

FlowCon EVS

*Plug-in Insert for Temperature Control
of Automatic Balancing Valve*



SPECIFICATIONS

Insert:

Pressure rating:	1600 kPa, 232 psi
Temperature rating, media:	-30°C to +100°C, -22°F to +212°F
Temperature rating, ambient:	-10°C to +45°C, +14°F to +113°F
Material:	
- Body:	Brass ASTM B584 and polyoxymethylene
- Cartridge:	Stainless steel AISI type 304
- Spring:	Stainless steel type 17-7
- Spindel:	Brass
- Seat plug and o-rings	EPDM
Maximum close off pressure:	400 kPa, 58 psi
Shut off leakage:	Tight
Pressure drop:	Kvs ¹ -value 2.35 m ³ /h

Note 1: The Kvs-value of 2.35 m³/h, which corresponds to the temperature control and valve housing, will provide an additional pressure drop.
This additional pressure drop will provide an offset of pressure range, which needs to be added into the control range for the Flow Control Cartridge.
This offset is depended off the flow rate for the selected cartridge. See the diagram and example on page 6.

SPECIFICATIONS (continued)

Valve:

Material:

- Body:

- Ball valve:

End Connections:

Forged brass ASTM CuZn39Pb2

ABV: Chemically nickel plated brass ball

A: female ISO or NPT

AB: female ISO or NPT

ABV: union end connections in brass alloy ISO, NPT or sweat

Electrical:

TYPE EV.0.2

Supply voltage:

Control signal:

Short term current:

Constant current:

Closing and opening time:

Ambient temperature:

Protection:

Cable:

EV.0.2 - 24V AC $\pm 15\%$

Analog 0-10V DC, (offset 0.15V), normally closed

300 mA

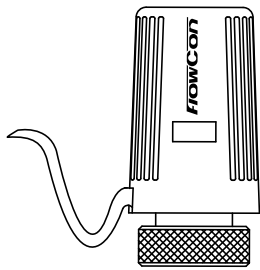
100 mA

From 3V to 8V: 60s/mm

0°C to +45°C

IP44

0.6 meter fixed cable



Type EV.0.2

TYPE EV.0.3, EV.0.4 and EV.0.5

Supply voltage:

Control signal:

Operating power:

Dead time / hold time:

Closing and opening time:

Ambient temperature:

Protection:

Cable:

EV.0.3 - 230V AC/DC $\pm 10\%$, 50/60 Hz

EV.0.4 - 24V AC/DC $\pm 20/-10\%$, 0-60 Hz

EV.0.5 - 120V AC, $\pm 10\%$, 50/60 Hz

ON/OFF, normally closed²

1.8 Watt

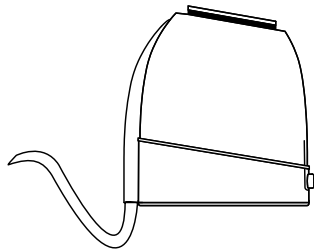
30-60 sec

Approx. 3 min

0°C to +60°C

IP54, class II

1 meter fixed cable



Type EV.0.3, EV.0.4, EV.0.5,
EV.1.3 and EV.1.4
Valve adaptor, green

TYPE EV.1.3, and EV.1.4

Technical details as above, but including end switches

Micro-switch:

EV.1.3 - 230V AC, 5A ohm resistive load

EV.1.4 - 24V AC, 3A ohm resistive load

1A inductive load

Switching point:

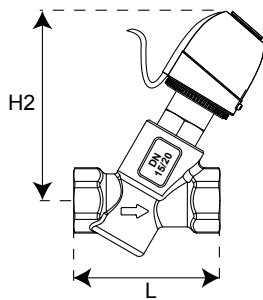
approx. 2mm

Note 2: To ensure that the valve is in an open position during commission of the system, the actuator will be delivered in a normal open position and remain in this position until it is electrically operated first time.

