

STATIC BALANCING VALVES



R206B

Description

The balancing is essential for saving the energy used in hydro-thermo-sanitary systems. The R206B are static balancing valves, that permit a gradual and precise regulation of the flow rate.

The R206B have a flowmeter with calibrated orifice (Venturi principle), that is with fixed Kv, that through the pressure outlets (depending on the versions they are provided with or they are optional accessory) and a common differential manometer, permits to measure carefully the flow rate that is really circulating.

Versions and codes

Connections	with probes with drain	without probes with drain
1/2"	R206BY003	R206BY013
3/4"	R206BY004	R206BY014
1"	R206BY005	R206BY015
1 1/4"	R206BY006	R206BY016
1 1/2"	R206BY007	R206BY017
2"	R206BY008	R206BY018

Table 1 - Codes

Kv		
Connections	Kv (Venturi flowmeter)	Kv (complete valve)
1/2"	4,0	2,7
3/4"	7,5	5,5
1"	11,0	7,0
1 1/4"	13,5	9,5
1 1/2"	24	18,5
2"	31	25,5

Table 2 - Kv value for the valves

Flowrate (l/h)			
Connections	0,5 kPa (*)	3 kPa (*)	10 kPa (**)
1/2"	280	690	860
3/4"	530	1300	1740
1"	780	1900	2220
1 1/4"	950	2340	3000
1 1/2"	1700	4160	5850
2"	2190	5370	8065

Table 3 - Flowrate values related to differential pressure on Venturi flowmeter (*) or for the complete valve (**)

Technical data

- Maximum working temperature: 110 °C (other versions available on request)
- Maximum working pressure: 25 bar

Key features

- Connection for drain ISO 228 - G 1/4" Female
- Sensor holder for needle $\varnothing$ 3 mm and lenght 30 ÷ 40 mm
- Shut-off function
- Pre-setting possibility
- Venturi flowmeter for flowrate measurement by means of pressure probes

Material

- ABS (handwheel, white color)
- DZR - Dezincification Resistant Brass (EN 12165 - CW602N)

Accessories

P206Y001: Sensors holder (no.2) kit for the flow rate determination through measurement of the differential pressure, 1/4" M connections.

Components

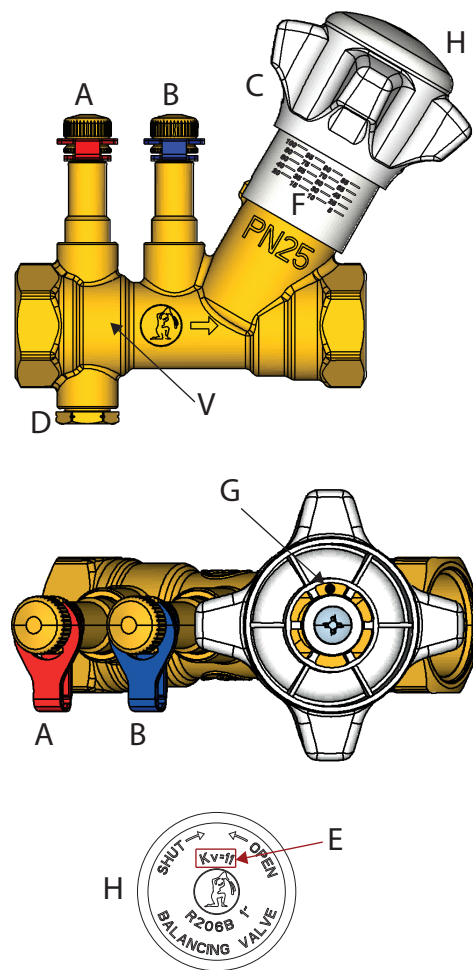


Figure 1

A	high pressure probe	F	scale for 0% ÷ 100% setting (20 positions)
B	low pressure probe	G	presetting screw (limiting the stroke)
C	ABS handwheel	H	removable head (to do presetting) with imprinted the Venturi Kv
D	drain (1/4" F)	V	Venturi flow meter
E	Kv of the Venturi flow meter		

Installation

- Effect the washing of the systems before installing the R206B valve.
- To protect the valve from possible impurities of the system, insert a filter upstream the valve.

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Operation

Presetting

R206B valves are equipped with a mechanism of mechanical memory of the opening (pre-regulation). This mechanism works by limiting the handle stroke (ref. C – fig.2) through a locking screw (ref.G – fig.2).

Operationally the pre-regulation shall be effected as follows:

- Select the desired flow rate Q depending on the differential pressure Δp ;
- Through the diagram of figure 3, determine the regulation to be carried out to obtain the desired flow rate Q depending on the differential pressure Δp according to the valve size.
- Make the regulation of the R206B valve by means of the handle (ref.C-fig.2), on the regulation scale (ref. F – fig.1);
- Screw clockwise until it stops the locking screw of the pre-regulation (ref.G-fig.2) by using an Allen key of:
 1,5 mm for versions $\frac{1}{2}$ ", $\frac{3}{4}$ ", 1", 1 $\frac{1}{4}$ ";
 2,0 mm for versions 1 $\frac{1}{2}$ ", 2".

