

### Application:

The pressure independent control valve “Cocon QFC” is designed to be installed in heating and cooling systems with closed water circuit (e.g. central or underfloor heating systems, fan coil units, chilled ceilings, fan convectors etc.) with closed circuits for an automatic flow control (hydraulic balancing) and room temperature control by modifying the flow rate in conjunction with actuators.

### Technical data:

Max. operating temperature: +120 °C  
 Min. operating temperature: -10 °C  
 Max. operating pressure: 16 bar (1600 kPa)  
 Max. differential pressure: 4 bar (400 kPa)  
 Fluid: Water or mixtures of water and ethylene/propylene-glycol (max. 50 %), ph value 6.5-10

Max closing pressure in the flow direction: 16 bar (1600 kPa)

### Control range:

Item no.	DN	Control range [m³/h] (min.*-max.)	kvs-value	Differential pressure p1-p3 (min.-max.)
1146149	40	1.5 - 7.5	11.5	0.2 bar-4 bar (20 kPa-400 kPa)
1146150	50	2.0 - 8.0	12.0	
1146151	65	5.0 - 20.0	36.0	
1146152	80	7.5 - 30.0	56.0	
1146153	100	12.5 - 50.0	80.0	
1146154	125	27.0 - 108.0	150.0	
1146155	150	36.0 - 150.0	220.0	
1146156	200	55.0 - 190.0	270.0	

\* Recommended lowest setting; starting from the set value, the flow rate can be reduced up to complete isolation with a suitable actuator.

### Materials:

Cast iron body, seals made of EPDM or PTFE, inner parts made of DZR brass, maintenance-free stem seal due to double O-ring.

### Model:

Measuring technique “classic”, both ports flanged connection according to DIN EN 1092-2

### Function:

The Oventrop valve “Cocon QFC” is a valve combination consisting of an automatic flow regulator (with manually adjustable nominal value) and a regulating valve which may be equipped with an actuator.

### Advantages:

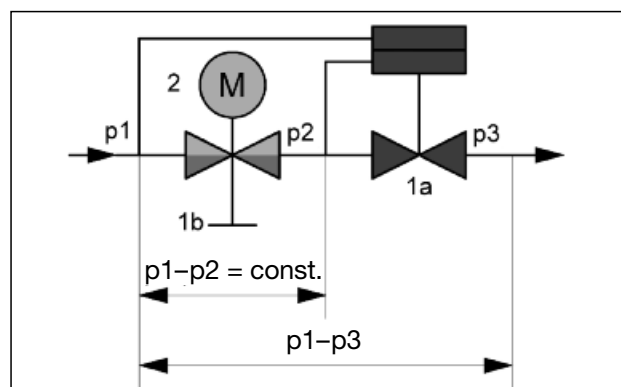
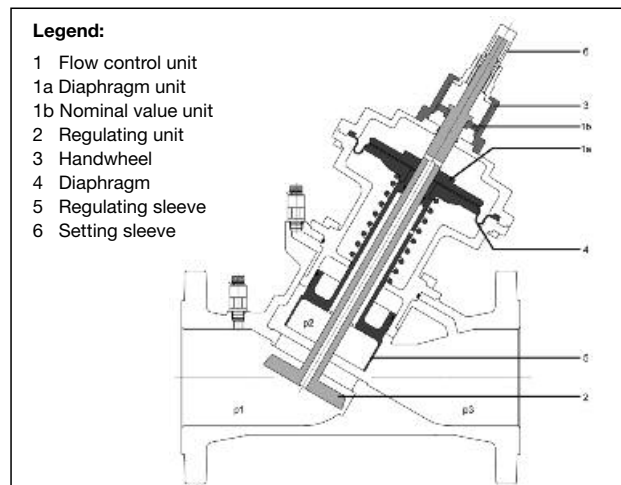
- the nominal values can be set even with the actuator in place
- the set nominal value can be read off even with the actuator in place
- good optical display of the presetting values in different installation positions
- nominal values can be read off in [m³/h] without conversion
- lockable and lead lockable presetting
- constant, high valve authority
- optimisation of the installation by control pressure measurement
- linear characteristic line if actuator driven

### Accessories:

Lead locking set 1089091



“Cocon QFC”



The illustrated section of the pressure independent control valve “Cocon QFC” shows three pressure ranges.

“p1” is the inlet and “p3” the outlet pressure of the valve. “p2” is the pressure actuating the diaphragm unit and maintaining the differential pressure “p1” – “p2” at a constant level.