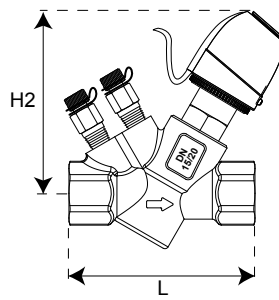
DIMENSIONS AND WEIGHTS (NOMINAL) (measured in mm unless noted)

Model no.	Actuator	With valve model no.	Valve size	L	H1	H2	End connections C ³			Weight (kgs.) w/o end conn.
							ISO female	ISO male	Sweat	
EVS	EV.0.2	ABV1	15	122	128	-	22	25	20	1.10
			20				22	25	20	
			25				-	39	22	
	EV.0.3 EV.0.4 EV.0.5 EV.1.3 EV.1.4	ABV1	15	122	-	106	22	25	20	1.10
			20				22	25	20	
			25				-	39	22	
	EV.0.2	AB	15	82	128	-				0.70
			20	94						0.75
	EV.0.3 EV.0.4 EV.0.5 EV.1.3 EV.1.4	AB	15	82	-	106				0.70
			20	94						0.75
	EV.0.2	A	15	80	128	-				0.70
			20							0.65
	EV.0.3 EV.0.4 EV.0.5 EV.1.3 EV.1.4	A	15	80	-	106				0.70
			20							0.65

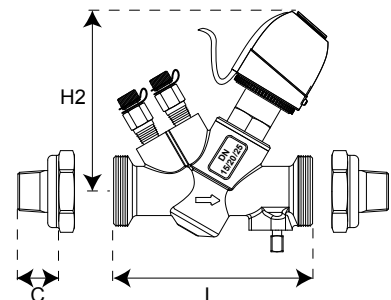
Note 3: Add end connection length to body length.



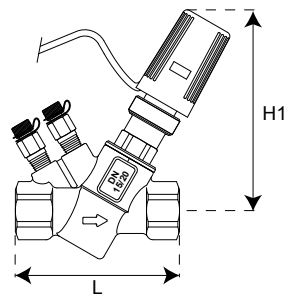
EV.0.3, EV.0.4, EV.0.5, EV.1.3 and EV.1.4 on FlowCon A



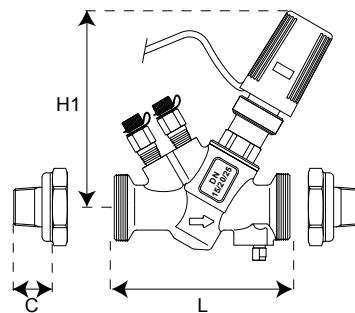
EV.0.3, EV.0.4, EV.0.5, EV.1.3 and EV.1.4 on FlowCon AB 15/20mm



EV.0.3, EV.0.4, EV.0.5, EV.1.3 and EV.1.4 on FlowCon ABV1



EV.0.2 on FlowCon AB 15/20mm



EV.0.2 on FlowCon ABV1

MODEL NUMBER SELECTION

EVS

Insert type of actuator:
2=EV.0.2 **3**=EV.0.3 **4**=EV.0.4 **5**=EV.1.3 **6**=EV.1.4 **7**=EV.0.5

Insert type of body:
1=AB15 **2**=AB20 **3**=ABV1(15/20/25mm) **4**=A15 **5**=A20

Insert p/t plug requirements:
 Leave it **blank** if no p/t plugs are required **B**=pressure/temperature plugs **P**=taps plugged

Insert inlet x outlet union end connections - leave it **blank** if A- or AB-body or no end connections required:

Body size	Female threaded	Male treaded	Sweat
Union end 15-25mm, 1/2"-1"	E =15mm=1/2" F =20mm=3/4"	H =15mm=1/2" I =20mm=3/4" J =25mm=1"	K =15mm L =18mm M =22mm

Insert connection standard:
I=ISO **N**=NPT

Insert automatic flow limiting cartridge code:
 (Determine from cartridge selection chart)

Insert kPaD control range:
1=10-95 kPa **2**=22-210 kPa **4**=40-390 kPa

Example: EVS.2.1.P.F360206.2=an insert with an EV.0.2 actuator, AB15mm valve body, taps plugged and a cartridge for 0.189 l/sec within the control range of 22-210 kPaD.

