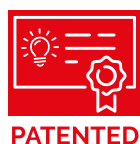


Differential pressure controller

Datasheet
0823EN 02/2021



Balancing valve R206C is a differential pressure controller for constant differential pressure of part of the hydraulic circuit at any flow rate.

The nominal differential pressure can be controlled on a constant basis from 5 to 30 kPa in "L" mode (Low) or from 25 to 60 kPa in "H" mode (High); nominal set point preset on minimum value.

The adjustment value is specified in the diagram.

The valve comes with a 1 m capillary tube made of copper for connection to the delivery pipe, which is typically static balancing valve (R206B). Valve R206C is recommended for balancing of variable flow rate systems, such as systems with thermostatic valves or manifolds controlling multiple zones of the house.

➤ Versions and product codes

PRODUCT CODE	DN	CONNECTIONS
R206CY103	15	Rp 1/2"
R206CY104	20	Rp 3/4"
R206CY105	25	Rp 1"
R206CY106	32	Rp 1-1/4"
R206CY107	40	Rp 1-1/2"
R206CY108	50	Rp 2"

Accessories

- **P206Y001**: probe holders for pressure outlets to determine the balancing valve flow.
- **R225EY001**: digital pressure gauge to read the differential pressure and set the flow for hydronic system balancing. Includes two M10 x 1 mm needle probes with the required connection pipes.

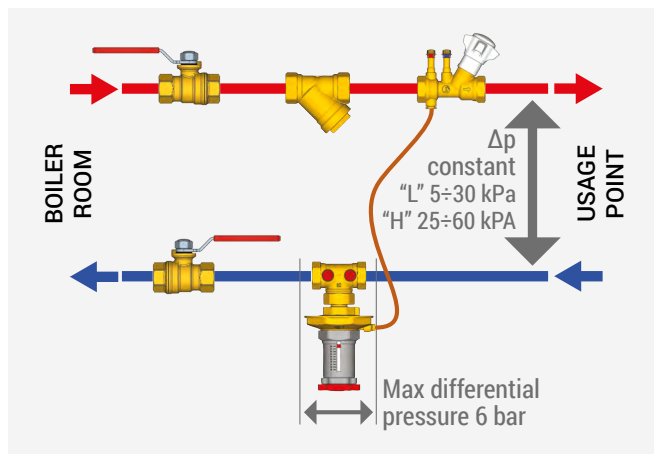
Spare parts

- **P206CY111**: replacement capillary tube for valve R206C, length 1 m.

Technical data

Technical characteristics

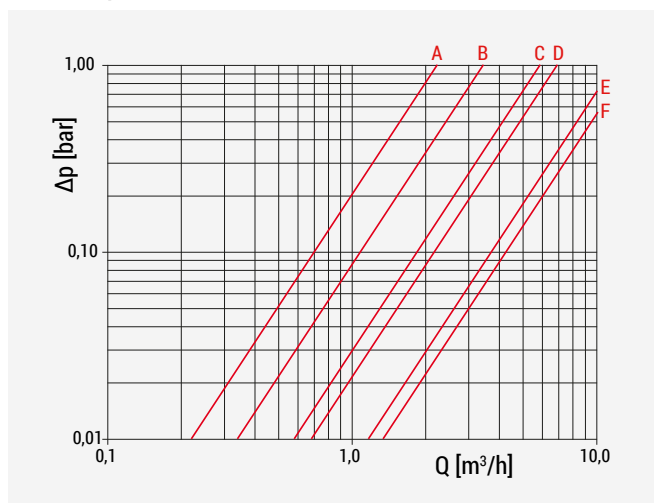
- Fluids: water, glycol-based solutions (max. 50 % of glycol)
- Temperature range: 5÷110 °C (-20÷110 °C with glycol antifreeze)
- Max. working pressure: 16 bar
- Max. differential pressure: 6 bar
- Setting of differential pressure range:
"L" setting = 5÷30 kPa; "H" setting = 25÷60 kPa
- Connections for pressure outlets: G 1/4" F
- Connections for copper capillary: G 1/8" F



Materials

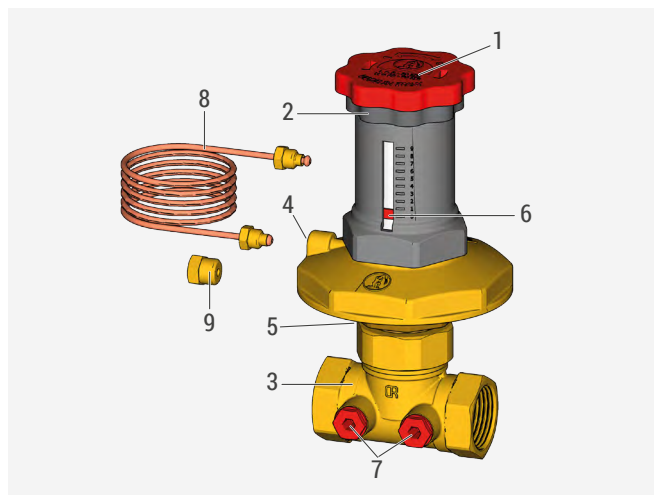
- Body and components: brass EN12165 - CW602N (DZR)
- Other components not in contact with water: brass EN12165 - CW617N
- Membrane: EPDM with nylon reinforcement
- O-Ring: EPDM
- Springs: galvanized steel
- Plastic components: PA 6 GF15 and POM
- Capillary tube: copper