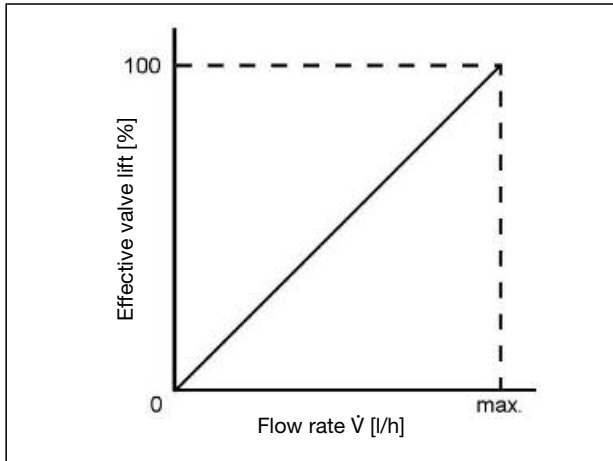
The pressure independent control valve “Cocon QFC” combines the functions of three valves. The integrated diaphragm unit (pos. 1a) acts as a differential regulator and guarantees a constant pressure regulation of the differential pressure “p1” – “p2” across the second valve (regulating unit activated through the actuator – pos. 2) and across the third valve (manually adjustable flow unit – pos. 3).

## “Cocon QFC” Cast iron pressure independent control valve with automatic flow control

Even where high differential pressure variations “p1” – “p3” occur, e.g. if sections of the system are activated or inactivated, the differential pressure “p1” – “p2” is kept at a constant level.

This way, the pressure independent control valves “Cocon QFC” have a valve authority of 100% (a = 1). Even during low demand periods with steady control (e.g. in conjunction with 0-10 V actuators), the valve authority of the pressure independent control valve “Cocon QFC” within the effective valve lift amounts to 100% (a = 1).

The “Cocon QFC” valve has a linear characteristic line within the effective valve lift and is advantageous when using actuators which also have a linear stroke behaviour across the control voltage.



Characteristic line of the pressure independent control valve “Cocon QFC”

### Application:

Oventrop pressure independent control valves “Cocon QFC” are used in central heating systems and chilled ceilings with circulation pump. Room temperature control can, for instance, be carried out by use of room thermostats and actuators.

The pressure independent control valves “Cocon QFC” can be with the following Oventrop actuators:

The setting sleeve (spanner size 17 mm) has to be unscrewed.

The installation instructions supplied with the actuator have to be observed!

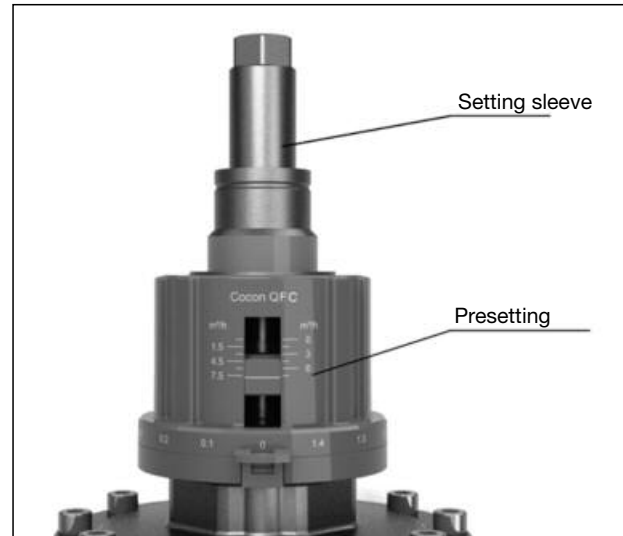
### Models:

Models:	Item no.:
Actuator with squeeze connection (DN 40/50) 24 V, steady control 0-10 V	1158010
Actuator with squeeze connection (DN 40-100) 24 V, steady control 0-10 V and 4-20 mA	1158020
Actuator with squeeze connection (DN 40-100) 24 V, steady control 0-10 V and 4-20 mA, with spring return (valves opening with current “off”)	1158021
Actuator with squeeze connection (DN 40-100) 24 V, steady control 0-10 V and 4-20 mA, with spring return (valves closing with current “off”)	1158022
Actuator with squeeze connection (DN 125-200) 24 V, steady control 0-10 V and 4-20 mA	1158030
Actuator with squeeze connection (DN 125-200) 24 V, steady control 0-10 V and 4-20 mA, with spring return (valves opening with current “off”)	1158031
Actuator with squeeze connection (DN 125-200) 24 V, steady control 0-10 V and 4-20 mA, with spring return (valves closing with current “off”)	1158032

### Setting of the flow rate:

The required flow rate can be set with the help of the handwheel and the setting sleeve.

