

## FlowCon EVS 15-25mm

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



### SPECIFICATIONS

#### **Insert:**

Pressure rating:	1600 kPa / 232 psi
Temperature rating, media <sup>1</sup> :	-20°C to +120°C / -4°F to +248°F
Temperature rating, ambient:	0°C to +60°C / +32°F to +140°F
Material:	
- Cartridge:	Stainless steel AISI type 304
- Body:	Brass ASTM B584 and polyoxymethylene
- 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
Flow rate range:	0.0210-0.631 l/sec

#### **Valve:**

Material:	
- Body:	Forged brass ASTM CuZn40Pb2
- Ball valve:	ABV: Chemically nickel plated brass ball
End Connections:	A: Female ISO or NPT
	AB: Female ISO or NPT
	ABV: Union end connections in brass alloy ISO or NPT

Note 1: Stated temperature rating is defined due to no external spindle condensation.

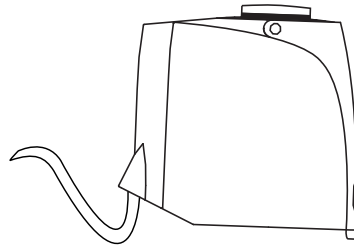
## SPECIFICATIONS (continued)

### FlowCon Actuators:

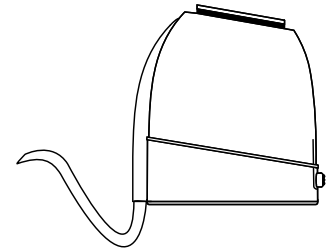
FlowCon Actuator <sup>2</sup>	EV.0.2	EV.0.3	EV.0.4	EV.0.5	EV.1.3	EV.1.4
Supply voltage	24V AC -10%/+20% 50/60Hz	230V AC ±10% 50/60Hz	24V AC/DC +20/-10% 0-60Hz	120V AC ±10% 50/60Hz	230V AC ±10% 50/60Hz	24V AC/DC +20/-10% 0-60Hz
Power consumption	1.8 watt	1.8 watt			1.8 watt	
Control signal	0-10V DC normally closed <sup>3</sup>	ON/OFF normally closed <sup>3</sup>			ON/OFF normally closed <sup>3</sup>	
Operation time	Approx. 2 min	Approx. 3 min			Approx. 3 min	
Ambient temperature	+0°C to +60°C	+0°C to +60°C			+0°C to +60°C	
Protection	IP54	IP54, class II			IP54, class II	
Cable	Plug-in, 1 meter	Fixed, 1 meter			Fixed, 1 meter	
Weight	0.130 kg	0.105 kg			0.105 kg	
Including end switch	No				Yes	
Switching point	N/A	N/A	N/A	N/A	Approx. 2mm	Approx. 2mm
Switching capacity	N/A	N/A	N/A	N/A	230V AC 5A ohm resistive load	24V AC 3A ohm resistive load

Note 2: FlowCon warranty is voided using other actuators than supplied or recommended by FlowCon International A/S.

Note 3: 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.



*Type EV.0.2  
Valve adaptor, green*



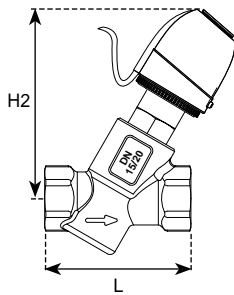
*Type EV.0.3, EV.0.4, EV.0.5,  
EV.1.3 and EV.1.4  
Valve adaptor, green*

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

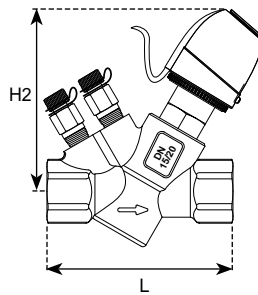
Valve model	Actuator model	Valve size	Cartridge size	L	H1	H2	End connections C <sup>3</sup>			Weight (kgs.) w/o end conn.	Kv <sup>4</sup> (m <sup>3</sup> /hr)
							ISO female	ISO male	Sweat		
A	EV.0.2	15	20	80	120	N/A				0.70	2.35
		20							0.65		
		25							0.68		
	EV.0.3 EV.0.4 EV.0.5 EV.1.3 EV.1.4	15	20	80	N/A	106				0.70	2.35
		20							0.65		
		25							0.68		
AB	EV.0.2	15	20	82	120	N/A				0.70	2.35
		20							0.75		
		25							0.75		
	EV.0.3 EV.0.4 EV.0.5 EV.1.3 EV.1.4	15	20	82	N/A	106				0.70	2.35
		20							0.75		
		25							0.75		
ABV1	EV.0.2	15	20	122	120	N/A	22	25	20	1.10	2.35
		20					22	25	20		
		25					-	39	22		
	EV.0.3 EV.0.4 EV.0.5 EV.1.3 EV.1.4	15	20	122	N/A	106	22	25	20	1.10	2.35
		20					22	25	20		
		25					-	39	22		

Note 3: Add end connection length to body length.