FLOW RATE TABLE - STAINLESS STEEL CARTRIDGE - FOR VALVES DN15-DN25

20mm · 3/4" stainless steel cartridge									
Pressure range, ΔP:			10-95 kPa 1-14 psid		22-210 kPa 2-32 psid		40-390 kPa 4-57 psid		
Controlled flow rate				Type 1		Type 2		Type 4	
	l/sec	l/hr	GPM	Marking	FlowCon	Marking	FlowCon	Marking	FlowCon
	0.0210	75.7	0.333	11-1	F360111				
	0.0315	114	0.500	01-1	F360101				
	0.0347	125	0.550			11-2	F360211		
	0.0421	151	0.667	02-1	F360102				
	0.0473	170	0.750			01-2	F360201	11-4	F360411
	0.0631	227	1.00	03-1	F360103	02-2	F360202	01-4	F360401
	0.0694	250	1.10						
	0.0841	303	1.33	04-1	F360104			02-4	F360402
	0.0946	341	1.50			03-2	F360203		
	0.105	379	1.67	05-1	F360105				
	0.126	454	2.00	06-1	F360106	04-2	F360204	03-4	F360403
	0.147	530	2.33	07-1	F360107				
	0.158	568	2.50			05-2	F360205		
	0.168	606	2.67	08-1	F360108			04-4	F360404
	0.189	681	3.00			06-2	F360206		
	0.210	757	3.33	10-1	F360110			05-4	F360405
	0.221	795	3.50			07-2	F360207		
	0.252	908	4.00	12-1	F360112	08-2	F360208	06-4	F360406
	0.294	1060	4.67	14-1	F360114			07-4	F360407
	0.315	1140	5.00	16-1	F360116	10-2	F360210		
	0.336	1210	5.33					08-4	F360408
	0.379	1360	6.00			12-2	F360212		
	0.421	1511	6.67					10-4	F360410
	0.442	1590	7.00			14-2	F360214		
	0.505	1820	8.00			16-2	F360216	12-4	F360412
	0.589	2120	9.33					14-4	F360414
	0.631	2270	10.0					16-4	F360416

Accuracy: ±5% of controlled flow rate.

GENERAL DESCRIPTION

The EVS Insert-series are for ON/OFF or analog temperature control, designed for use in connection with the dynamic self balancing valves at the types FlowCon A, AB or ABV1, as replacement of the composite cartridges.

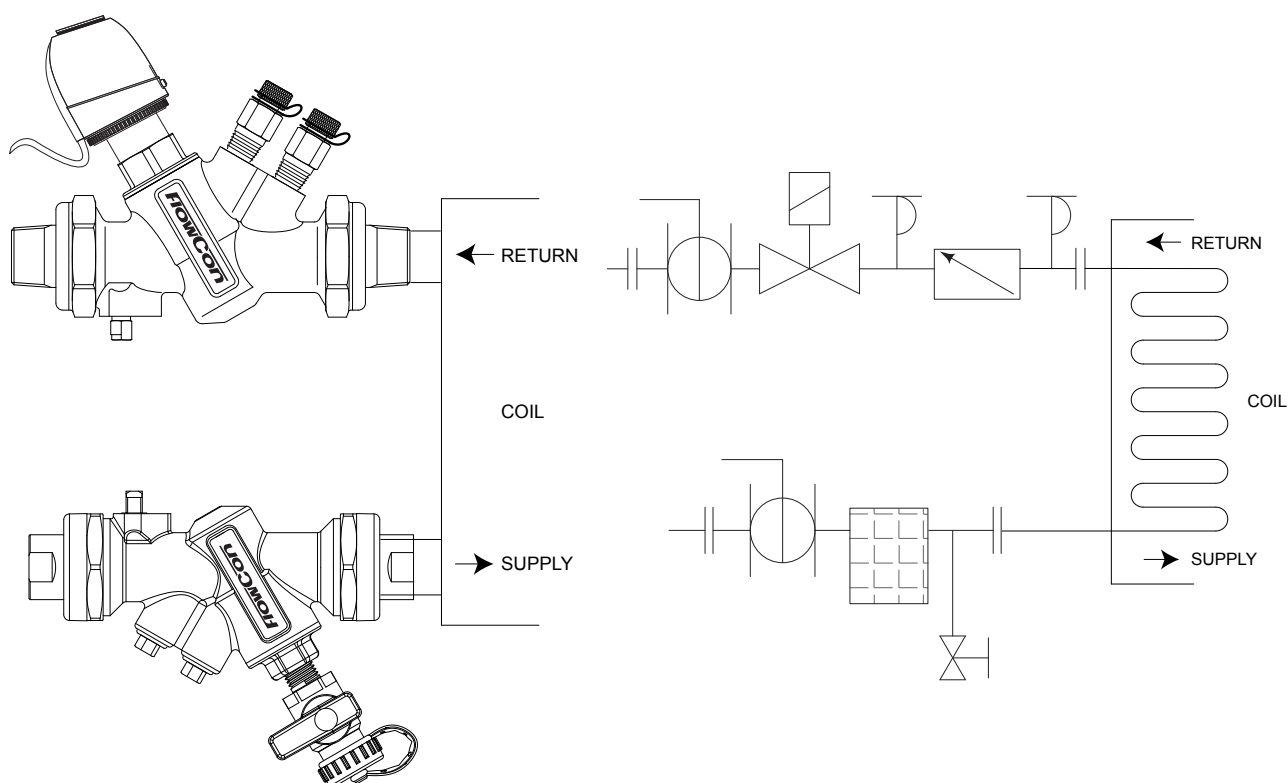
The actuators type EV.1.3. and EV.1.4 (230V and 24V on/off respectively) are available with end switches which can be used for controlling the fan in priority to the open position of the valve.