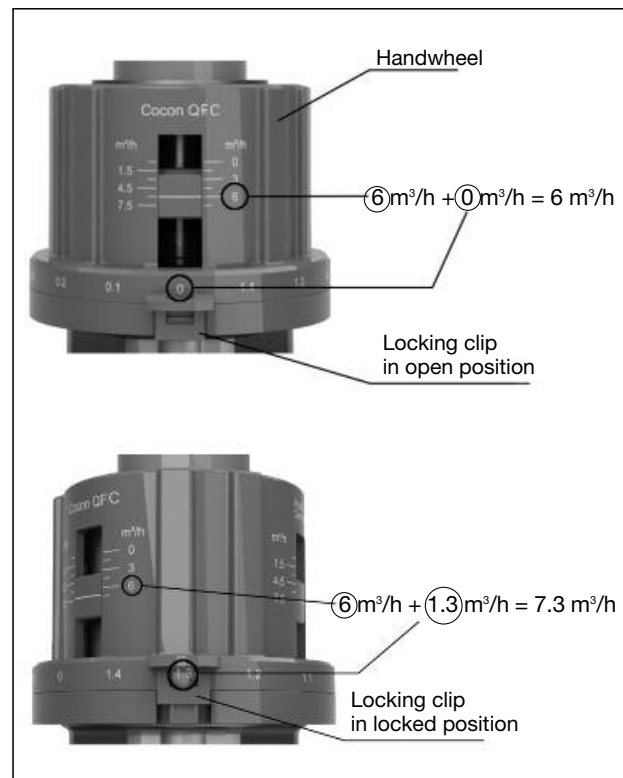
The setting can only be modified after releasing the setting sleeve.



Setting sleeve

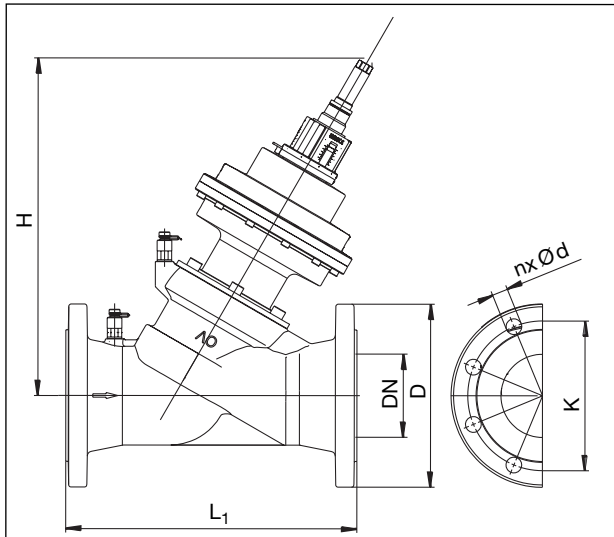
### Protection and locking:

The presetting can be secured and lead locked with a locking clip.



Example settings

**“Cocon QFC” Cast iron pressure independent control valve  
with automatic flow control**



DN	L <sub>1</sub>	H	D	K	nxØd
40	200	250	150	110	4 x 19
50	230	270	165	125	4 x 19
65	290	370	185	145	4 x 19
80	310	385	200	160	8 x 19
100	350	405	220	180	8 x 19
125	400	520	250	210	8 x 19
150	480	520	285	240	8 x 23
200	600	565	340	295	12 x 23

