Flypass Sets Cocon

Multifunctional Connection Sets with PICV DN 15 to DN 32

READY TO INSTALL

General

Pre-assembled sets to connect heat exchangers, for example fan coil units, to the hydronic system. The sets also have a strainer on the system side. The flow of the water can easily be identified by the position of the two isolation handles.

Installation can be in any orientation and in horizontal or vertical pipelines, both falling and rising.

All sets are supplied pre-assembled and pressure tested for immediate installation.

Functions

- Shutoff
- Bypass operation
- System or terminal unit flush
- System or terminal unit fill, vent, drain
- Pressure independent flow control

Features

+ Covers all functions required for installation, commissioning and operation
+ Includes Cocon QTZ pressure independent control valve
+ Supplied as pre-assembled and pressure tested unit
+ Flexible hose installation possible on terminal unit side

Key Specifications

- Sizes DN 15 to DN 32
- Operating temperature -10 to 120 °C
- Operating pressure max. 16 bar
- Control range up to 4,800 l/h
- Suitable for water and water-glycol mixtures

Product Details

Specifications

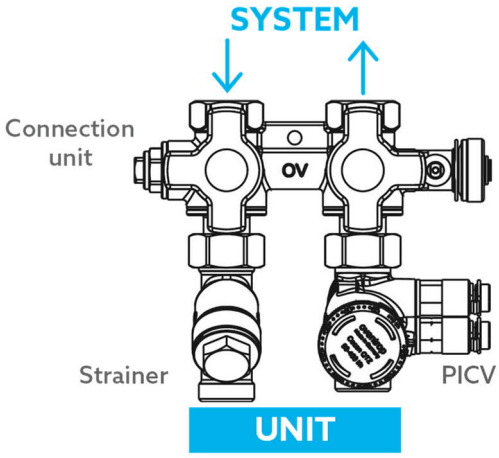
Sizes	DN 15...32
Connections	System: internal threads to ISO 228 / ISO 7 Unit: external threads to ISO 228 / ISO 7
Operating temperature	-10...120 °C
Operating pressure	max. 16 bar (PN 16)
Differential pressure	max. 6 bar
Medium	Heating and cooling water according to VDI 2035 or ÖNORM 5195 Water-glycol mixtures with a max. glycol content of 50% Not suitable for steam, oily and aggressive media
pH value	6.5...10
Flow control range	DN 15: up to 1,050 l/h DN 20: up to 1,800 l/h DN 25: up to 2,500 l/h DN 32: up to 4,800 l/h
Strainer mesh size	250 µm (mesh width 0.25 mm)

Actuator connection

Connection	M30 x 1.5
Stroke	PICV 15L, PICV 15M, PICV 20L: 2.8 mm All others: 4 mm
Closing dimension	11.8 mm
Lower stroke position	≤ 11.3 mm
Upper stroke position	≥ 14.6 mm (for 2.8 mm stroke) ≥ 15.8 mm (for 4 mm stroke)
Closing force	90...150 N
Leakage rate with permissible actuator	DIN EN 1349 / IEC 60534, class IV

Design

Flypass Sets are made up of three components: Flypass connection unit, strainer and Cocon QTZ pressure independent control valve (PICV). They are supplied as one pressure tested unit, ready to install.



Flypass connection unit

The connection unit DN 15 to DN 25 is made up of two interconnected three-way ball valves and one drain valve with G ¾ external thread. A second drain valve can be installed in place of a blind plug.

The connection unit DN 32 is made up of three normal ball valves providing the same functionality. It is equipped with two drain valves with G ¾ external thread as standard.

Strainer

The strainer is equipped with a stainless steel screen insert and protects the unit from dirt and debris out of the system. The screen insert is made up of two layers of fine mesh and is removable for cleaning.