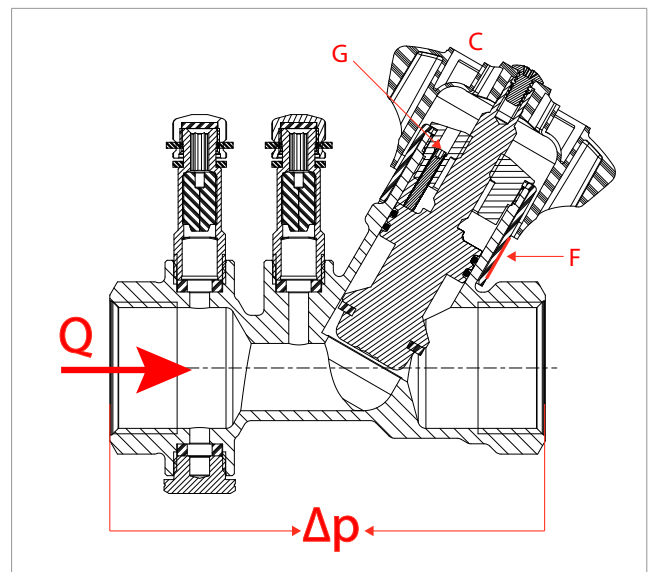


Figure 2

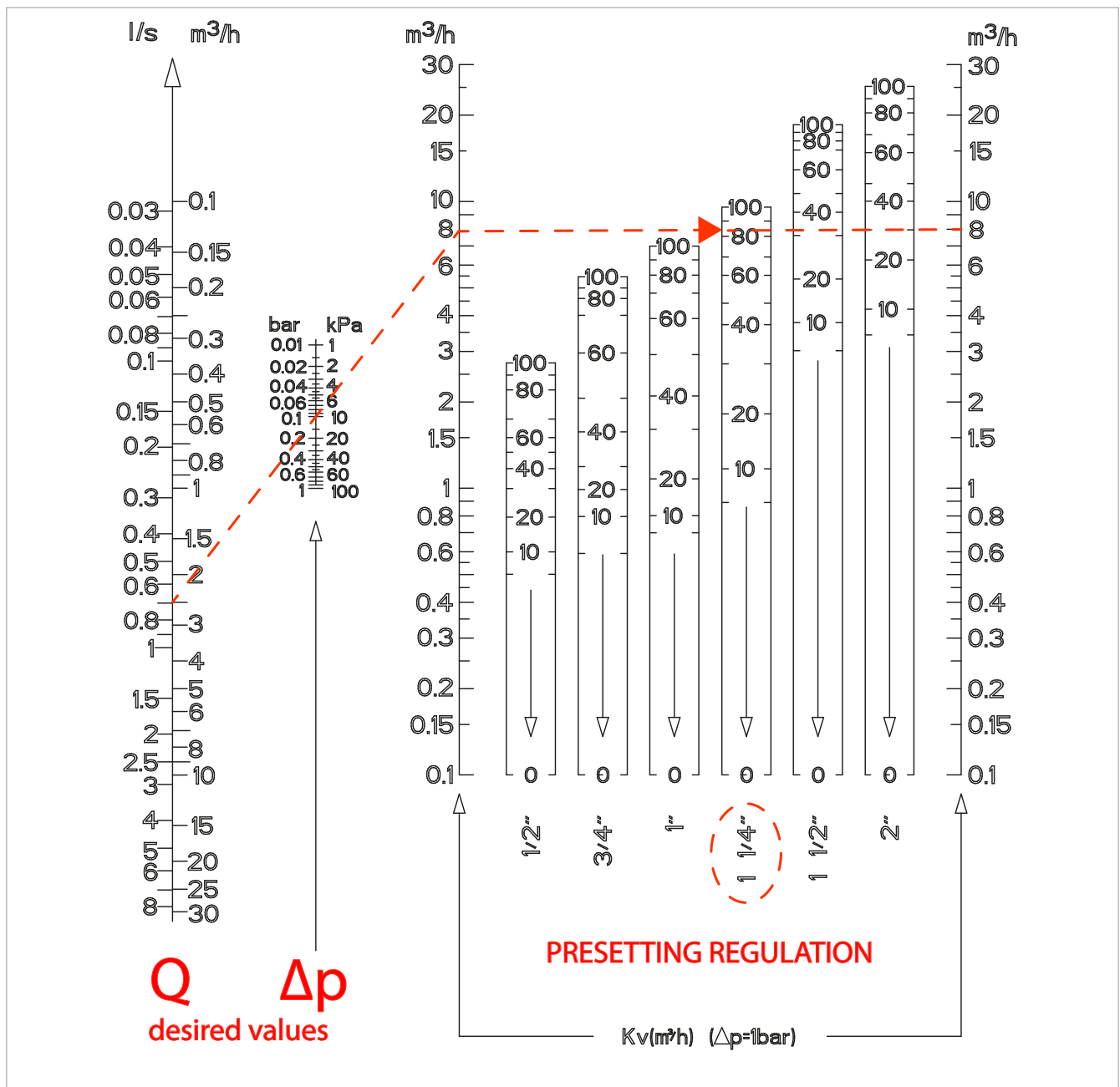


Figure 3

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Flowrate calculation

R206B balancing valves are equipped with a flowmeter having calibrated orifice (Venturi principle), that is with fixed K_v , that through the pressure outlets (ref.A-fig.4) and a common differential manometer, permits to calculate the really circulating flow rate.

The flow rate Q can be determined with the following formula:

$$Q = K_{v_{venturi}} \cdot \sqrt{\Delta p}$$

Refer to table 2 for the $K_{v_{venturi}}$ values;

Δp has to be measured through the pressure outlets.

Use the following formula for the liquids having density ρ different from water:

$$Q = K_{v_{venturi}} \cdot \sqrt{\Delta p / \rho}$$

As alternative to the formula, you can use the diagram in figure 5: with the measured Δp value, the flow rate Q can be determined according to the valve size.