Losses of pressure



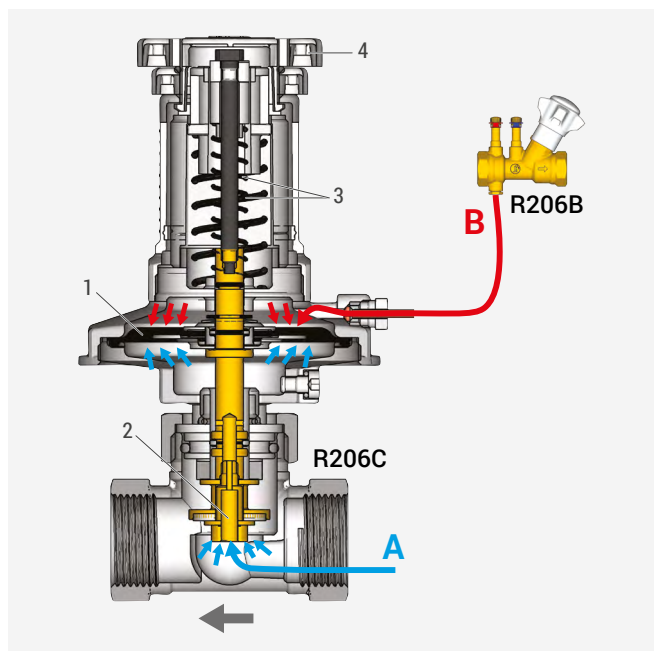
REFERENCE	PRODUCT CODE	Kv
A	R206CY103	2,24
B	R206CY104	3,49
C	R206CY105	5,92
D	R206CY106	6,95
E	R206CY107	11,72
F	R206CY108	12,97

Components



- | | |
|---|---|
| 1 | Adjustment knob |
| 2 | Knob-removing ring nut |
| 3 | Valve body |
| 4 | Connection to copper capillary tube |
| 5 | Air-purging screw |
| 6 | Indicator ring with graded scale |
| 7 | Pressure outlets |
| 8 | Copper capillary tube with G 1/8\"M connection |
| 9 | Adapter for copper capillary tube G 1/8\"F x G 1/4\"M, for connection to static balancing valve R206B |

Operation



- | | |
|---|--|
| A | Return pipe water pressure |
| B | Pressure of delivery pipe water rechanneled through capillary pipe |
| 1 | Elastic membrane |
| 2 | Stopper |
| 3 | Double spring |
| 4 | Adjustment knob |

The hydraulic circuit is controlled by combining two valves: a static balancing valve (R206B) and a differential pressure controller (R206C).

The static balancing valve on the delivery circuit is set on the project max. pressure and connected to the differential pressure controller on the return circuit through the copper capillary tube.

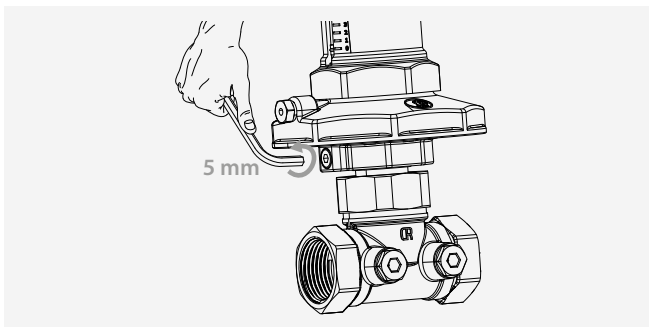
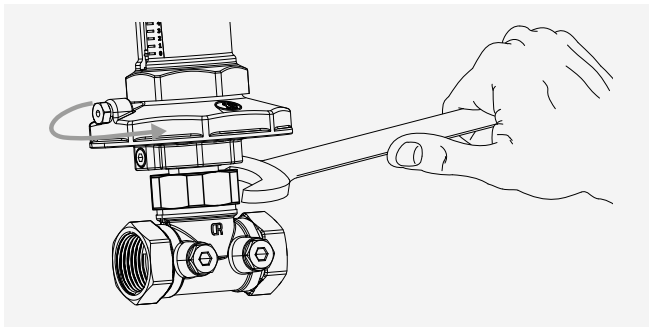
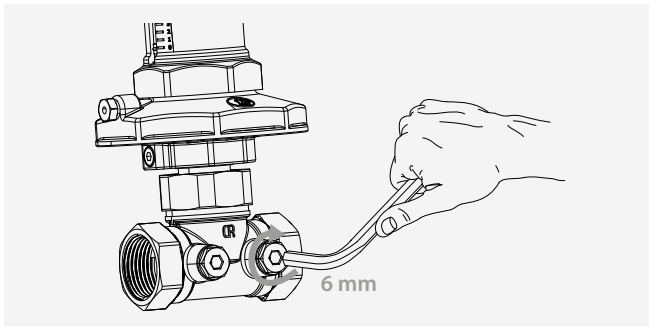
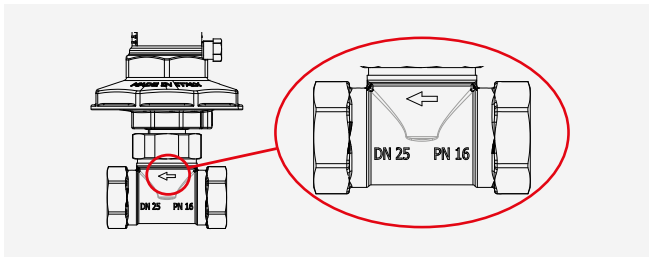
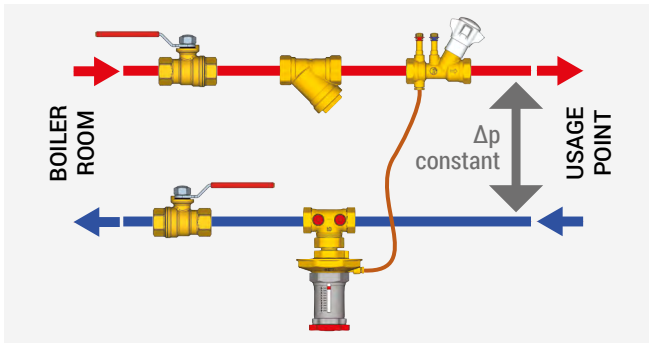
This enables the differential pressure controller to maintain constant the project pressure previously set for the concerned part of the system.