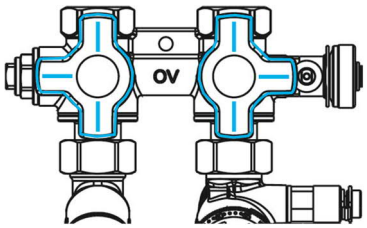
Cocon QTZ PICV

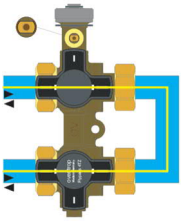
The Cocon QTZ is made up of a control valve and a pressure regulator which maintains a constant differential pressure over the control valve. By this the desired flow is maintained, even with changing pressure and flow conditions in the system. The desired flow is set in litres per hour (l/h). The PICV is typically equipped with an actuator for room temperature control. Suitable actuators are available for on/off, floating or modulating control. Depending on the actuator used, either a linear or equal percentage characteristic curve can be realised.

Functions

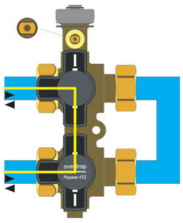
Pipeline functions

All pipeline functions are managed with the Flypass connection unit handles. The three-way ball valves provide the functions to support installation, commissioning and operation of the terminal unit in the hydronic system. The handle positions correspond with the positions of the three-way valves. This is indicated by knobs and line markings on the handles. Below illustrations demonstrate the flow of water at each handle position for sizes DN15...25.

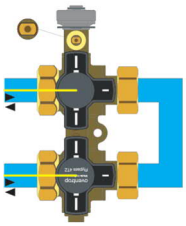




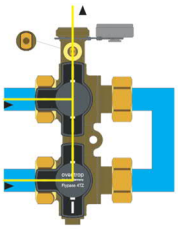
Normal operation



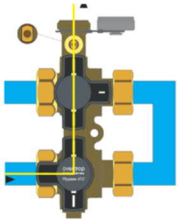
Bypass operation



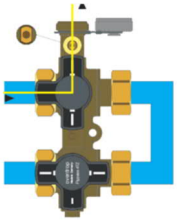
Shutoff



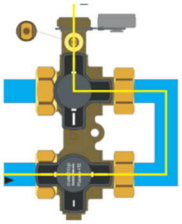
Fill, vent system



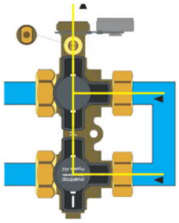
Drain, vent system and unit, flush system



Drain, vent, flush system

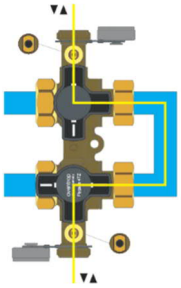


Fill, flush unit

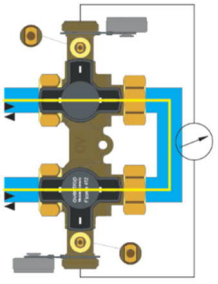


Shutoff, drain unit

FUNCTIONS REQUIRING SECOND DRAIN VALVE (ACCESSORY FOR DN15...25)



Top up, vent, flush unit

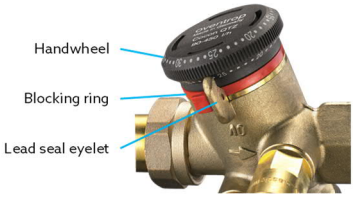


Measure differential pressure over terminal unit

The second drain / air bleed valve is installed in place of a blind plug and available as accessory, Item No. 1060191.

Flow setting

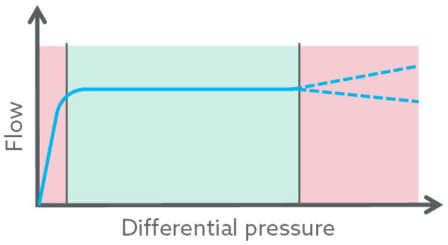
The desired flow rate is set with the handwheel of the Cocon QTZ PICV. The scale on the handwheel is in litres per hour (l/h). The handwheel is accessible and the set value visible at all times, also when an actuator is installed. The set value is secured by the red blocking ring. The blocking ring can be sealed with sealing wire to the valve body (Item No. 1089091).



Flow control

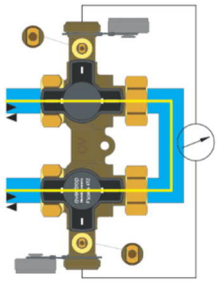
The Cocon QTZ PICV maintains the set flow under all pressure conditions within its differential pressure range. Below the minimum differential pressure (ΔP), the PICV behaves like a fixed throttle valve, which means that flow increases with ΔP. Within the ΔP range, marked green in the chart, the PICV maintains the flow at the set level. Above the maximum ΔP, the valve does not control the flow any longer and it may increase or decrease. A ΔP above the maximum specified may damage the valve.