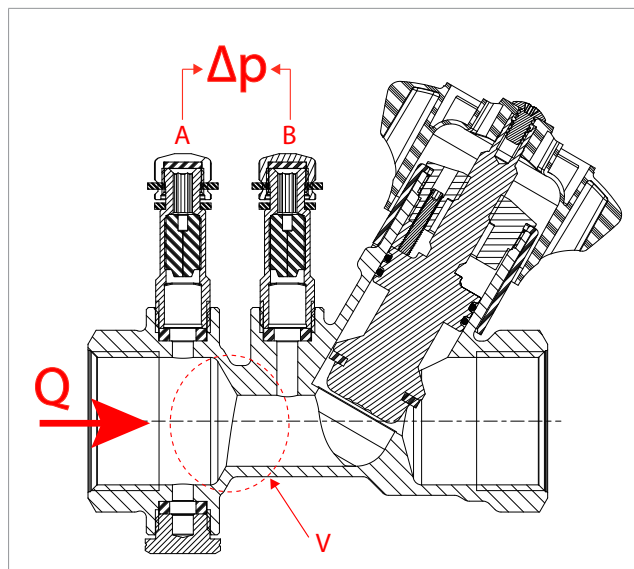


Figure 4

**Caution!**

Leakage of hot water can occur through the pressure outlets during the sensor introduction of the sensors. Wear protective clothes and glasses in order to prevent personal physical damages during the pressure measure.

Do not use lubricants on the sensors to ease the outlet insertion. If needed simply wet the sensors with clean water.

Do not leave the measure needle too much time in the pressure outlet, as it could cause leakages.