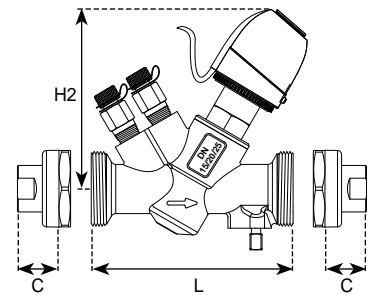
Note 4: The Kvs-value of 2.35 m<sup>3</sup>/h, which corresponds to the temperature control and valve housing, will provide an additional pressure drop. This additional pressure drop will provide an offset of pressure range, which needs to be added into the control range for the Flow Control Cartridge. This offset is depended off the flow rate for the selected cartridge. See the diagram and example on page 7.



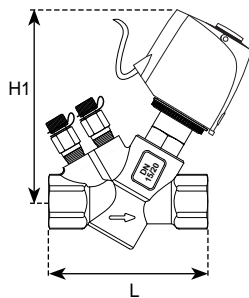
EV.0.3, EV.0.4, EV.0.5, EV.1.3 and EV.1.4 on FlowCon A



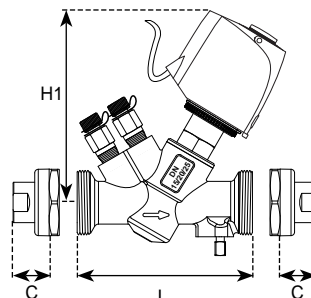
EV.0.3, EV.0.4, EV.0.5, EV.1.3 and EV.1.4 on FlowCon AB 15/20mm



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:  
 01=AB15 02=AB20 03=ABV1(15/20/25) 04=A15  
 05=A20 06=A25 09=AB25

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 kPaD 2=22-210 kPaD 4=40-390 kPaD - leave blank if no cartridge is required

Example: EVS.2.01.P.I.F360206.2=EVS insert in AB 15mm ISO female threaded body with plugs, 24V modulating actuator and a F360206 cartridge (0.189 l/sec, 22-210 kPaD).

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

20mm · 3/4" stainless steel cartridge									
Pressure range, ΔP:			10-95 kPaD 1-14 psid	22-210 kPaD 2-32 psid		40-390 kPaD 4-57 psid			
Nominal 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.

## ACCESSORIES

- P/t plugs: 2 x ACC00101
- Plugs and gaskets: 2 x ACC1B03000
- Spare part, black composite part: EVS.0.0.1.

## GENERAL DESCRIPTION

The standard actuators available for the FlowCon EVS valve are thermal actuators that operate ON/OFF on 24V AC/DC, 120V AC and 230V AC/DC or modulating on 24V AC respectively. ON/OFF actuators are available with end switches which can be used for controlling the fan in priority to the open position of the valve.

The EVS-insert with stainless steel cartridge will in connection with the FlowCon A, AB and ABV1 valve bodies provide temperature control and dynamic balancing for use in cooling ceilings, fan coil units in air-condition or as zone valve in heating systems.

## GENERAL SPECIFICATIONS

### 1. AUTOMATIC BALANCING AND TEMPERATURE CONTROL 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 inline valve housing.

### 2. VALVE ACTUATOR

- 2.1. Actuator shall provide 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 consist of forged brass ASTM B584 and polyoxymethylene, rated at no less than 1600 kPa static pressure and +120°C.
- 3.2. The insert shall include a lock-ring for fast fitting and re-fitting of flow regulation unit.

### 4. VALVE HOUSING

#### 4.a. **FlowCon A**

- 4.a.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 2500 kPa static pressure and +120°C.
- 4.a.2. Valve housing shall be permanently marked to show direction of flow.
- 4.a.3. Housing shall be configured for flow regulation unit accessibility.

OR....

#### 4.b. **FlowCon AB**

- 4.b.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 2500 kPa static pressure and +120°C.
- 4.b.2. Valve housing shall be permanently marked to show direction of flow.
- 4.b.3. Optional pressure/temperature test plugs for verifying accuracy of flow performance shall be available for all valve sizes.
- 4.b.4. Housing shall be configured for flow regulation unit accessibility.

OR....

