

Designation:

New “Cocon QTZ” **old** “Cocon Q”

Application:

The Oventrop regulating valve “Cocon QTZ” is a valve combination consisting of an automatic flow regulator (nominal value manually adjustable) and a regulating valve. The regulating valve can be equipped with an actuator, temperature controller or manual head (connection thread M 30 x 1.5).

The regulating valve “Cocon Q” is designed to be installed in heating and cooling systems with a closed water circuit (e.g. central or underfloor heating systems, fan coil units, chilled ceilings, fan convectors etc.).

It operates as an automatic flow and pressure independent control (hydraulic balancing) and can control another variable (e.g. room thermostat) by modifying the flow rate in conjunction with actuators, thermostats and temperature controllers.

Technical data:

Performance data

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

Control range:

DN	Control range [l/h] (min.-max.)	Differential pressure p_1-p_3 (min.-max.)
10	30- 210	0.2 bar-4 bar (20 kPa-400 kPa)
10	90- 450	
15	30- 210	
15	90- 450	
15	150-1050	0.15 bar-4 bar (15 kPa-400 kPa)
20	150-1050	
20	180-1300	
25	300-2000	
32	600-3600	

Data for actuator connection:

Connection thread: M 30 x 1.5
 Piston stroke: 2.8 mm
 (DN 10/15/20: 30-1050 l/h)
 3.5 mm
 (DN 20: 180-1300 l/h)
 4 mm
 (DN 25 and DN 32)
 Closing dimension: 11.8 mm
 Closing pressure (actuator): 90-150N

Materials:

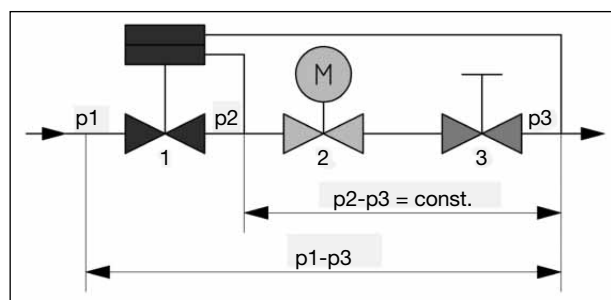
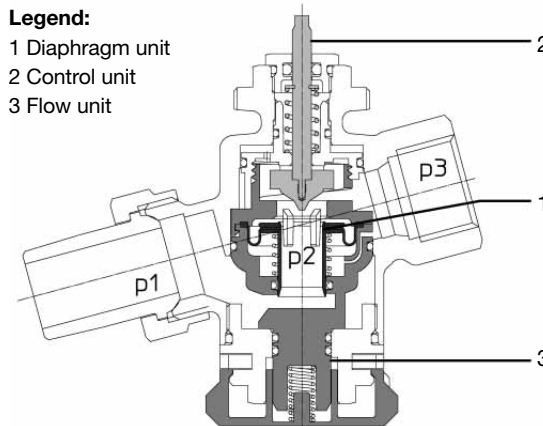
Body made of de-zincification resistant brass, seals made of EPDM or PTFE, valve stem made of stainless steel.

Function:

The required flow rate can be set using the handwheel (see page 3). The nominal setting can be secured by engaging the handwheel and by inserting the locking ring which is lead sealable. Operation during low demand periods is controlled by an actuator or temperature controller which can be screwed onto the valve.

**Legend:**

- 1 Diaphragm unit
- 2 Control unit
- 3 Flow unit



The illustrated section of the regulating valve “Cocon QTZ” shows three pressure ranges.

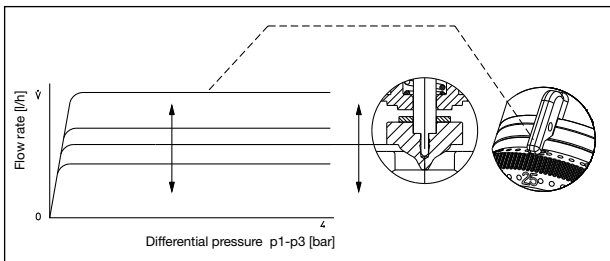
“p1” is the inlet and “p3” the outlet pressure of the valve. “p2” is the pressure actuating the diaphragm unit and maintaining the differential pressure “p2”-“p3” at a constant level.