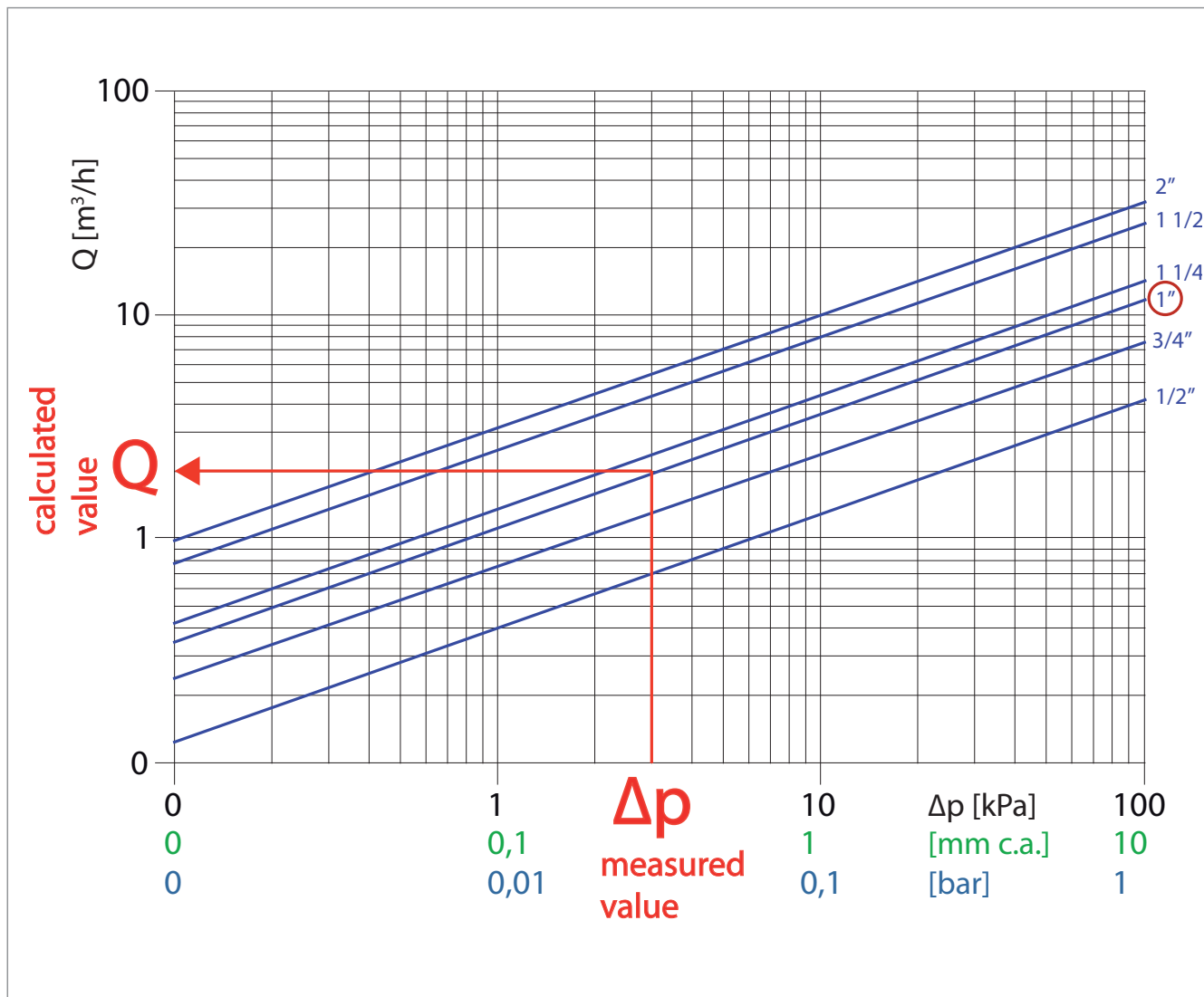
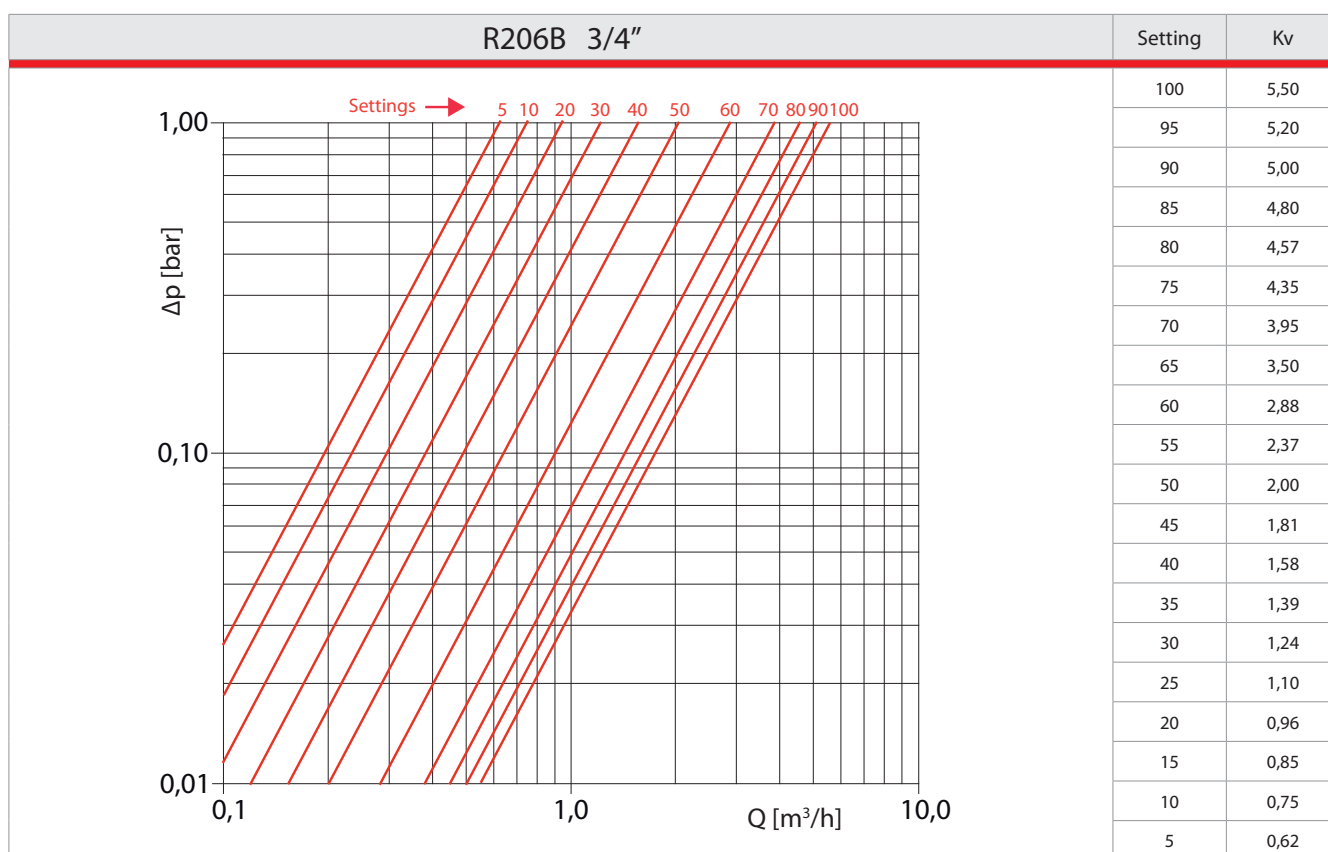
