

# FlowCon EVC / ABM

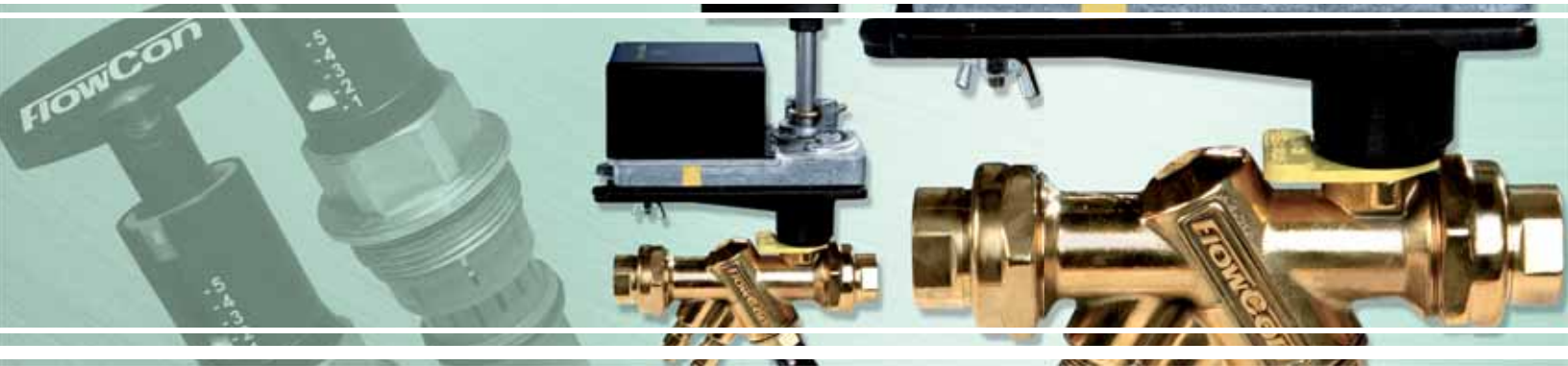


*Balanced Temperature Control Valves*

**FLOW**

# FlowCon EVC and ABM

*Temperature Control and Automatic Balancing combined in a Single Unit for Total Flow Control*



The FlowCon EVC valve is particularly designed to give the optimal indoor comfort. The valve will provide ON/OFF or analog temperature control and self balancing flow control for use with fan coil units in air-conditioning and cooling ceilings or as zone valve in heating systems.

For larger applications the 'sistermodel' FlowCon ABM can be used. The ABM valve is suitable for applications in connection with building automation systems where central control of the comfort in the building is required. This model combines an electrically actuated ball valve in series with an automatic flow limiting cartridge.

The flow can be controlled with one of two different cartridges in both valves; either an internal adjustable composite cartridge or an externally adjustable E-JUST cartridge. Both cartridge-types keep the flow constant, even with system pressure conditions changing and the cartridges can be easily adjusted to a new flow rate if necessary.

## Standard Composite Cartridge

The standard composite cartridge is removed from the valve body and adjusted to one of eight different flow rates per cartridge by means of an Allen Wrench. There are 14 different adjustable cartridges, totalling nearly 100 different flow rates available for valve sizes 1/2"-1 1/2".

## E-JUST Cartridge

The E-JUST cartridge can be externally adjusted to one of 41 flow rates in each cartridge, even when the system is operating. The E-JUST cartridge is tamper-proof since adjustment is carried out by means of a special designed key. Further the setting can be sealed with a top cover. With 6 different E-JUST cartridges, 240 flow rates are available for the same valve sizes as mentioned above.

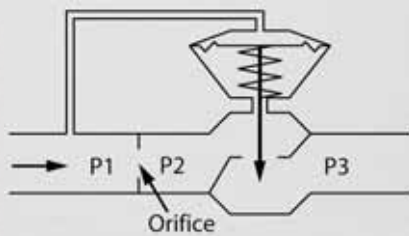
## Features and Benefits

- **Automatic balancing**, the correct flow rate for each circuit is achieved automatically.
- **Dynamic balancing**, the correct flow rate is maintained as each valve compensates for pressure fluctuations in the system.
- **Actuator selection**, ON/OFF or analog, normally closed.
- **Easy accessible cartridge**, flow rate can be changed on demand, either internal or external adjustment in case of changes or maintenance.
- **Pressure/temperature measurement plug** available for verifying operating pressure differential range or checking  $\Delta T$  across the coil.
- **Union end connection** for ease of installation and wide selection of end connections.

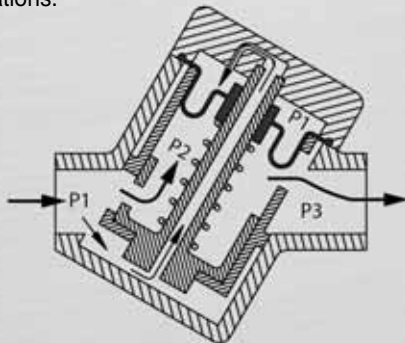


### Principle of Operation

Either flow control cartridge for the FlowCon EVC/ABM contains two interacting components; one that has an adjustable orifice, and one that regulates the pressure differential across the adjustable orifice.