The regulating valve “Cocon QTZ” combines the functions of three valves. The integrated diaphragm unit (pos. 1) acts as a differential pressure regulator and guarantees a constant regulation of the differential pressure “p2” - “p3” across the second valve (regulating valve activated through the actuator or temperature controller – pos. 2) and across the third valve (manually adjustable flow unit – pos. 3).

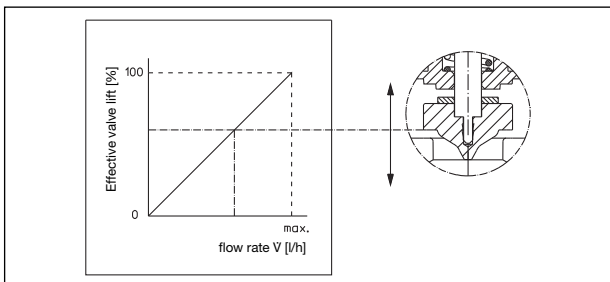
Even where high differential pressure variations “p1”-“p3” occur during part load conditions, the differential pressure “p2”-“p3” is kept at a constant level. Therefore, the valve authority of the regulating valves “Cocon QTZ” amount to 100% (a = 1). Even during part load conditions with a steady control (e.g. in combination with 0-10V actuators), the valve authority of the regulating valve “Cocon QTZ” within the effective valve lift amounts to 100% (a = 1).

Advantages:

- constant, high valve authority
- small dimensions
- presetting of the nominal values even with mounted actuator
- optical display of the set nominal value even with mounted actuator
- excellent optical display of the presetting in any installation position
- nominal values can be read off in l/h without conversion
- presetting is secured by engaging the handwheel
- presetting can be locked and lead sealed with the help of the locking ring
- installation can be optimised by measuring the regulating pressure
- linear characteristic line if actuator driven
- high valve lift, even with small presetting values
- soft sealing valve disc

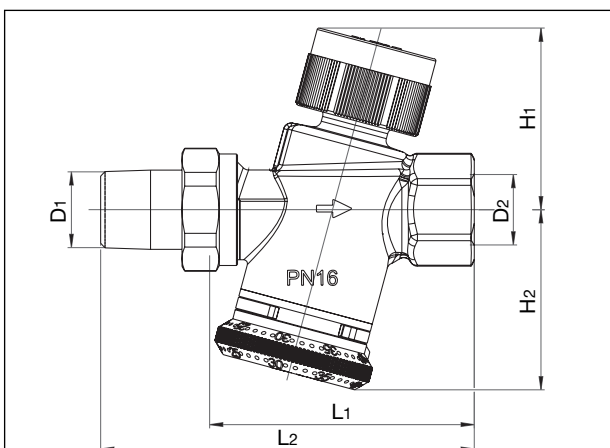


The maximum flow volume (V) within the control range is set with the help of the handwheel. During low demand periods, the flow rate is regulated to the required value by the stroke position of the regulating valve.

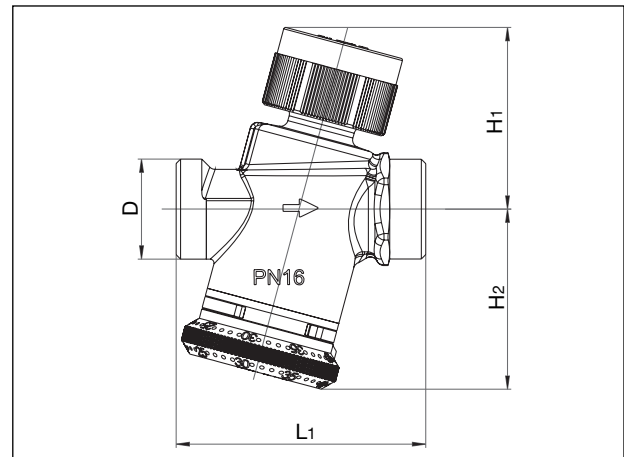


The regulating valve “Cocon QTZ” has an almost linear characteristic line within the effective valve lift. This is advantageous when using actuators (electrothermal or electromotive) which also have a linear stroke behaviour across the control voltage. In general, the valve can also be combined with a temperature controller.