The minimum ΔP required is higher for bigger flow rates. When sizing, it is important to make sure that enough ΔP is supplied for the valve to operate at the set flow rate. See the minimum ΔP charts at the end of this data sheet.

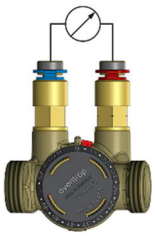


Measuring

Flypass Sets offer two measuring functions for differential pressure measuring instruments, for example the Oventrop OV-DMC 3 measuring system which also includes all adapters required to measure on Flypass Sets, any other Oventrop valve and many third party products.



Measure differential pressure on Flypass connection unit over terminal unit



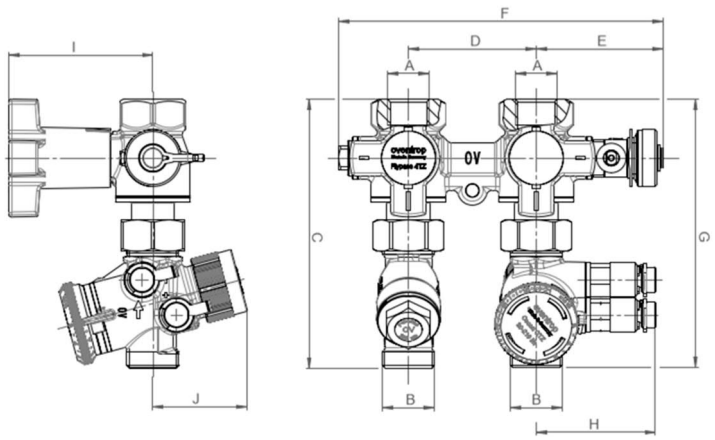
Measure differential pressure over the Cocon QTZ PICV.

Useful for pump optimisation by turning down the pump head until the last valve in the pipework equals the required minimum differential pressure.

The minimum required differential pressure across the control valve increases with higher settings. The required differential pressure is listed in chapter “Sizing” at the end of this data sheet.