The interaction of two contrasting forces enables an elastic membrane (1) to activate the stopper (2): from below the water flow pressure inside the return piping (A) which tends to open the valve, from above the water flow pressure inside the delivery piping (B) and carried back by the capillary tube. The stopper opening and/or closing action is enabled by two springs (3) properly adjusted by the installer through an adjustment knob (4).

The double spring enables to control the two setting ranges ("L" Low and "H" High) in one single valve.

NOTE. Refer to paragraph "Presetting" to change the setting range.

Installation

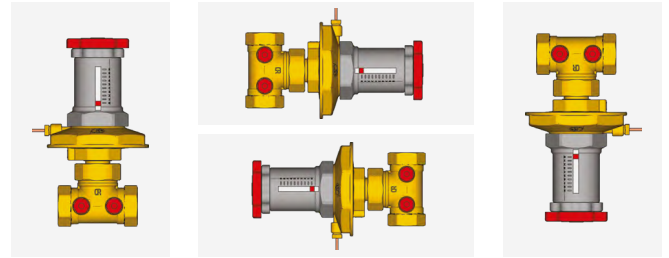


Installation instructions

Install valve R206C on the delivery pipe according to the flow direction shown on the body valve and connect it to the delivery pipe with the capillary tube.

We recommend installing a shut-off valve both upstream and downstream, in addition to a filter to stop debris.

Valve R206C can be installed in any direction (horizontally and/or vertically).



Pressure outlets installation

One side of the valve body features two G 1/4"F threaded connections to install the pressure outlets.

These two connections enable to install the two P206Y001 pressure outlets and, by including the R225E pressure gauge and its probes, the differential pressure can be measured inside the valve.

To install the pressure outlets, remove the two red plugs using a 6 mm Allen wrench;

Capillary tube positioning

By loosening the nut on the valve body with a wrench, the capillary tube connection and the adjustment cartridge can be oriented based on installation requirements;

⚠ WARNING. Carry out this operation before installing the valve on the pipe.

Air purging

After installing the valve on the pipe and before setting the pressure to the desired value, purge the air inside the circuit. With a 5 mm Allen wrench, turn the screw on the valve body in counterclockwise direction till water is purged instead of air.

Then install the capillary copper tube, fitting it to the threaded connections on the R206C and R206B valves.

▶ Presetting

R206C valves can be adjusted at any time.

To set the differential pressure, refer to the presetting diagrams.

According to the diagram, set the type of pressure ("L" or "H") and the scale value (1 to 9) by rotating the red knob. The setting is indicated on the valve indicator scale.

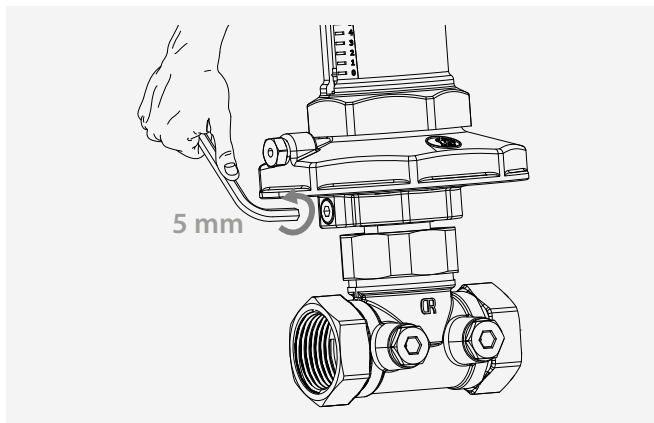


© VIDEO

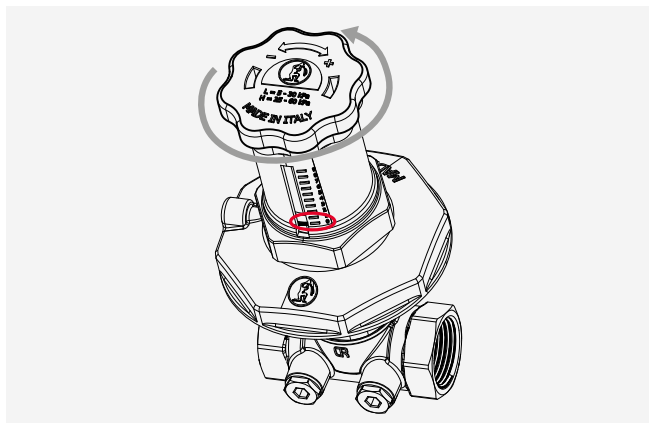
Frame the QR-Code with your smartphone or tablet to view the video tutorial.