The insert will in connection with the dynamic self balancing valve provide ON/OFF or analog temperature control and self balancing flow control for use with fan coil units in air-condition or as zone valve in heating systems.

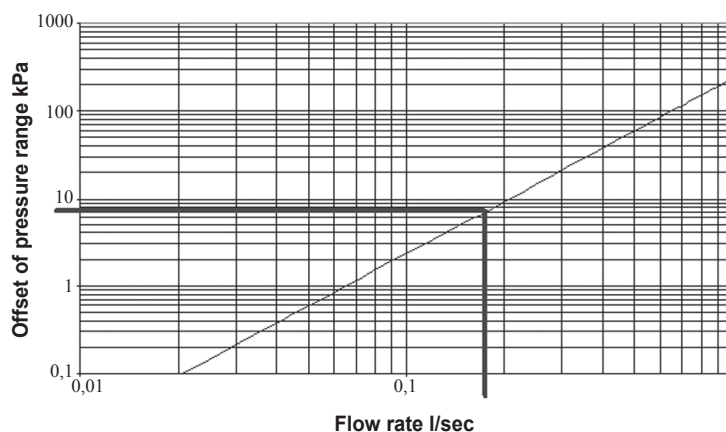
GENERAL SPECIFICATIONS

1. **ON/OFF OR ANALOG TEMPERATURE CONTROL /
FLOW RATE LIMITING VALVES FLOWCON EVS + FLOWCON A, AB or ABV1.**
 - 1.1. Contractor shall install balancing/temperature valves where indicated in drawings.
 - 1.2. The flow limiting device shall be available as a plug-in device for an in line valve housing.
2. **VALVE ACTUATOR**
 - 2.1. Actuator shall provide of a visual indication of the valve position.
 - 2.2. The valve shall be closing when the actuator is not powered.
 - 2.3. The valve shall withstand a shut off pressure of at least 400 kPa without allowing internal leakage.
 - 2.4. The seat plug shall be manufactured of EPDM rubber.
 - 2.5. The packing box for sealing the stem shall be removable with the system in operation, without allowing external leakage.
3. **VALVE INSERT**
 - 3.1. The insert shall be constructed of forged Brass ASTM B584 and polyoxymethylene, rated at no less than 1600 kPa static pressure at +100°C.
4. **VALVE HOUSING**
 - 4.a. **FlowCon A**
 - 3.a.1 Valve housing shall consist of forged brass ASTM CuZn39Pb2, rated at no less than 2500 kPa static pressure at +100°C.OR....
 - 4.b. **FlowCon AB**
 - 3.b.1 Valve housing shall consist of forged brass ASTM CuZn39Pb2, rated at no less than 2500 kPa static pressure at +100°C.
 - 3.b.2 Pressure/temperature test plugs for verifying accuracy of flow performance shall be available for all valve sizes.OR....
 - 4.c. **FlowCon ABV**
 - 3.c.1 Valve housing shall consist of forged brass ASTM CuZn39Pb2, rated at no less than 2500 kPa static pressure at +100°C.
 - 3.c.2 Valve ball shall consist of chemically nickel plated brass (ASTM CuZn39Pb2).
 - 3.c.3 Pressure/temperature test plugs for verifying accuracy of flow performance shall be available for all valve sizes.
5. **FLOW REGULATOR / AUTOMATIC BALANCING UNIT**
 - 5.1. Flow regulation cartridge assembly shall be precision ground, all AISI type 304 stainless steel; shall be available in three kPaD control ranges; minimum range shall be capable of being activated by minimum 10 kPa; and shall be capable of controlling flow within $\pm 5\%$ of rated flow.
 - 5.2. Flow regulation unit shall be readily accessible for change-out or maintenance.

APPLICATION AND SCHEMATIC EXAMPLE



OFFSET OF PRESSURE RANGE



Example: The index flow 0.189 l/sec is selected into the cartridge no. F360206, range 2 (22-210 kPaD) from the “cartridge selection chart” on page 4. This selection will result in an offset value of 8 kPa into a new control range of 30-218 kPa for the cartridge.

UPDATES

For latest updates please see www.flowcon.com

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