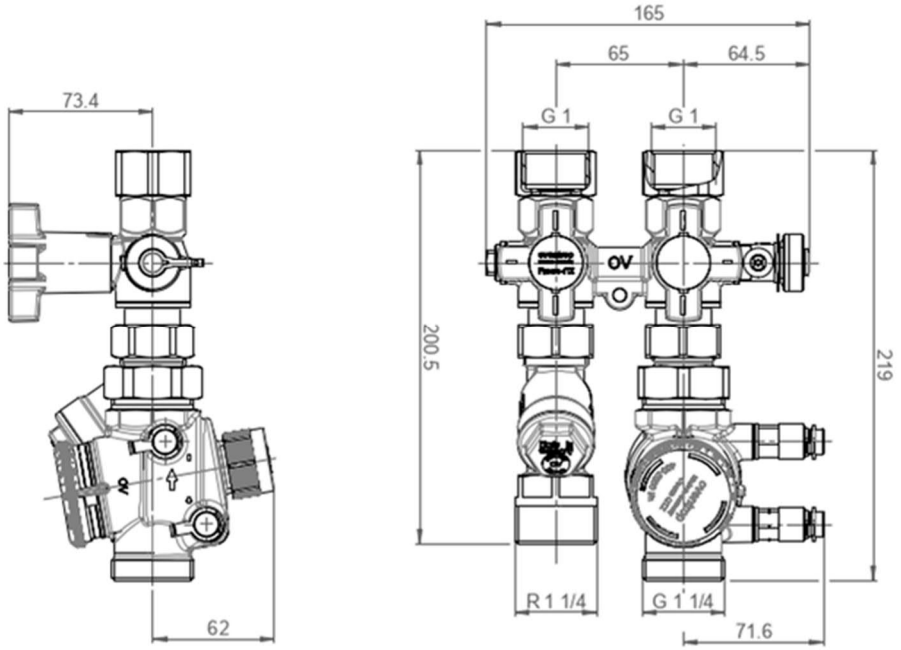
Dimensions

DN 15 and DN 20

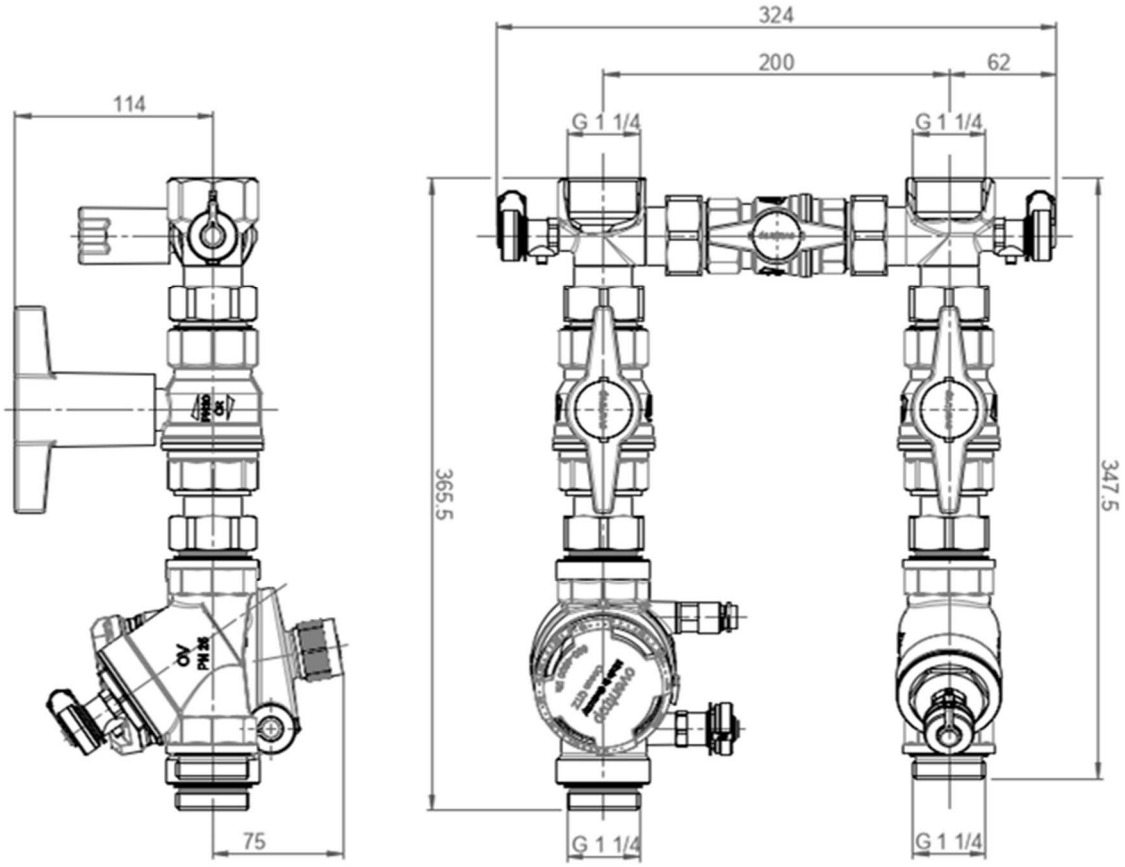


	DN 15	DN 20	DN 20
A (system)	Rp ½	Rp ¾	Rp ¾
B (unit)	G ¾	G 1	G 1
C	137	152.5	152.5
D	65	65	65
E	64.5	64.5	64.5
F	165	165	165
G	136.5	150	167
H	60.6	60.6	71.6
I	73.4	73.4	73.4
J	48	48	64

DN 25



DN 32



All dimensions in mm, except A and B or unless otherwise stated.