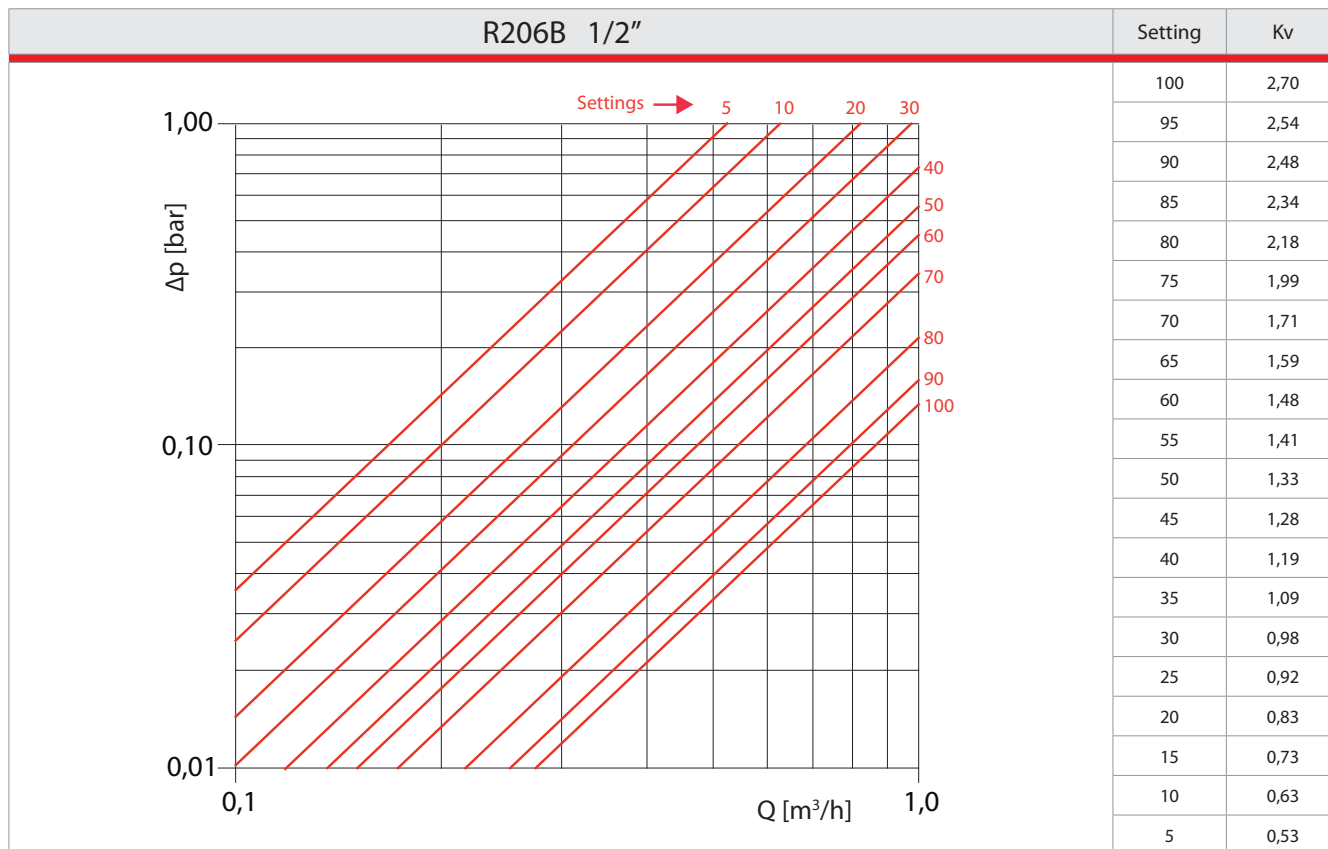


