



# FlowCon A/AB/ABV

The "adjustable" automatic  
flow control valves

# FlowCon A, AB and ABV

## Dynamic Balancing Valve with adjustable flow cartridge

**T**he FlowCon A, AB and ABV automatic balancing valves are designed for balancing heating and air-conditioning terminal units by providing a constant flow rate with the added feature of being adjustable.

With these automatic balancing valves flow can be controlled with one of two different cartridges; either an internal composite cartridge or an externally adjustable E-JUST cartridge. Both cartridge-types keep the flow rate constant, even with system pressure conditions changing.

The main difference between these and other automatic balancing valves is that each flow control cartridge can be easily adjusted to a new flow rate if necessary.

### Standard Composite Cartridge

The standard composite cartridge is easily removed from the valve body and adjusted to one of eight different flow rates by means of an Allen Wrench. There are 14 different adjustable cartridges, totalling nearly 100 different flow rates available for valve sizes 15mm through 40mm.

*Each standard composite cartridge is easily adjusted with an Allen Wrench.*

### E-JUST Cartridge

The E-JUST cartridge can be externally adjusted to one of 40 flow rates even when the system is operating. The E-JUST cartridge is tamper-proof since adjustment is carried out by means of a special FlowCon key. Further the setting can be sealed with a topcover.

### 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.
- **Field adjustable**, flow rate can be changed on demand, either internally or externally adjustment.
- **Elimination of branch or "partner" balancing valves** (fewer total valves used in each project).
- **Easily accessible cartridge** for flow rate adjustment or maintenance.
- **Accuracy** of +/- 10% (standard composite cartridge) alternatively +/- 5% of controlled flow rate or +/-2% of maximum flow rate (E-JUST cartridge).

*A total of 14 standard composite cartridges is available, each covering a range of flow rates, ensuring the required flow rate is obtainable.*

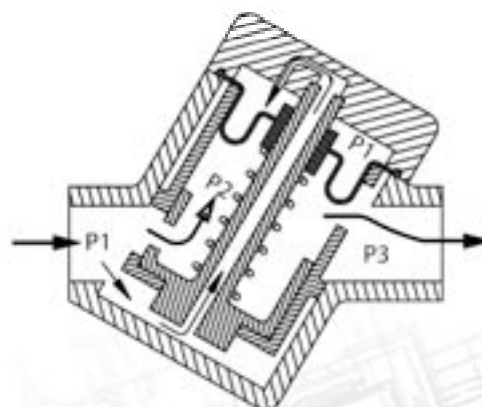
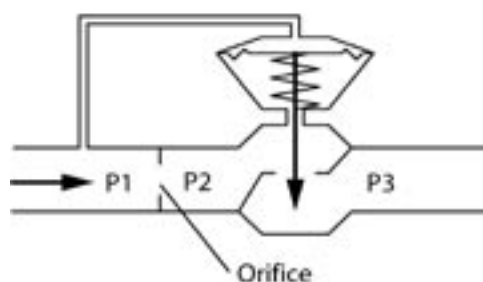




*The easy adjustment of the E-JUST cartridge is done by means of a special adjustment key.*

- **Built-in isolation ball valve** (FlowCon ABV).
- **Pressure / temperature measurement plugs** available for verifying operating differential pressure or checking  $\Delta T$  across the coil (FlowCon AB / ABV).

- **Double union end connection** for ease of installation and wide selection of end fittings (FlowCon ABV) or **Fixed end female-by-female threaded** (FlowCon A / AB).



### Principle of Operation

The flow control cartridge of FlowCon A / AB / ABV 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 and the principle of construction are shown in the figures above. 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 a temperature control valve in the same circuit to operate with valve authority up to the set flow rate maximum.

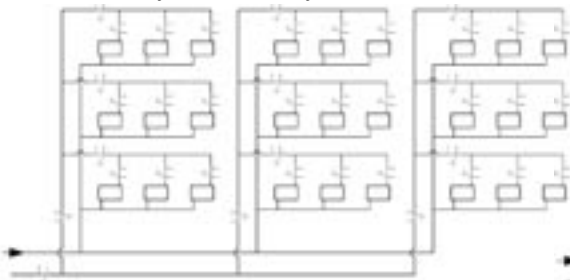
*A total of 6 different E-JUST cartridges is available, each covering a range of 40 flow rates, ensuring the required flow rate is obtainable.*



## Automatic vs. Manual System

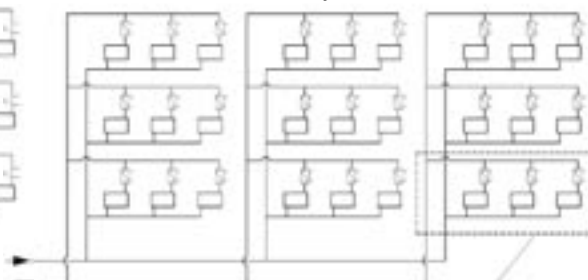
### Layout Comparison

Manually balanced system

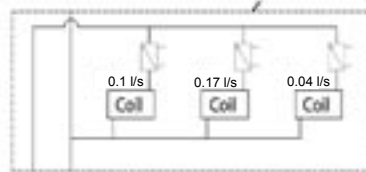


Total number of valves (manual) 40.

Automatic balanced system



Total number of valves (automatic) 27



Each branch is automatically balanced due to the correct balance of each coil. Sum total of 0.31 l/s (branch).

NOTE: The location of the FlowCon ABV does not require lengths of pipe before or after the valve.

In addition to terminal unit valves, manual balancing requires "partner valves" located on the branches, risers and main.

### Technical Data

For further information and part number selection pls. see FlowCon technote and Cartridge Catalogue.

	A/AB 15/20 mm ABV 15/20/25 mm		AB 25/32 mm ABV 25/32/40 mm			
Static Pressure	(kPa)	2500				
	(psi)	360				
Temperature Rating	(°C)	-30 to +100				
	(°F)	-22 to +212				
Pressure Drop Data	NOTE: For pump head calculations, add the minimum pressure differential for the index circuit to the other componenets pressure losses (i.e. valves, coil, etc.)					
Valve	(Kv-value)	2.6	12.5			
	(Cv-value)	3.0	14.5			
<b>Standard Composite Cartridge</b>	<b>Y</b>	<b>G</b>	<b>X</b>	<b>C</b>	<b>D</b>	
Pressure Differential	(kPa)	15-130	30-400	15-130	22-300	30-410
	(psi)	2.2-18.9	4.4-58	2.2-18.9	3.2-43.5	4.4-59.5
Flow Rate	(l/sec)	0.0081-0.2733	0.0117-0.4078	0.17-0.85	0.23-1.21	0.27-1.43
	(GPM)	0.13-4.33	0.19-6.47	2.7-13.48	3.65-19.19	4.28-22.68
<b>E-JUST Cartridge</b>	<b>Y black/green</b>	<b>Y red</b>	<b>G black/green</b>	<b>Y black</b>		
Pressure Differential	(kPa)	17-210	30-400	35-400		
	(psi)	2.5-30	4.4-58	5.1-58		
Flow Rate	(l/sec)	0.0278-0.1692	0.1128-0.3517	0.0383-0.2489		
	(GPM)	0.44-2.68	1.79-5.57	0.61-3.94		
				0.2911-1.3933		
				4.61-22.07		



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