Item numbers

Size	Item	Control range	Connection system	Connection terminal unit	Item No.
DN **15**	Flypass Set PICV 15L	30...210 l/h	Rp ½ internal threads	G ¾ external threads	1149450
	Flypass Set PICV 15M	90...450 l/h			1149550
	Flypass Set PICV 15H	150...1,050 l/h			1149650
DN **20**	Flypass Set PICV 20L	150...1,050 l/h	Rp ¾ internal threads	G 1 external threads	1149551
	Flypass Set PICV 20	250...1,800 l/h			1149556
DN **25**	Flypass Set PICV 25	400...2,500 l/h	G 1 internal threads	R 1 ¼ external thread / G 1 ¼ external thread	1149557
DN **32**	Flypass Set PICV 32	600...4,800 l/h	G 1 ¼ internal threads	G 1 ¼ external threads	1149558

Accessories

Insulation shells for heating

For heating systems only. Operating temperature up to 110 °C. Not diffusion tight.

Not suitable for Flypass Set PICV **20** (**1149556**)

Suitable for	Item No.
DN 15...20	1149580
DN 25	1149582

Insulation shells for cooling

For heating and cooling systems. Building material class B2 according to DIN 4102. Operating temperature: -10...120 °C.

Cold insulation: min. medium temperature 6 °C, shells have to be bonded hermetically. Limited diffusion tightness at low medium temperature and high ambient temperature and/or air humidity.

Not suitable for Flypass Set PICV **20** (**1149556**)

Suitable for	Item No.
DN 15...20	1149581

Fill and drain valve

Fill, drain and air bleed ball valve. Required to use functions which need a second fill and drain valve

Suitable for	Item No.
All sizes	1060191

Spindle extension

Required to install an actuator when the PICV is insulated. Length 25 mm

Suitable for	Item No.
All sizes	1149190

Wire seal kit

To seal the handwheel of the Cocon QTZ PICV. Consists of seal and sealing wire. Pack of 10

Suitable for	Item No.
All sizes	1089091

Aktor T
Thermal actuators

	Type	Type	Suitable for	Item No.
	On/off, **230** V Fixed cable, stroke position indicator, IP54, 230 V AC	NC, 1 m cable	All sizes	1012415
		NC, 2 m cable	All sizes	1012452
		NC, 5 m cable	All sizes	1012455
		NC, 10 m cable	All sizes	1012459
		NO, 1 m cable	All sizes	1012425
	On/off, **230** V, with auxiliary switch Fixed cable, stroke position indicator, IP54, 230 V AC	NC, 1 m cable	All sizes	1012435
	On/off, **24** V Fixed cable, stroke position indicator, IP54, 24 V AC/DC	NC, 1 m cable	All sizes	1012416
		NC, 2 m cable	All sizes	1012442
		NO, 1 m cable	All sizes	1012426
	Modulating, **24** V Plugged cable, stroke position indicator, IP54, 24 V AC	NC, 1 m cable	All sizes	1012953

Aktor M
Motorised actuators

	Type	Type	Suitable for	Item No.
	Floating / on/off Screwed cable, length 1.5 m, IP54	230 V AC	All sizes	1012729
	Modulating / floating / on/off Screwed cable, length 1.5 m, 0...10 V control, IP54	24 V AC/DC	All sizes	1012725
	Modulating Screwed cable, length 1.5 m, 0...10 V control, 0...10 V position feedback, IP54	24 V AC/DC	All sizes	1012726
	Modbus Screwed cable, length 1.5 m, 0...10 V control, IP54	24 V AC/DC	All sizes	1012745
	On/off, with short running time Fixed cable, length 1.5 m, running time 3 seconds	230 V AC	All sizes	1012710
		24 V AC/DC	All sizes	1012711

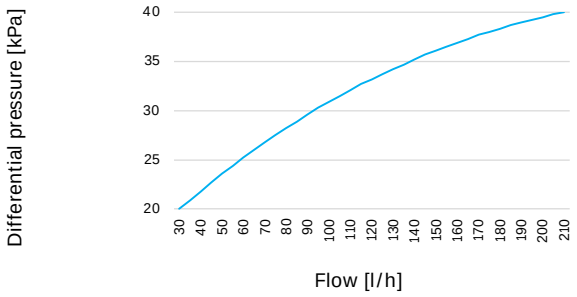
Fittings

	Type	Size	Suitable for	Item No.
	Externally threaded connection sets Consisting of two tailpipes with O-rings and union nuts	G ¾ x R ½	DN 15	1140282
		G 1 x R ¾	DN 20	1140284
		G 1 ¼ x R 1	DN 25...32	1140285