Dimensions:



DN	L1	L2	H1	H2	D1	D2
15	70	98.5	52	48	R ½	Rp ½
20 (150-1050 l/h)	74	106	52	48	R ¾	Rp ¾
20 (180-1300 l/h)	85.5	117.5	58	54.5	R ¾	Rp ¾
25	118	154	66	79	R 1	Rp 1
32	124	165	66	79	R 1¼	Rp 1¼



DN	L1	L2	H1	H2
10	60	54	46	G ½
15	66	52	48	G ¾
20 (150-1050 l/h)	74	52	48	G 1
20 (180-1300 l/h)	84	58	54.5	G 1
25	118	66	79	G 1¼
32	124	66	79	G 1¼

Actuators:

The regulating valves “Cocon QTZ” can be used with the following Oventrop actuators (M 30 x 1.5):

Actuator	Voltage	Regulation behaviour		
		2 point	3 point	Proportional
Electro-thermal	24V	101 28 16/26* 101 29 16/26		101 29 51 (0-10V)*
	230V	101 28 15/25/17* 101 29 15/25		
Electro-motive	24V		101 27 01	101 27 00 (0-10V)
	230V	101 27 10	101 27 03*	
	EIB			115 60 65/66*
	LON			115 70 65*

* Actuators with piston strokes smaller than 4 mm. Due to the smaller piston strokes, the maximum possible flow rates will not be reached when combining these actuators with valves sized DN 25 and DN 32.

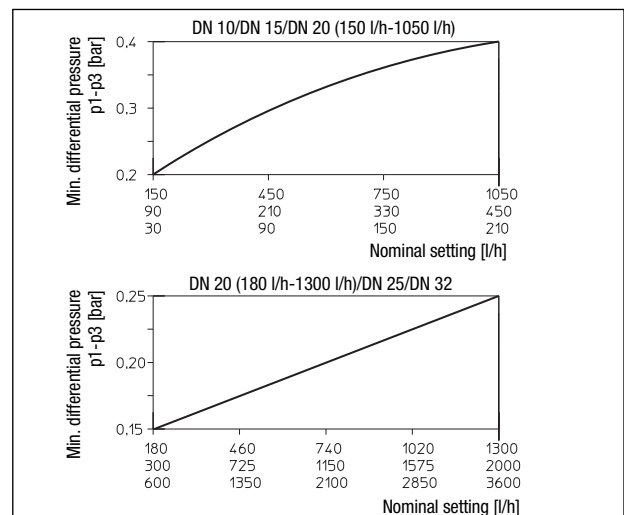
The regulating valves “Cocon QTZ” can also be used with Oventrop thermostats and temperature controllers.

Minimum differential pressure:

The minimum required differential pressure p1-p3 across the valve can be obtained from the chart below .

Explanation regarding the chart:

Referring to the valves with integrated flow control, the required minimum differential pressure changes depending on the nominal setting. The mathematical interrelationship is considered in the chart.



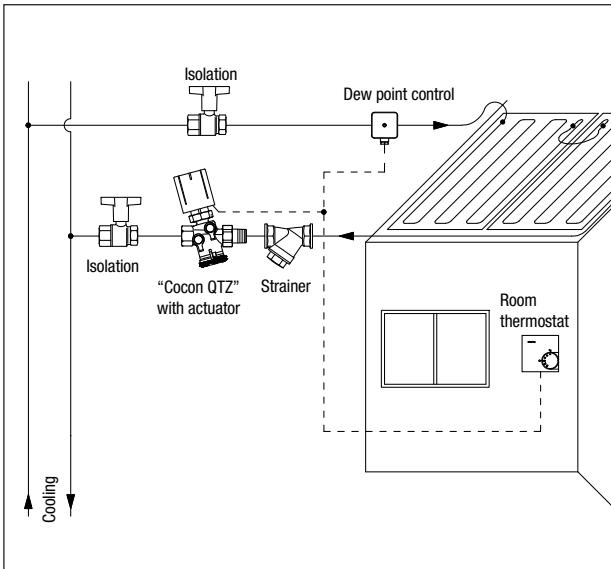
Installation:

- The direction of flow must conform to the arrow on the valve body.
- The valve may be installed in any position (electric actuators, except for the actuators 101 29 15, 101 29 25, 101 29 16 and 101 29 26, may not be installed vertically downwards).
- Do not use any lubricant or oil when installing the valve as these may destroy the valve seals. All dirt particles and lubricant or oil residues must be removed from the pipework by flushing the latter.
- Any tension applied on the valve by the pipework must be avoided.
 When choosing the operating fluid, the latest technical development must be considered (e.g. VDI 2035).
- A strainer as well as isolating valves for maintenance are to be installed in front of and behind the valve.
- 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.