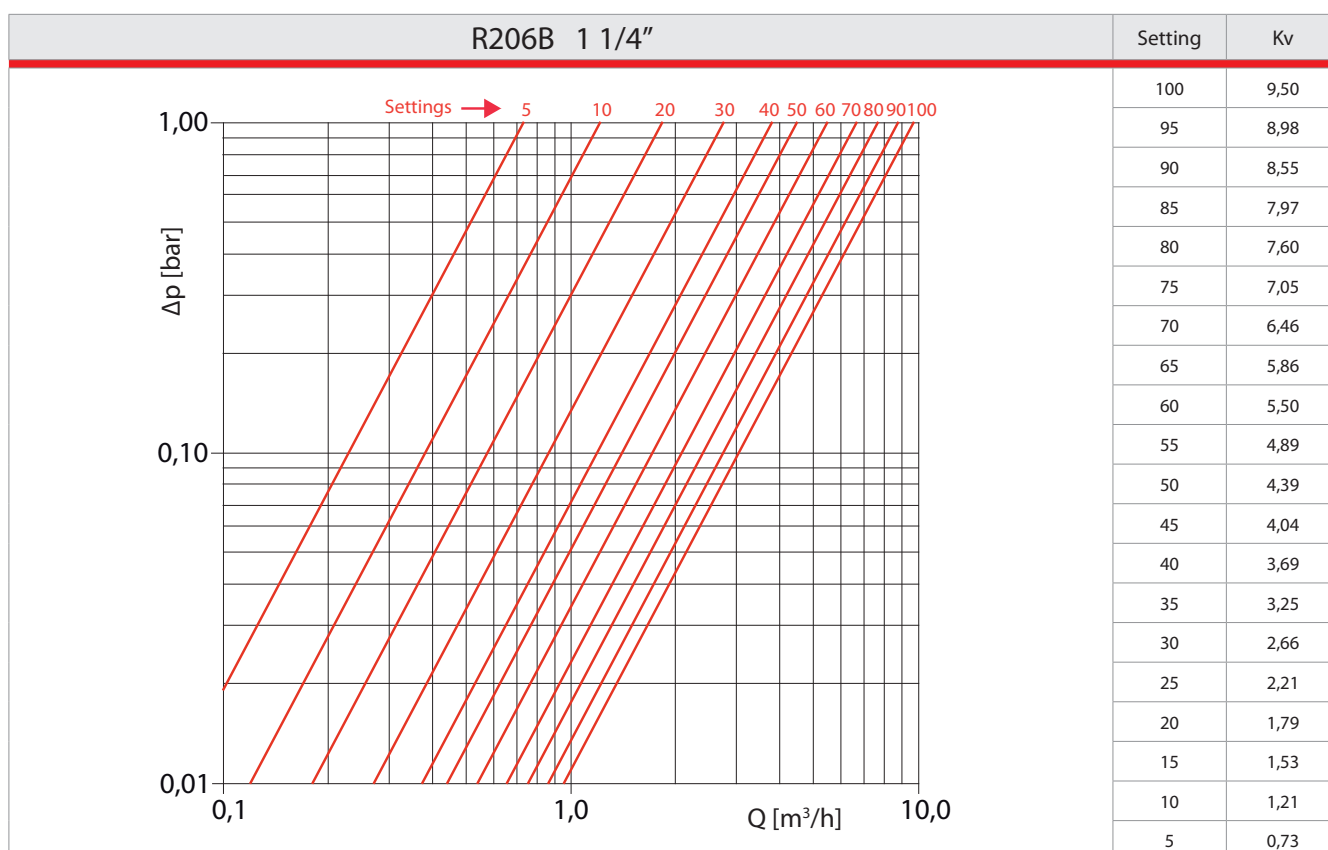
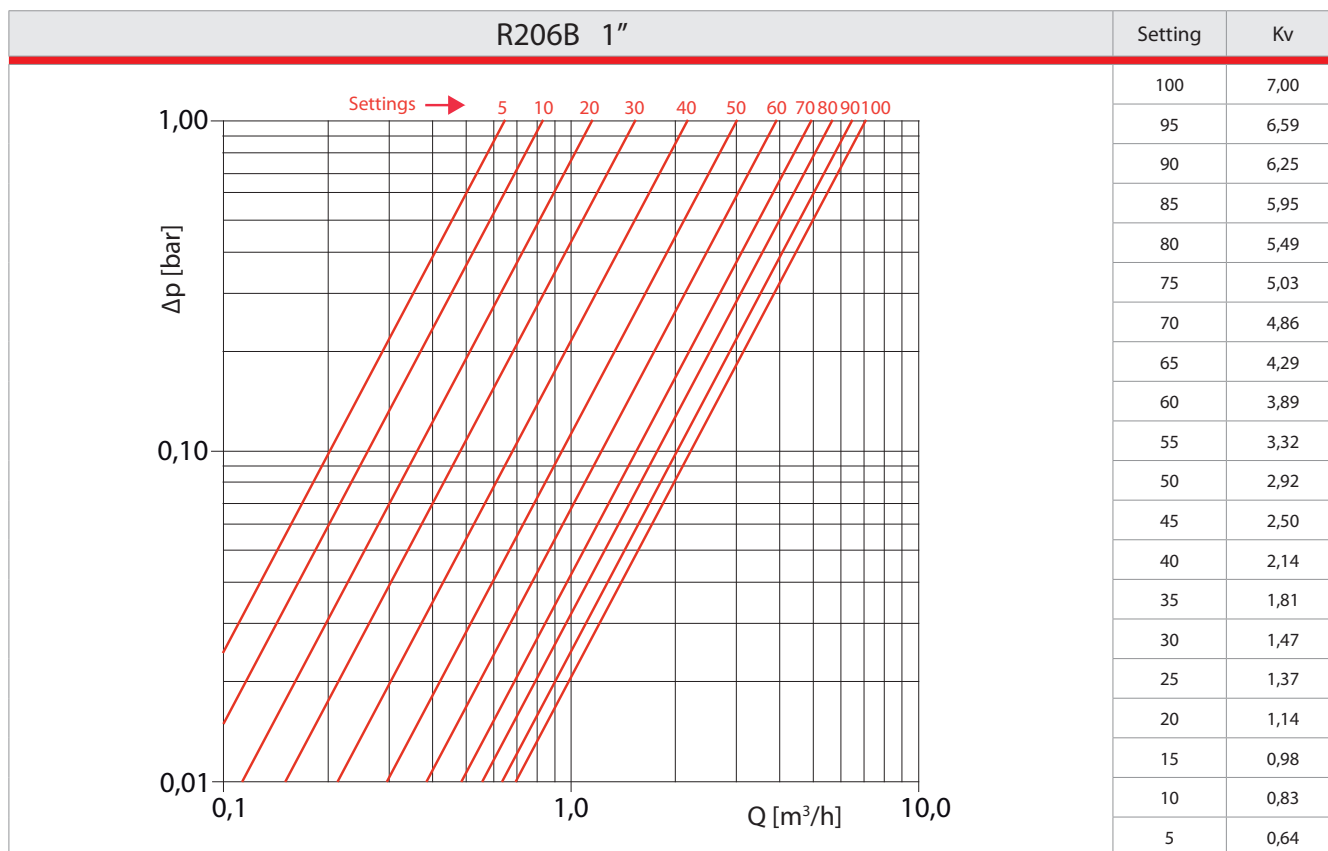
Figure 5