#### 4.c. **FlowCon ABV**

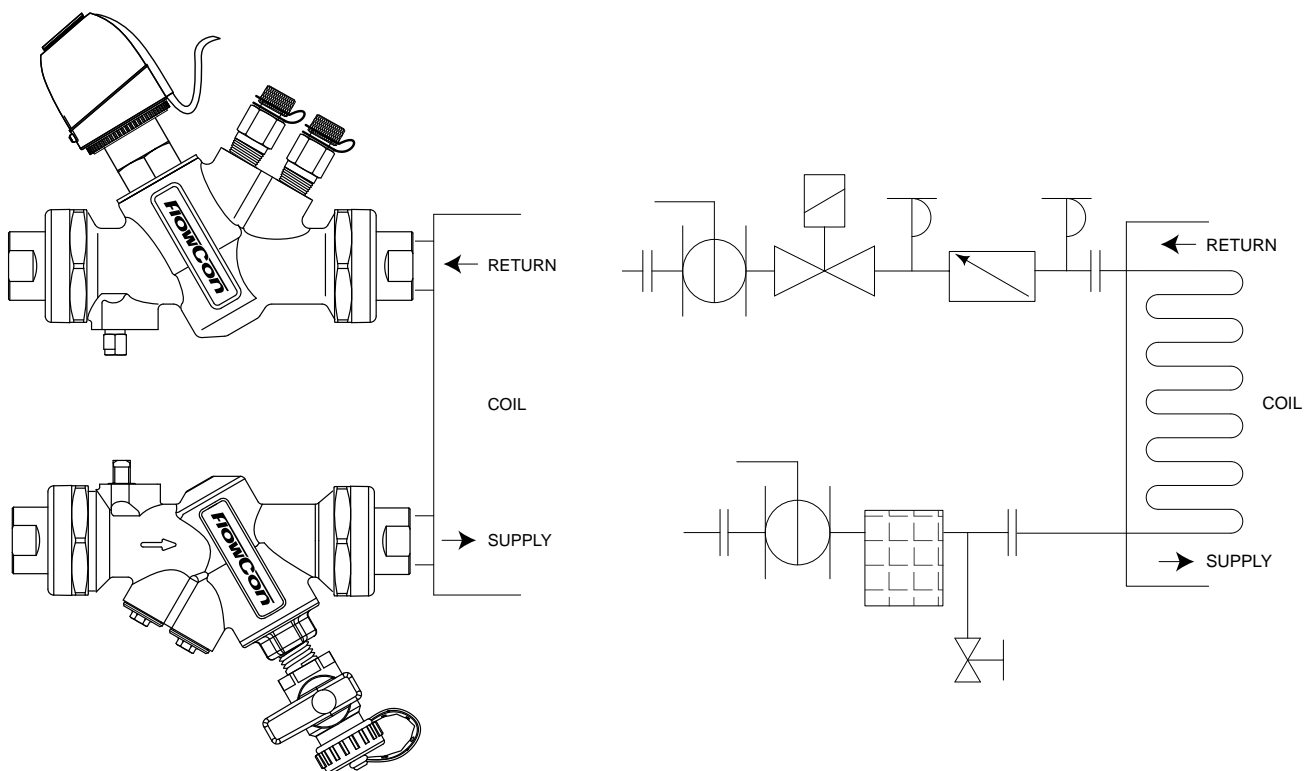
- 4.c.1. Valve housing shall consist of forged brass ASTM CuZn40Pb2, rated at no less than 2500 kPa static pressure and +120°C.
- 4.c.2. Valve housing shall be permanently marked to show direction of flow.
- 4.c.3. Valve housing shall be double union end constructed with a range of pipe connections available for the appropriate pipe size.
- 4.c.4. Valve ball shall consist of chemically nickel plated brass (ASTM CuZn40Pb2).
- 4.c.5. Optional pressure/temperature test plugs for verifying accuracy of flow performance shall be available for all valve sizes.
- 4.c.6. Housing shall be configured for flow regulation unit accessibility.

## GENERAL SPECIFICATIONS (continued)

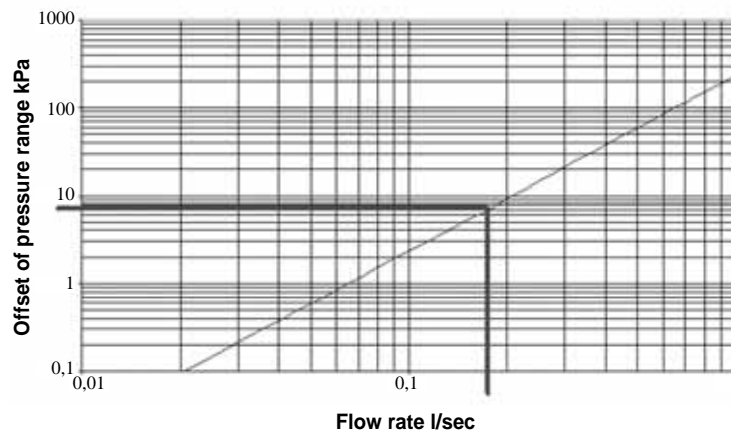
### 5. FLOW REGULATOR / AUTOMATIC BALANCING UNIT

- 5.1. Flow regulation unit assembly shall be manufactured of AISI type 304 stainless steel and stainless steel 17-7 spring.
- 5.2. Flow regulation unit shall be readily accessible for change-out or maintenance.
- 5.3. Flow regulation unit shall be available in 3 different kPaD operational ranges, minimum range shall be capable of being activated by minimum 10 kPaD. Further, the flow regulation unit shall be capable of controlling flow within  $\pm 5\%$  of rated flow.
- 5.4. Identification tags shall be available for all valves; tags shall be indelibly marked with part number and flow rate.

## 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

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