To make the type of pressure set change ("L" or "H") proceed as follow:

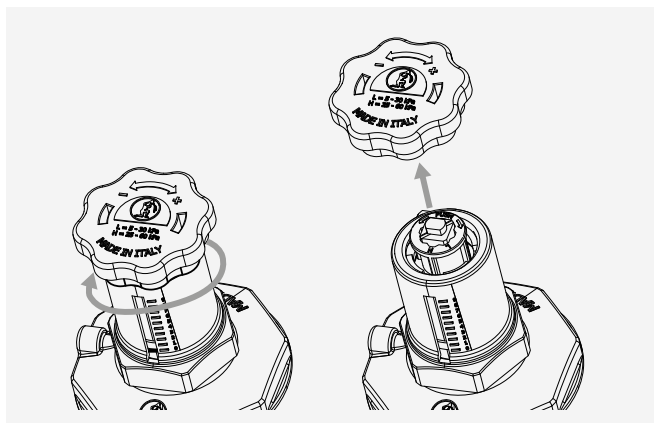
- 1)** Before presetting, purge the air from the membrane body (see "Installation" paragraph).



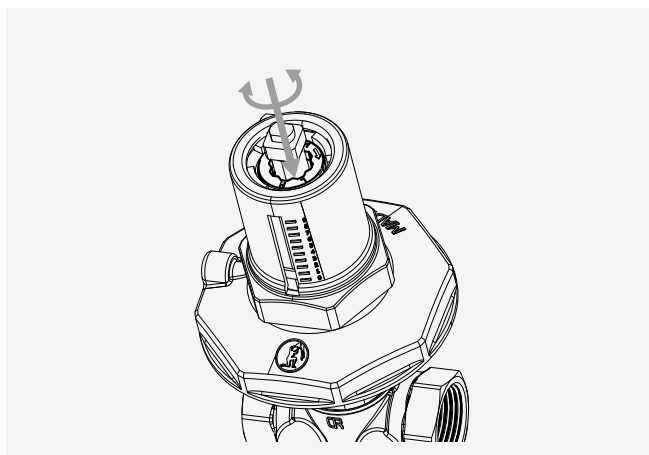
- 2)** Set the adjustment scale to "0" by rotating the red knob till it is completely closed.



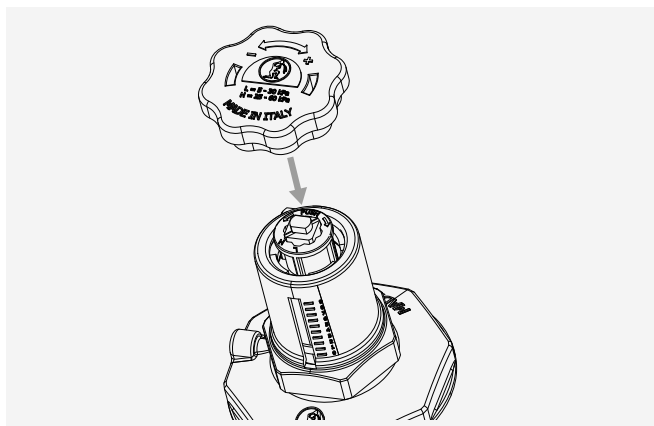
- 3)** Loosen the grey knob by 1/4 turn in clockwise direction and remove both knobs (red and grey) by pulling them up together.



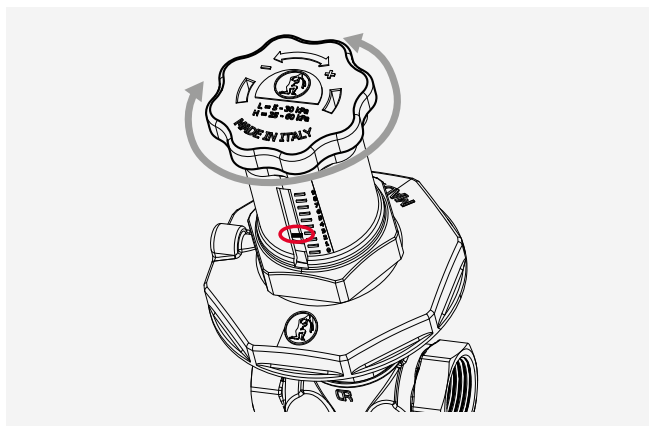
- 4)** Push the white ring nut down and rotate it manually to the "L" (Low) or "H" (High) presetting position.



- 5)** Reassemble the two knobs fitting them to the internal connections of the valve and pushing them slightly down.



- 6)** Set the desired pressure value by rotating the red knob (presetting).

