

# FlowCon UniQ



*Adjustable and Compact PICV - Simply UniQ*

# FlowCon UniQ

*Adjustable and Compact Pressure Independent Control Valve*



The innovative design of FlowCon UniQ brings the PICV technology to the next level. FlowCon has now accomplished to make the PICV even more compact and is still able to deliver the same basic benefits as FlowCon's other adjustable PICVs offer. The Pressure Independent Control Valve (PICV) technology was brought to the market some twenty years ago by FlowCon's introduction of the first SM-valve. This technology has now matured and is widely accepted as a proven application for optimizing system  $\Delta T$ , enhancing system performance and reducing energy cost.

The compact design of FlowCon UniQ provides a 3-in-1 complete unit covering flow rates from 20.3 to 751 l/hr in a  $\Delta P$  range of 10-200 kPaD. The valve offers stepless adjustment with 41 different setting indications between minimum and maximum. Further, this compact PICV will match most current FlowCon actuators providing options for thermal and electrical control.

The FlowCon UniQ is PN25 rated and available in two versions being either fixed female-by-female (DN15 and DN20) or fixed ends suitable for DN15 EuroCone connections with a range of possible end connections. Body material is forged brass with composite internal parts and an EPDM diaphragm.

The FlowCon UniQ has a minimum working pressure of only 10 kPaD, which allows even bigger energy savings than normally seen for PICV valves. In fact, FlowCon is the first to accomplish such low minimum working pressure.

## Applications

The FlowCon UniQ can be ordered in following sizes :

- Fixed female: DN15 or DN20 ISO (1/2" and 3/4")
- 20mm male ISO suitable for DN15 EuroCone

***This valve is particular ideal for chilled ceilings, chilled beams or small FCUs. It can be used in both new installations as well as retrofit projects.***

## 100% Authority Pressure Independent

The FlowCon UniQ is a 100% authority guaranteed pressure independent flow control valve with full stroke modulation. The Kv of the valve is constantly varying compensating for system pressure changes maintaining the selected flow constant. The PICV instantaneously self-balance at all points of operation, even when exposed to variable control signals providing optimal authority at all times. Even if the valve maximum flow is reduced by the scale setting the actuator will always use full stroke of the spindle offering electrical control over the full stroke length at all times.

## Features and Benefits

- A **compact one-unit PICV** (housing and regulator is combined).
- **Accuracy:** Greatest of either  $\pm 10\%$  of controlled flow or  $\pm 5\%$  of maximum flow rate.
- **No need of calculating** valve authority - 100% is provided guaranteed.
- **Up to 41 different and selectable flow settings** (20.3-751 l/hr) - stepless settings in between.
- A working pressure starting at only 10 kPaD resulting in **pump energy savings**.
- **Fast response time** to pressure fluctuations increasing system stability.
- **Low flow rates** making it ideal for low flow applications such as chilled ceilings etc.
- **Choice of actuator:** Thermal actuators: 0-10V modulation or ON/OFF. Electrical actuators: 0(2)-10V modulating, 3-point floating or 2-position.
- **Full stroke modulation.**
- **360° view of actuator and valve position.**
- The choice between either **fixed female-female** or **EuroCone** connections.
- **The most compact valve** in the FlowCon series PICV valve range.
- Real pressure independency at all flow rates and all actuator positions – **a true PICV.**
- A shorter starting time phase thanks to the dynamic regulation of the system and **reduced commissioning time.**



FlowCon UniQ				Setting
15/20mm · 1/2" / 3/4"				
10 <sup>1</sup> -200 kPaD · 1.5 <sup>1</sup> -29 psid				
l/sec	l/hr	GPM		
0.0056	20.3	0.089	1.0	
0.0100	36.0	0.158	1.1	
0.0157	56.7	0.249	1.2	
0.0223	80.1	0.353	1.3	
0.0291	105	0.461	1.4	
0.0360	129	0.570	1.5	
0.0426	153	0.675	1.6	
0.0489	176	0.775	1.7	
0.0549	198	0.869	1.8	
0.0604	218	0.957	1.9	
0.0657	237	1.041	2.0	
0.0708	255	1.121	2.1	
0.0757	273	1.199	2.2	
0.0806	290	1.277	2.3	
0.0856	308	1.356	2.4	
0.0908	327	1.439	2.5	
0.0963	347	1.526	2.6	
0.1022	368	1.618	2.7	
0.1084	390	1.716	2.8	
0.1149	414	1.820	2.9	
0.1218	439	1.930	3.0	
0.1291	465	2.044	3.1	
0.1365	491	2.162	3.2	
0.1440	518	2.281	3.3	
0.1515	546	2.400	3.4	
0.1589	572	2.516	3.5	
0.1658	597	2.627	3.6	
0.1723	620	2.730	3.7	
0.1782	642	2.823	3.8	
0.1833	660	2.903	3.9	
0.1874	675	2.969	4.0	
0.1907	686	3.020	4.1	
0.1929	695	3.056	4.2	
0.1943	699	3.078	4.3	
0.1947	701	3.084	4.4	
0.1951	702	3.091	4.5	
0.1952	703	3.092	4.6	
0.1958	705	3.102	4.7	
0.1976	711	3.130	4.8	
0.2015	725	3.192	4.9	
0.2086	751	3.305	5.0	