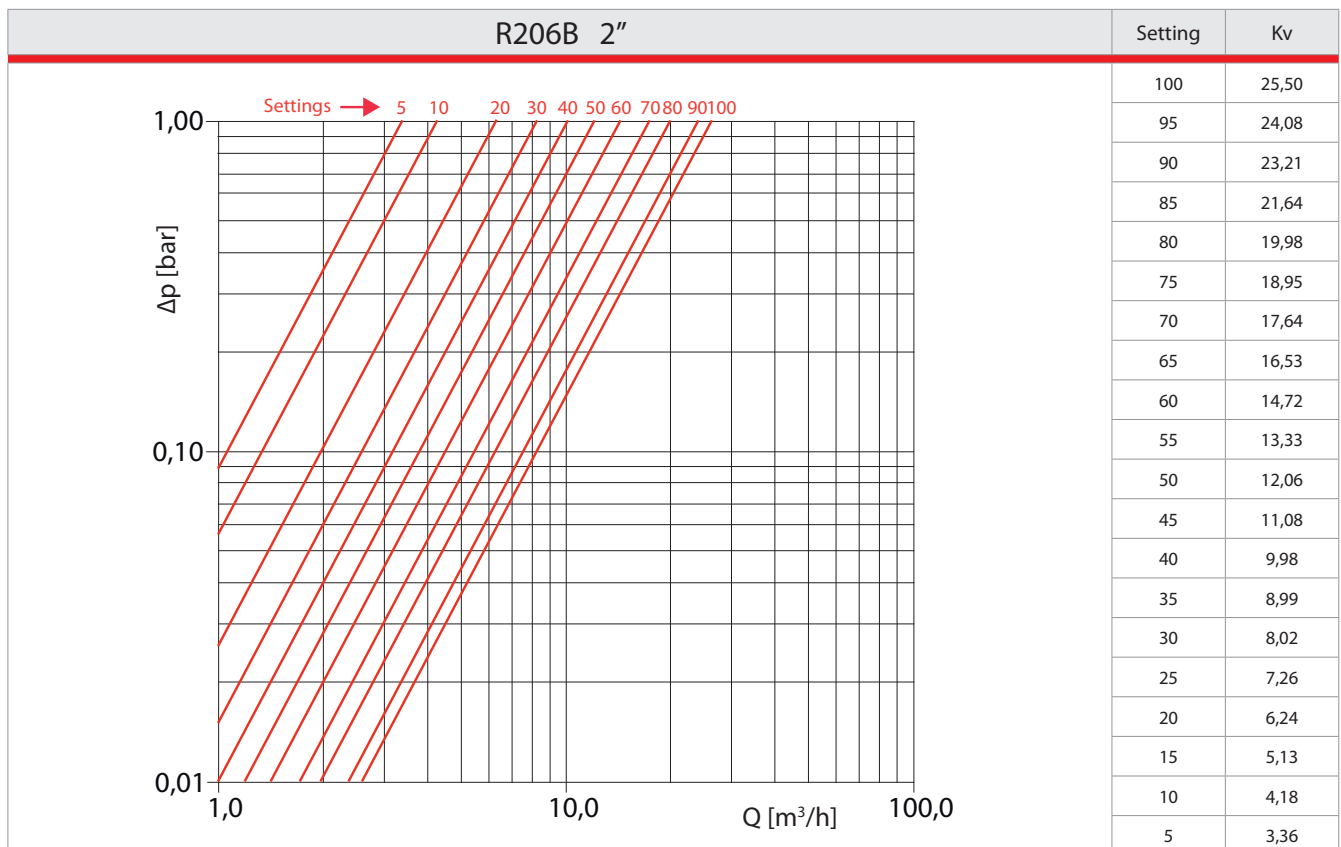
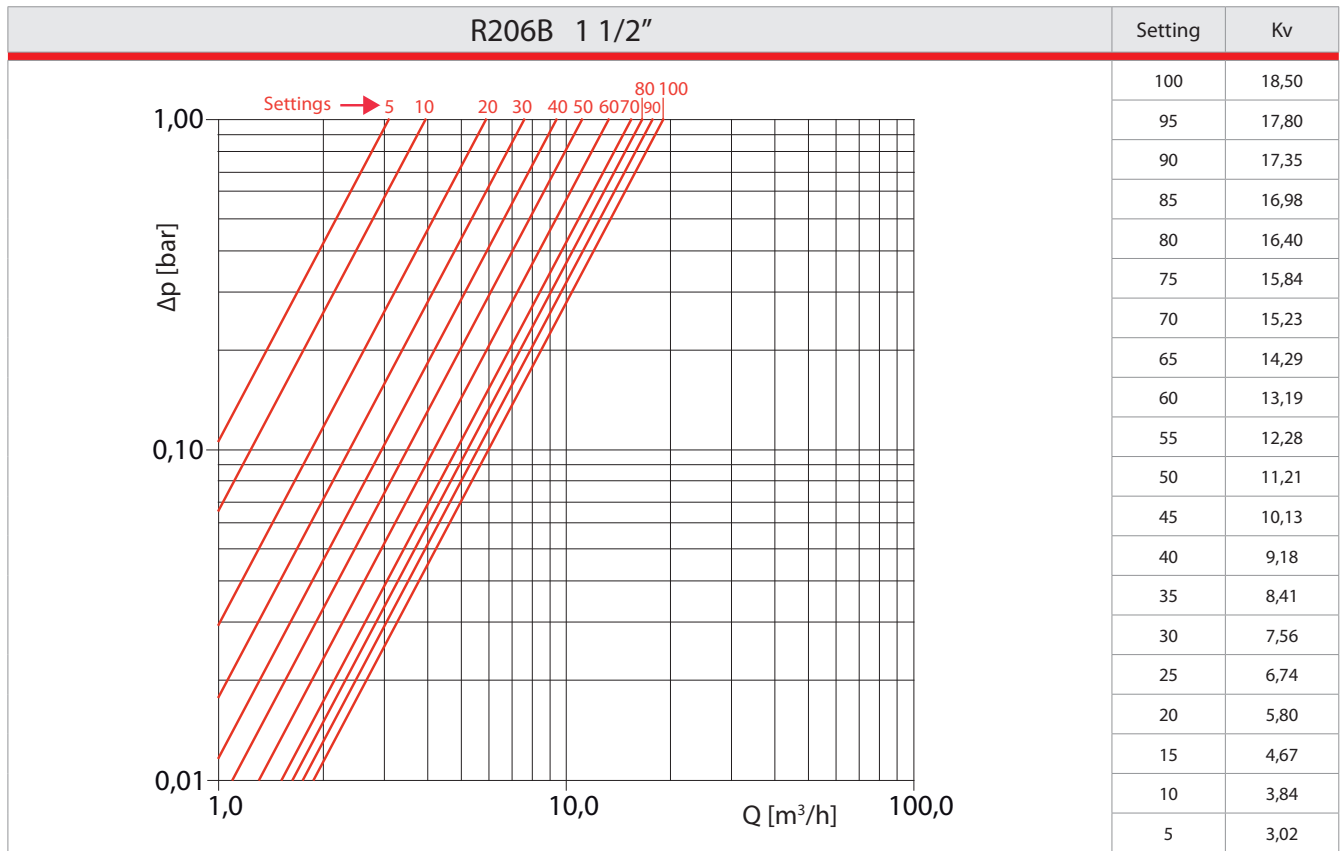
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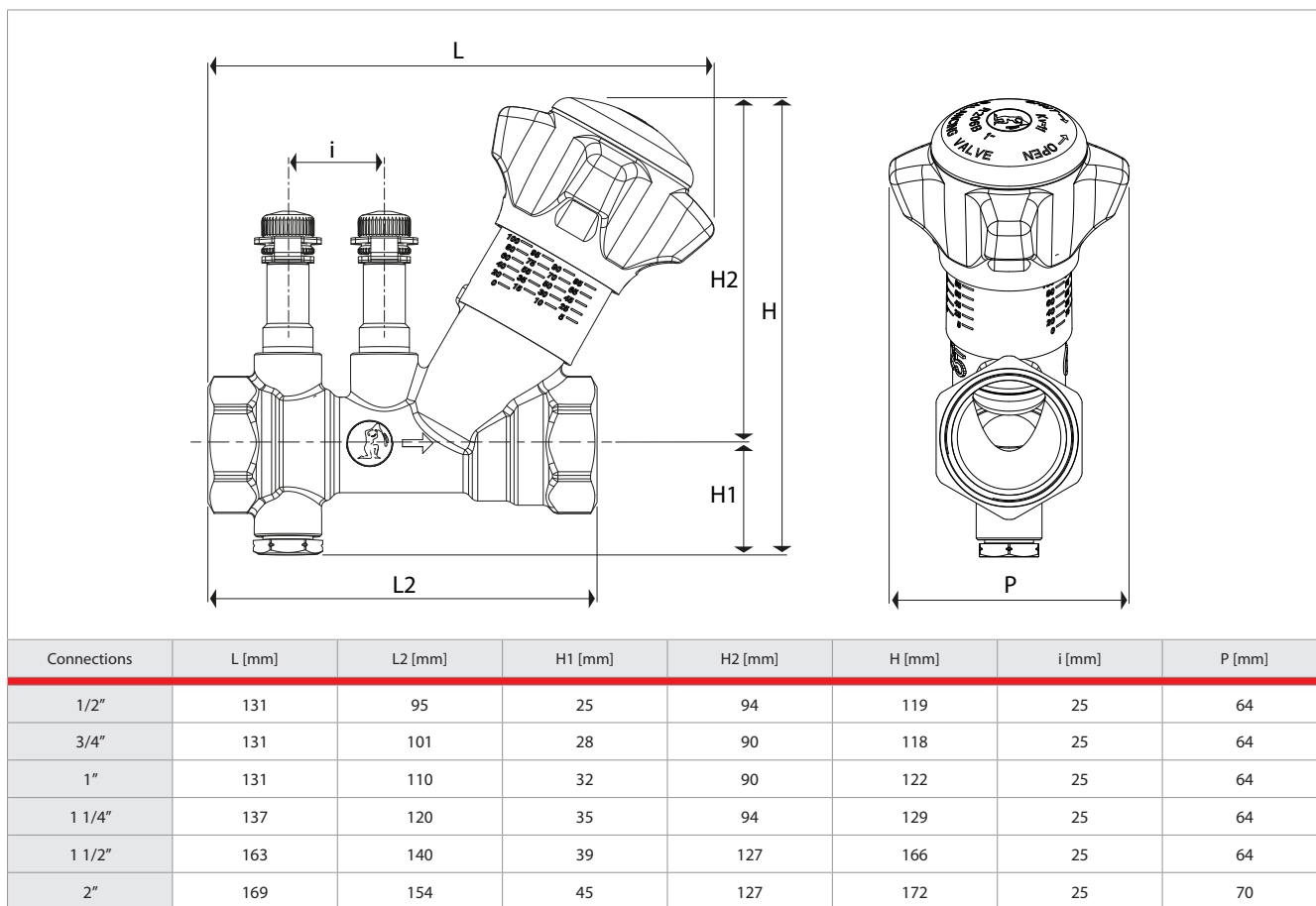
Pressure losses



STATIC BALANCING VALVES



STATIC BALANCING VALVES


STATIC BALANCING VALVES**Dimensions****Product specification****R206B – with pressure outlet**

Static balancing valve with ISO 228 threaded connections female-female from 1/2" to 2", Max. working temperature: 110°C. Max. working pressure: 25 bar. Pressure outlets to determine the flow rate through fixed orifice (Venturi principle). 1/4" F discharge connection. Dezincification resistant brass. EPDM seals.

Product codes: R206BY003 (1/2"), R206BY004 (3/4"), R206BY005 (1"), R206BY006 (1 1/4"), R206BY007 (1 1/2"), R206BY008 (2").

R206B – without pressure outlets

Static balancing valve with ISO 228 threaded connections female-female from 1/2" to 2", Max. working temperature: 110°C. Max. working pressure: 25 bar. 1/4" F discharge connection. Dezincification resistant brass. EPDM seals. Product codes: R206BY013 (1/2"), R206BY014 (3/4"), R206BY015 (1"), R206BY016 (1 1/4"), R206BY017 (1 1/2"), R206BY018 (2").

Additional information

For additional information please check the Giacomini website at the following address: www.giacomini.com

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