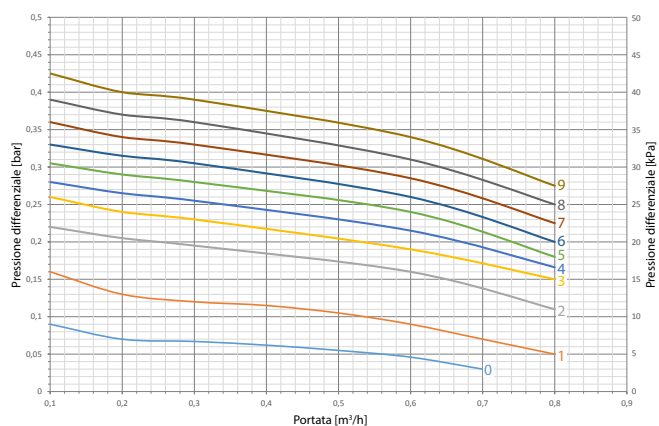


➤ "L" (Low) presetting diagrams

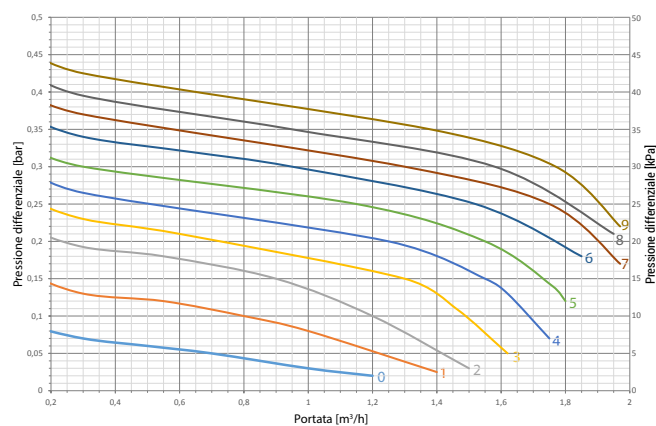
Indicator position	R206CY103		R206CY104		R206CY105		R206CY106		R206CY107		R206CY108	
	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]
0	0,10	0,70	0,20	1,20	0,20	1,35	0,75	2,50	1,00	3,00	1,50	3,50
1	0,10	0,80	0,20	1,40	0,20	1,80	0,75	3,00	1,00	3,80	1,50	4,20
2	0,10	0,80	0,20	1,50	0,20	2,20	0,75	3,50	1,00	4,50	1,50	5,00
3	0,10	0,80	0,20	1,65	0,20	2,75	0,75	3,80	1,00	5,00	1,50	5,60
4	0,10	0,80	0,20	1,80	0,20	3,20	0,75	4,20	1,00	5,50	1,50	6,30
5	0,10	0,80	0,20	1,85	0,20	3,10	0,75	4,50	1,00	6,00	1,50	7,00
6	0,10	0,80	0,20	1,85	0,20	3,40	0,75	4,50	1,00	6,50	1,50	7,50
7	0,10	0,80	0,20	2,00	0,20	3,80	0,75	4,50	1,00	7,00	1,50	8,00
8	0,10	0,80	0,20	2,00	0,20	3,80	0,75	4,50	1,00	7,00	1,50	8,00
9	0,10	0,80	0,20	2,00	0,20	3,80	0,75	4,50	1,00	7,00	1,50	8,00