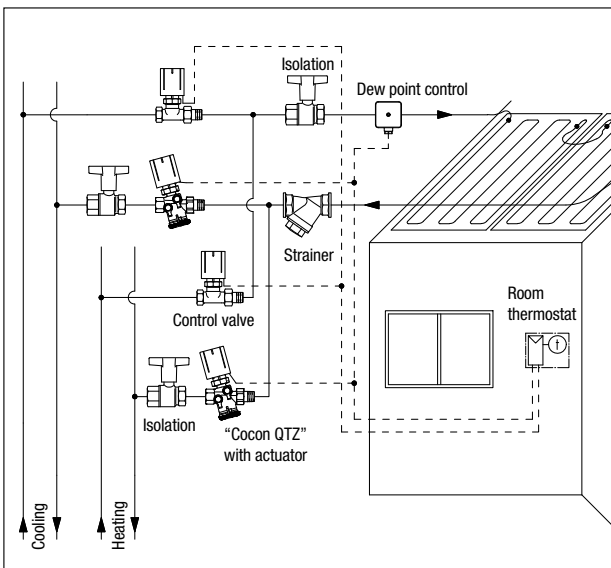
Pipe connection:

- Use suitable compression fittings “Ofix”, tailpipe connection sets or inserts (when using flat sealing tailpipes) of the Oventrop product range.

Examples of installation:



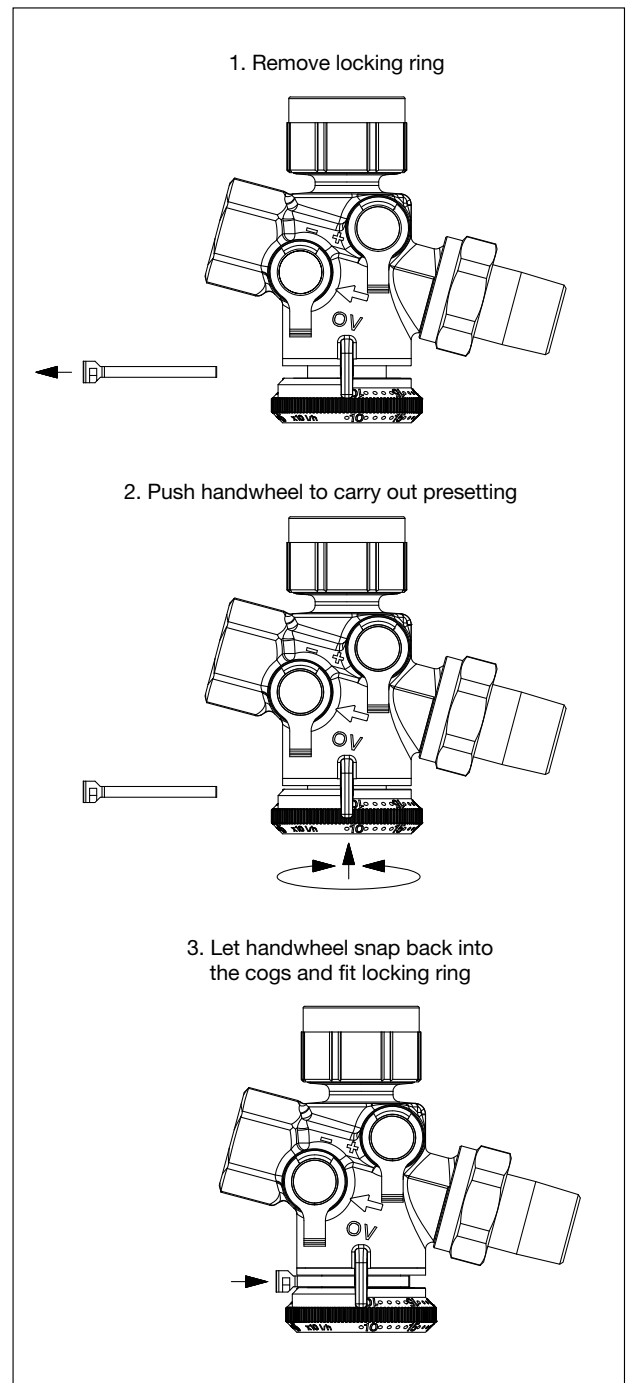
Two pipe system



Four pipe system

Setting of the flow rate:

The maximum flow rate can be set with the help of the protected presetting at the handwheel.