Dimensions

**Installation:**

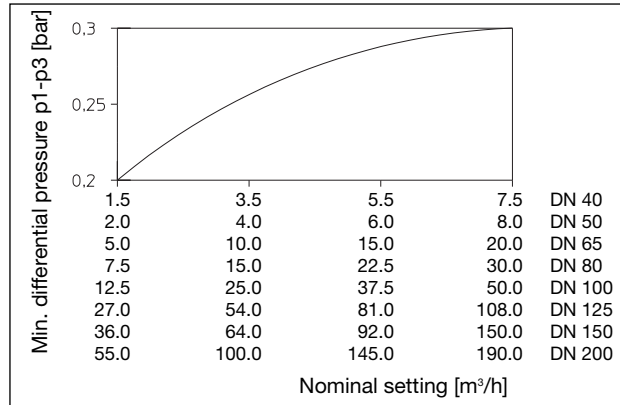
- The direction of flow must conform to the arrow on the valve body.
- The valve may be installed in any position (electric actuators may not be installed vertically downwards).
- Do not use any lubricant or oil when installing the valve as these may destroy the valve seals; if necessary, all dirt particles and lubricant or oil residues must be removed from the pipework by flushing the latter.
- Any tension which could be transferred through the pipework must be avoided.
- When choosing the operating fluid, the latest technical development has to be considered (e.g. VDI 2035).
- Isolating valves for maintenance are to be installed in front and behind the valve respectively the system section.
- A strainer has to be installed in the supply pipe in case of contaminated operating fluids (see VDI 2035).
- The correction factors of the manufacturers of the antifreeze liquids have to be considered when setting the flow rate.
- Once installation is completed, check all installation points for leaks.

**Min. differential pressure p<sub>1</sub>-p<sub>3</sub> for valve design:**

The minimum required differential pressure p<sub>1</sub>-p<sub>3</sub> across the valve can be taken from the following chart.

Explanation regarding the chart:

For valves with integrated flow control, the required minimum differential pressure varies depending on the set nominal value. The relevant mathematical correlation has been taken into account in the chart.

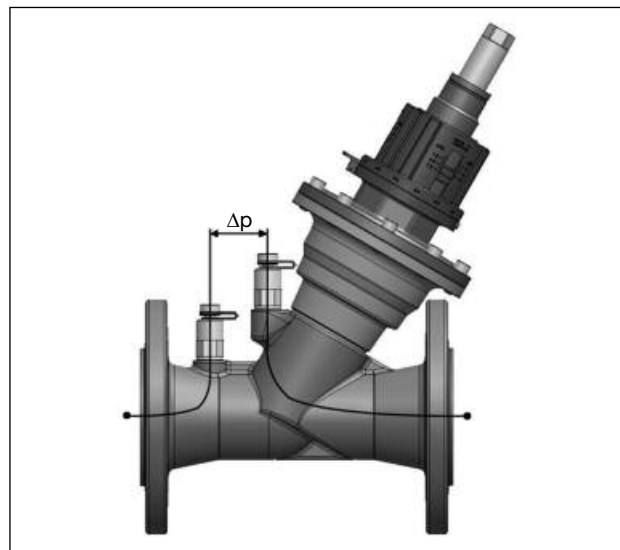


Max. differential pressure 4 bar (400 kPa)

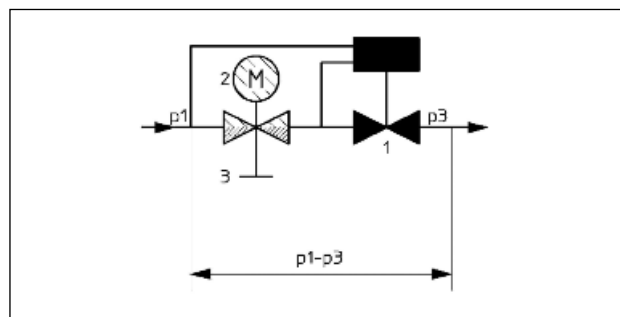
**Pressure test points:**

The flow-meter “OV-DMC 2” can be connected to the pressure test points. This will determine if the valve is working within the control range. The pump setting can be optimised by measuring the differential pressure.

For this purpose, the pump head is reduced until the hydraulically underprivileged valves are just working within the control range. The minimum differential pressures have to be considered. As soon as the measured differential pressure is identical with or higher than the minimum differential pressure p<sub>1</sub>-p<sub>3</sub>, the valve is working within the control range.



Differential pressure



With a flow-meter connected (e.g. “OV-DMC 2”), the differential pressure (p<sub>1</sub>-p<sub>3</sub>) is measured across the valve.

Subject to technical modification without notice

Product range 3  
ti 239-EN/10/MW  
Edition 2015

OVENTROP GmbH & Co. KG Telephone +49(0) 29 62 82-0  
Paul-Oventrop-Straße 1 Fax +49(0) 29 62 82-450  
D-59939 Olsberg E-Mail mail@oventrop.de  
Germany Internet www.oventrop.de

For an overview of our global presence visit [www.oventrop.de](http://www.oventrop.de)