The principle of operation is shown above and the principle of construction is shown below. P1 and P3 are system pressures, P1÷P3 is the total pressure drop across the valve. P2 is set by the diaphragm acting in reaction to P1 in the upper diaphragm chamber. Interacting with the spring, P1÷P2 remains constant, keeping a constant  $\Delta P$  across the orifice areas. The result is a constant flow rate through the valve, independent of pressure fluctuations.

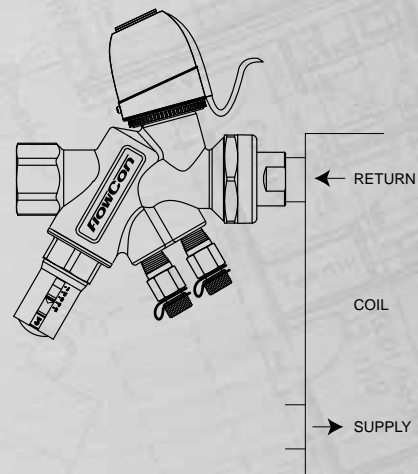


Below its pressure differential range, the valve acts as a fixed orifice. This allows the temperature control part of the valve to operate with valve authority up to the set flow rate maximum.

In case the differential pressure is higher than the defined max.  $\Delta P$  for the cartridge, the diaphragm may be damaged.

### Easy installation

When using either FlowCon EVC or FlowCon ABM you need fewer components. Everything needed (e.g. union end connection(s), p/t plugs, temperature control and dynamic balancing) is combined all in one valve for easy and fast installation.



The FlowCon EVC with E-JUST cartridge.

Equal Percentage  
Control Characteristic

The patented parabolic Optimizer® in the FlowCon ABM is unique from any other in the industry because it is actually press-fitted into the ball, resulting in less wear and higher close-off pressure. Optimizer® means equal percentage flow characteristic and linear heat transfer, i.e. the heat output at the coil is linear when compared to the open area of the valve.

The physical design of the Optimizer® means that once it is press-fitted into the ball, it cannot be forced out because the back side of the Optimizer® is too large to be forced through the ball's port.

As pressure increases behind the Optimizer® insert, it compresses even further into the ball's port, making a tight fit even tighter for guaranteed protection against leak-by.

The Optimizer® is able to modulate in systems where the differential pressure is over 160 psi without influencing life or performance of the Optimizer® which is quite unique compared with other similar solutions.



Illustration of Optimizer® movement.

Technical Data

For further information and part number selection pls. see FlowCon tech note and the catalogue: FlowCon Cartridges. For latest updates please see [www.flowcon.com](http://www.flowcon.com).

	EVC 1/2", 3/4", 1"	ABM 1/2", 3/4", 1"	ABM 1", 1 1/4", 1 1/2"
Static Pressure (kPa)	1600	2500	2500
	230	360	360
Temperature Rating (media/ambient) (°C)	-20 to +100 / 0 to (+45) +60	-20 to +100 / 0 to +50	-20 to +100 / 0 to +50
	(°F)	-4 to +212 / +32 to (+113) +140	-4 to +212 / +32 to +122
Pressure Drop Data	NOTE: For pump head calculations, add the minimum pressure differential for the index circuit to the other components pressure losses (i.e. valves, coil, etc.)		
Valve Body	Kv-value	Depend on Optimizer®	Depend on Optimizer®
	Cv-value		
	2.33		

Standard Composite Cartridge	ABV1.Y.x <sup>1</sup> grey/red/blue/black/green	ABV1.G.x <sup>1</sup> grey/red/blue/black/green	ABV2.X.x red/white	ABV2.C.x red/white	ABV2.D.x red/white
Cartridge Size (mm)	20	20	40	40	40
	(inch)	3/4"	3/4"	1 1/2"	1 1/2"
Pressure (kPaD)	15-130	30-400	15-130	22-300	30-410
Differential (psid)	2.2-18.9	4.4-58	2.2-18.9	3.2-43.5	4.4-59.5
Flow Rate (l/sec)	0.0081-0.273	0.0117-0.408	0.17-0.85	0.23-1.21	0.27-1.43
	(GPM)	0.13-4.33	0.185-6.46	2.69-13.5	3.65-19.2

E-JUST Cartridge	E-JUST1.Y.x <sup>1</sup> black/green	E-JUST1.Y.R <sup>1</sup> red	E-JUST1.G.R <sup>1</sup> red	E-JUST1.G.x <sup>1</sup> black/green	E-JUST2.Y.G green
Cartridge Size (mm)	20	20	20	20	40
	(inch)	3/4"	3/4"	3/4"	3/4"
Pressure (kPaD)	17-210	17-200	30-400	35-400	17-400
Differential (psid)	2.5-30	2.5-29	4.4-58	5.1-58	2.5-58
Flow Rate (l/sec)	0.0278-0.169	0.0767-0.229	0.113-0.352	0.0383-0.249	0.149-1.62
	(GPM)	0.44-2.68	1.22-3.60	1.79-5.57	0.61-3.94

Note 1: Standard composite cartridge type Y and G and E-JUST cartridge type Y and G are to be used in either EVC 1/2", 3/4", 1" or in ABM 1/2", 3/4", 1".



[www.flowcon.com](http://www.flowcon.com)

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