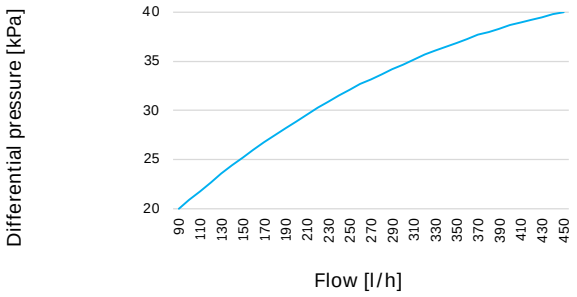
Sizing

Minimum ΔP requirements

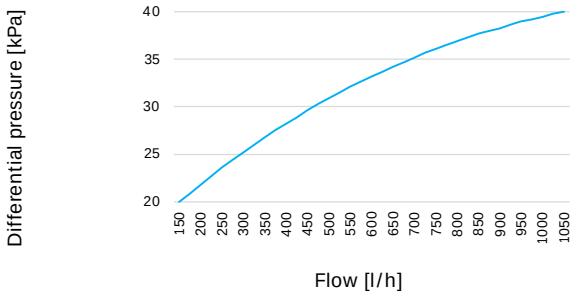
30...210 l/h



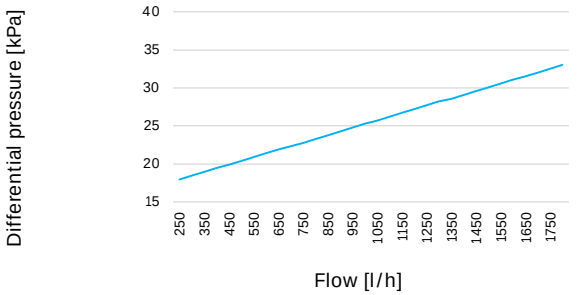
90...450 l/h



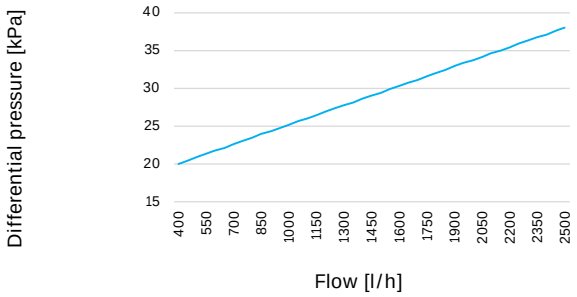
150...1,050 l/h



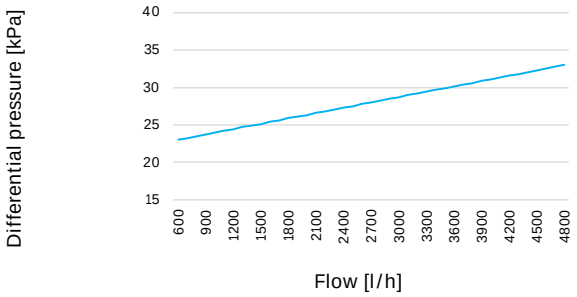
250...1,800 l/h



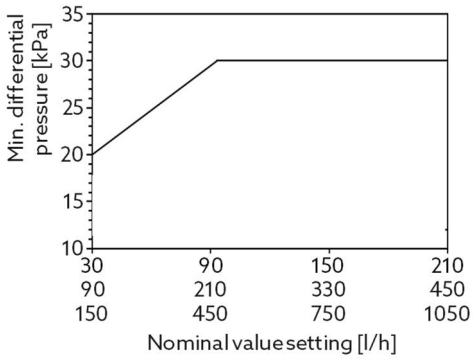
400...2,500 l/h



600...4,800 l/h



Assessment of readings



Only valid for Flypass PICV 15x and Flypass PICV 20L.

This applies to measurement readings from the Cocon QTZ PICV. The measured differential pressure of variants PICV 15x and PICV 20L is not identical with the actual differential pressure P1...P3 and has to be assessed using the chart opposite: if the measured value is on or above the line, sufficient differential pressure is available.

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