 **NOTE.** Diagrams on the next page.

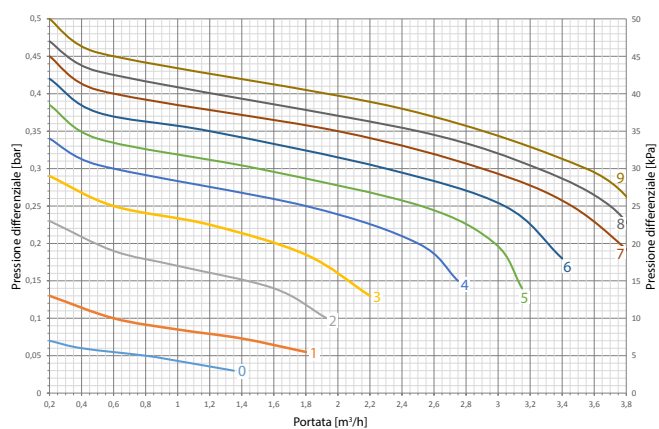
R206CY103



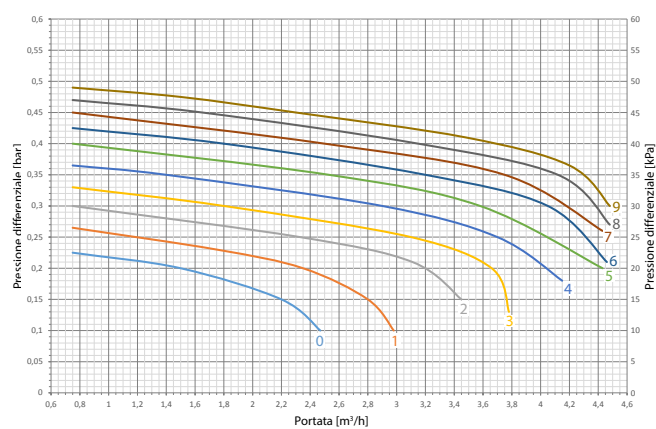
R206CY104



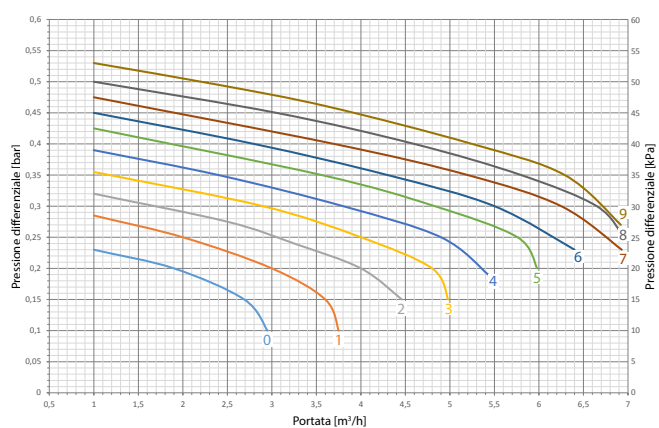
R206CY105



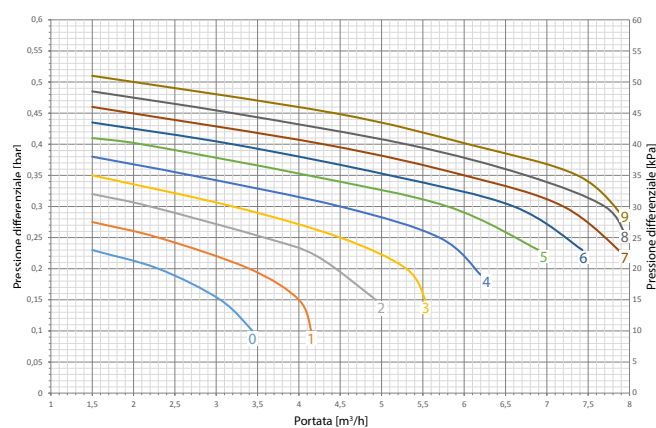
R206CY106



R206CY107



R206CY108

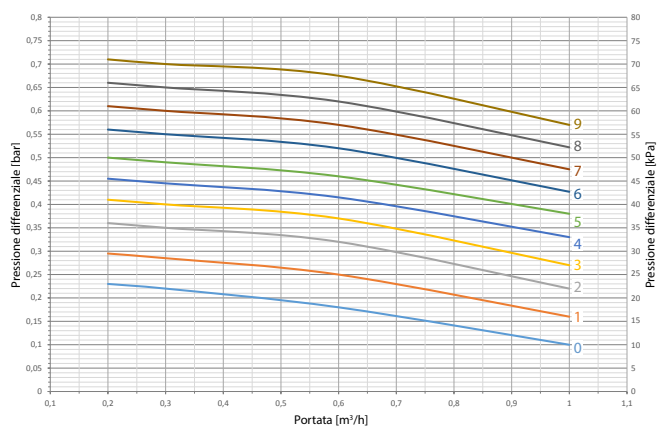


➤ “H” (High) presetting diagrams

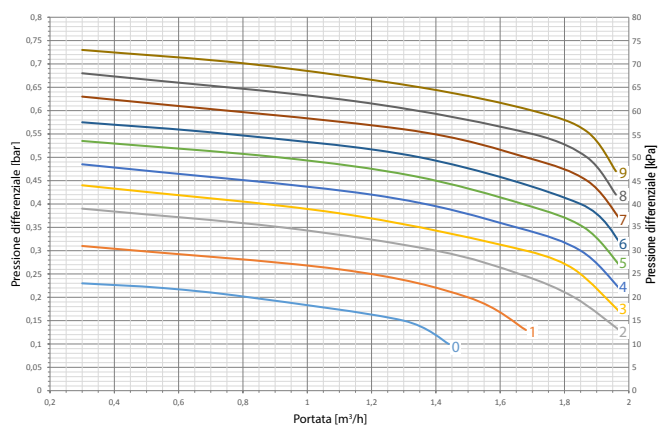
Indicator position	R206CY103		R206CY104		R206CY105		R206CY106		R206CY107		R206CY108	
	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]	Qmin [m³/h]	Qmax [m³/h]
0	0,20	1,00	0,30	1,50	0,50	2,50	0,75	3,50	1,00	4,50	1,50	5,00
1	0,20	1,00	0,30	1,75	0,50	2,90	0,75	3,75	1,00	5,30	1,50	6,00
2	0,20	1,00	0,30	2,00	0,50	3,30	0,75	4,00	1,00	6,00	1,50	7,00
3	0,20	1,00	0,30	2,00	0,50	3,80	0,75	4,15	1,00	6,50	1,50	7,50
4	0,20	1,00	0,30	2,00	0,50	3,80	0,75	4,30	1,00	6,50	1,50	7,50
5	0,20	1,00	0,30	2,00	0,50	3,80	0,75	4,50	1,00	6,50	1,50	7,50
6	0,20	1,00	0,30	2,00	0,50	3,80	0,75	4,50	1,00	7,00	1,50	8,00
7	0,20	1,00	0,30	2,00	0,50	3,80	0,75	4,50	1,00	7,00	1,50	8,00
8	0,20	1,00	0,30	2,00	0,50	3,80	0,75	4,50	1,00	7,00	1,50	8,00
9	0,20	1,00	0,30	2,00	0,50	3,80	0,75	4,50	1,00	7,00	1,50	8,00