Nominal flow rate

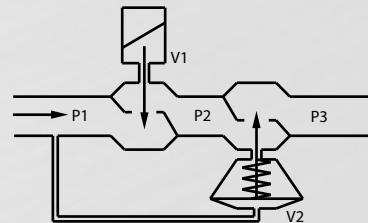
Accuracy: Greatest of either ±10% of controlled flow rate or ±5% of maximum flow rate.

Note 1: Min. ΔP=10 × √setting

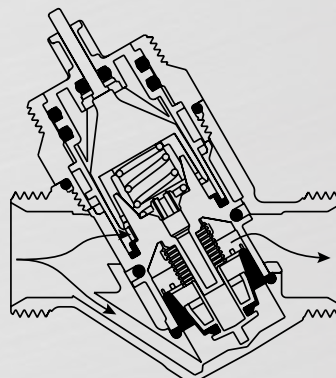
### Principle of Operation

On closer examination of the inner working of the FlowCon UniQ, the function is best described as 2 valves in 1. The second valve (V2) regulates the pressure differential across the first valve (V1) by means of a rolling diaphragm element counteracted by a spring. The first valve (V1) is a calibrated variable orifice device adjusted by the actuator (similar to a standard modulating control valve).

The diaphragm reacts to the system and regulates the pressure differential across the actuated control valve orifice to maintain its flow rate.



When pre-setting the maximum flow rate, the inlet orifice is changed in size sideways which does not interfere with the length of the stroke. When modulating, the orifice area is affected by the actuator which results in the fact that the orifice area is changed in size in a vertical movement.



### Hydronic Balance

The valve can be pre-set to limit the maximum flow through the valve. Consequently, hydronic balance is achieved automatically without the use of additional balancing valves.

Setting can be seen directly on the valve top indicated by a scale going from 1.0 to 5.0.

Position is defined by a "dot" marked on the edge of the housing top.

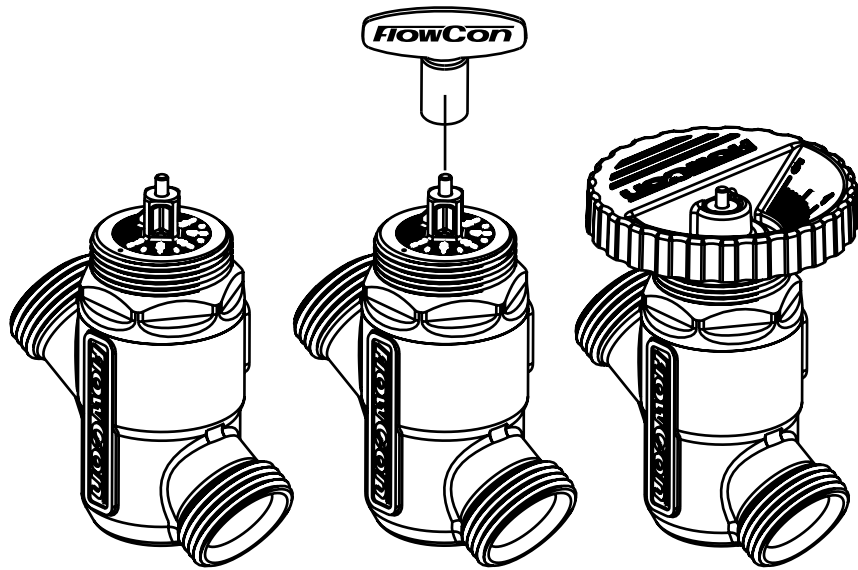


### Settings and operation

Setting the FlowCon UniQ is easy. Rough setting (9 stepless settings) is done with the standard FlowCon adjustment key. Fine tuning for a more exact setting (41 stepless settings) is done with an optional FlowCon adjustment wheel.

Setting is protected and made "tamper-proof" when placing the actuator on the valve.

For further information please see the installation and operation instruction manual.



### Technical Data

For further information and part number selection please see FlowCon tech note.

		FlowCon UniQ DN15/20
Static Pressure	(kPa)	2500
	(psi)	360
Temperature Rating (media / ambient)	(°C)	-20 to +100 / +1 to +50
	(°F)	-4 to +212 / +34 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.)	
Complete Unit	(Kv-value) (m³/hr)	2.4
	(Cv-value) (GPM)	2.8
Pressure Differential	(kPaD)	10-200
	(psid)	1.5-29
Flow Rate	(l/sec)	0.0056-0.2086
	(GPM)	0.089-3.305

