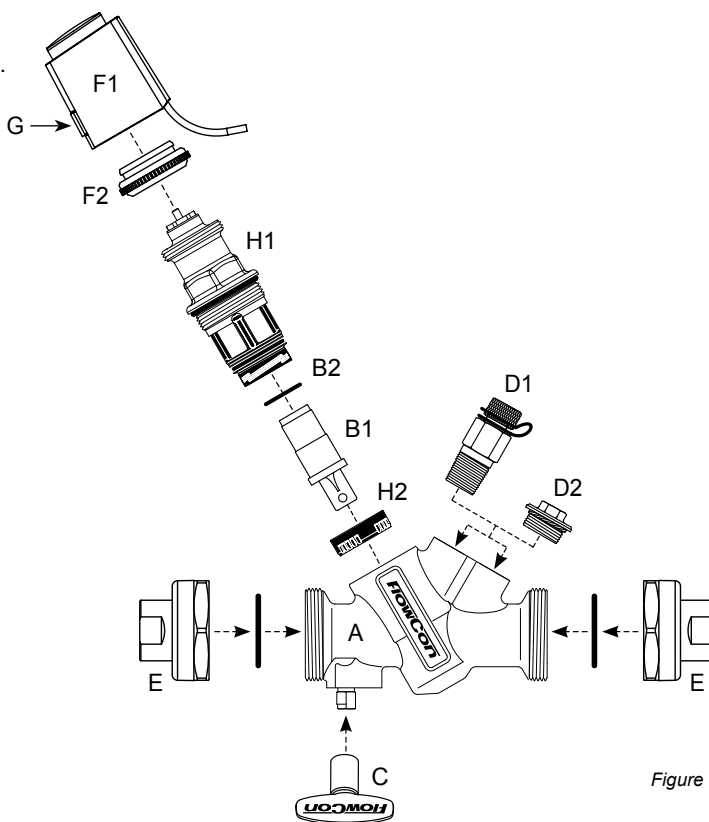


Figure 6

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.

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