 **NOTE.** Diagrams on the next page.

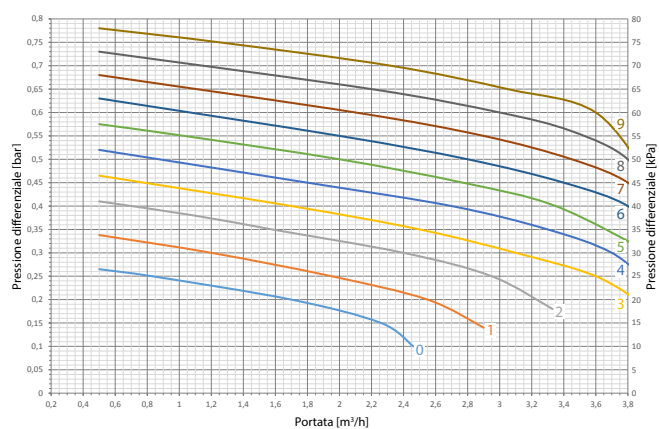
R206CY103



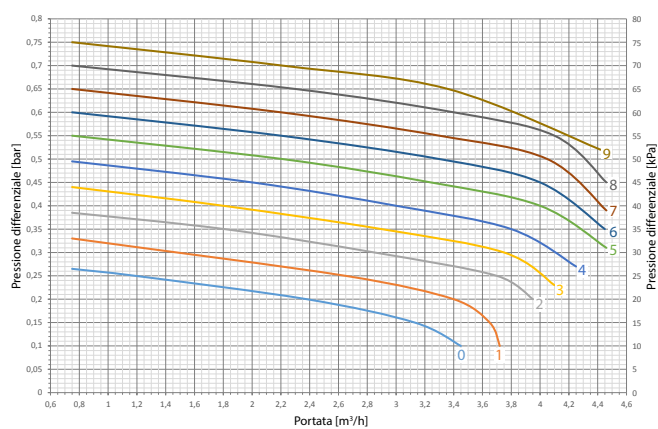
R206CY104



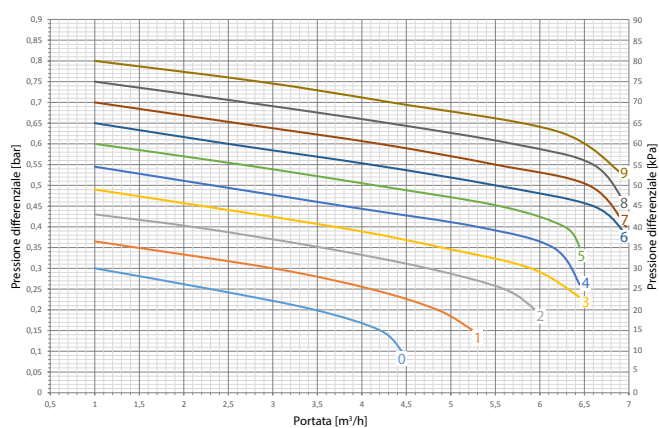
R206CY105



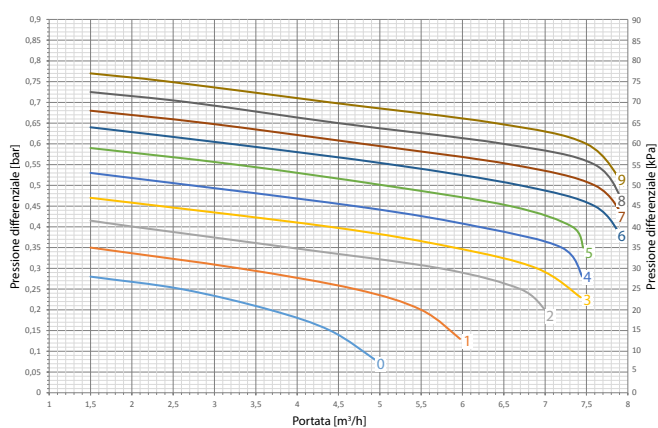
R206CY106



R206CY107

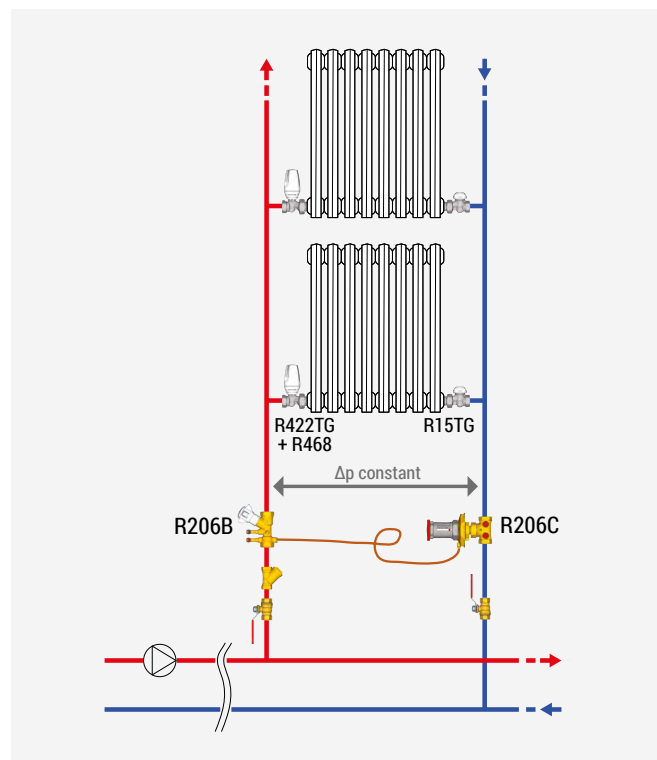


R206CY108

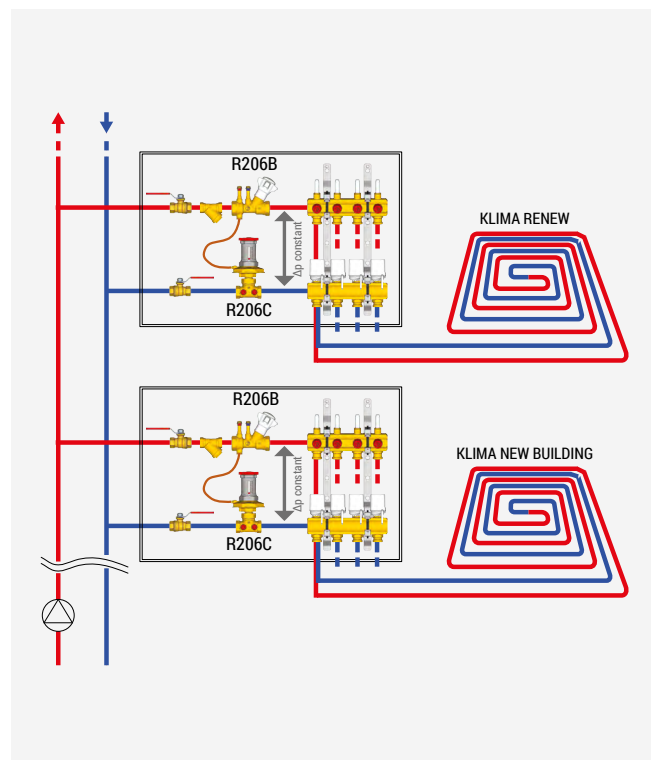


➤ Application diagrams

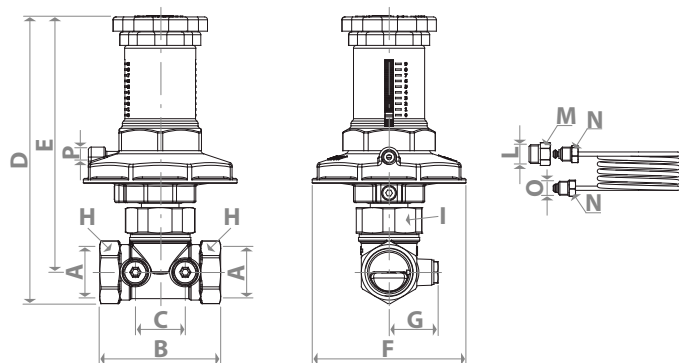
Example of application with radiator riser systems



Example of application with radiant floor systems



➤ Dimensions



PRODUCT CODE	DN	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	L [mm]	M [mm]	N [mm]	O [mm]	P [mm]
R206CY103	15	Rp 1/2"F	65	26	185	170	108	30	hex.26	hex.37					
R206CY104	20	Rp 3/4"F	75	26	188	170	108	30	hex.32	hex.37					
R206CY105	25	Rp 1"F	85	35	202	181	108	34,5	hex.39	hex.46					
R206CY106	32	Rp 1-1/4"F	95	35	208	181	108	37,5	hex.48	hex.46	G 1/4"M	hex.14	hex.11	G 1/8"M	G 1/8"F
R206CY107	40	Rp 1-1/2"F	100	42	220,00	192	108	41,5	oct.54	oct.64					
R206CY108	50	Rp 2"F	130	46	227,00	192	108	47,5	oct.67	oct.64					

Product specifications

R206C

Differential pressure controller to maintain a constant pressure with any flow. The nominal differential pressure can be controlled on a constant basis from 5 to 30 kPa in "L" mode (Low) or from 25 to 60 kPa in "H" mode (High). The setting value is specified by the diagram. The original factory nominal set point is set to the minimum. 1 m copper capillary pipe included. Dezincification resistant brass (DZR) body. EPDM membranes and O-Rings. Temperature range 5÷110 °C. Max. working pressure 16 bar.

UNIT OF MEASUREMENT.

1 bar = 100 kPa

1 m³/h = 1000 l/h = 16,7 l/min = 0,28 l/s

 **Safety Warning.** Installation, commissioning and periodical maintenance of the product must be carried out by qualified operators in compliance with national regulations and/or local standards. A qualified installer must take all required measures, including use of Individual Protection Devices, for his and others' safety. An improper installation may damage people, animals or objects towards which Giacomini S.p.A. may not be held liable.

 **Package Disposal.** Carton boxes: paper recycling. Plastic bags and bubble wrap: plastic recycling.

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 **Product Disposal.** Do not dispose of product as municipal waste at the end of its life cycle. Dispose of product at a special recycling platform managed by local authorities or at retailers providing this type of service.