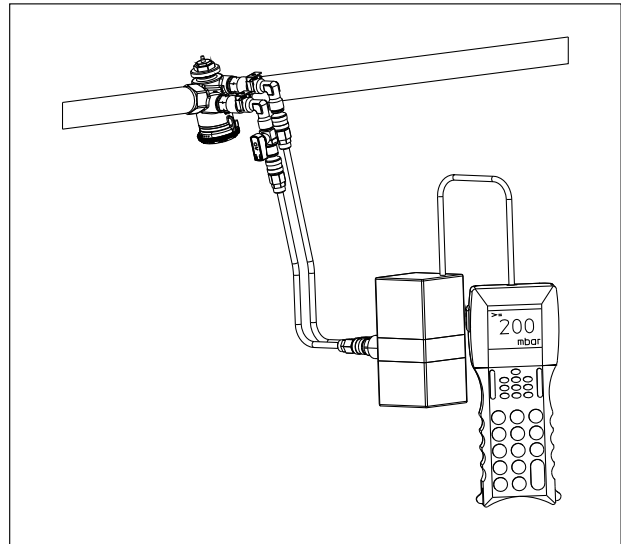


Differential pressure measurement:

The flow-meter “OV-DMC 2” can be connected to the pressure test points (model “Cocon QTZ” with 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.

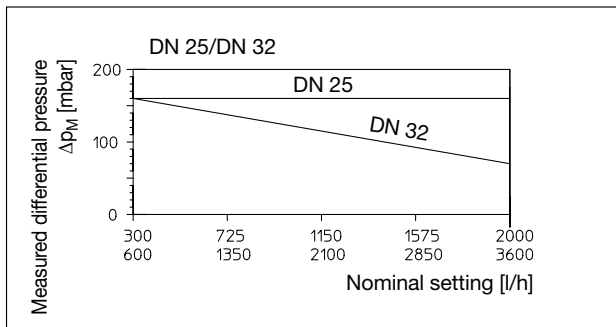
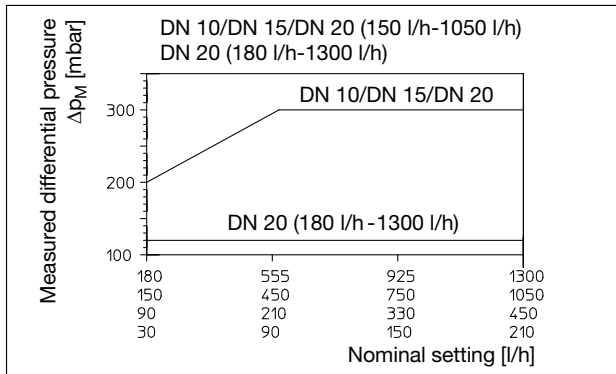
With a flow-meter connected (e.g. “OV-DMC 2”), the differential pressure is measured across the flow unit. To do so, the regulating valve must be fully opened (unscrew protection cap or set actuator to open position). As soon as the differential pressure Δp_M has been reached during measurement, the regulating valve works within the control range.



Differential pressure measurement

Maintenance:

The valve has to be serviced if malfunctions occur.
 The gland is replaceable under working conditions.



Models:

DN	Control range [l/h]	kvs value	Item no.			
			without pressure test points		with pressure test points measuring technique “classic”	
			male/male	female/coupling	male/male	female/coupling
10	30-210	0.5	114 55 63	–	114 60 63	–
10	90-450	1.1	114 56 63	–	114 61 63	–
15	30-210	0.5	115 55 64	114 55 04	114 60 64	114 60 04
15	90-450	1.1	114 56 64	114 56 04	114 61 64	114 61 04
15	150-1050	1.8	114 57 64	114 57 04	114 62 64	114 62 04
20	150-1050	1.8	114 55 66	114 55 06	114 60 66	114 60 06
20	180-1300	2.5	114 56 66	114 56 06	114 61 66	114 61 06
25	300-2000	4	114 56 68	114 56 08	114 61 68	114 61 08
32	600-3600	6	114 56 70	114 56 10	114 61 70	114 61 10

(further sizes in preparation)

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