



PRODUCTION RANGE

	Code	Size	DP (kPa)	Flow rate (m ³ /h)	Cartridge colour
Version without pressure plugs	2873.04.10	1/2"	17 ÷ 210	0,100 ÷ 0,412	Black
	2873.04.20	1/2"	17 ÷ 210	0,157 ÷ 0,609	Green
	2873.04.30	1/2"	17 ÷ 200	0,275 ÷ 0,825	Red - white panel
	2873.04.40	1/2"	30 ÷ 400	0,406 ÷ 1,270	Red - grey panel
	2873.05.10	3/4"	17 ÷ 210	0,100 ÷ 0,412	Black
	2873.05.20	3/4"	17 ÷ 210	0,157 ÷ 0,609	Green
	2873.05.30	3/4"	17 ÷ 200	0,275 ÷ 0,825	Red - white panel
	2873.05.40	3/4"	30 ÷ 400	0,406 ÷ 1,270	Red - grey panel
	2873.06.10	1"	17 ÷ 210	0,100 ÷ 0,412	Black
	2873.06.20	1"	17 ÷ 210	0,157 ÷ 0,609	Green
Version with pressure plugs	2873.06.30	1"	17 ÷ 200	0,275 ÷ 0,825	Red - white panel
	2873.06.40	1"	30 ÷ 400	0,406 ÷ 1,270	Red - grey panel
	2874.04.10	1/2"	17 ÷ 210	0,100 ÷ 0,412	Black
	2874.04.20	1/2"	17 ÷ 210	0,157 ÷ 0,609	Green
	2874.04.30	1/2"	17 ÷ 200	0,275 ÷ 0,825	Red - white panel
	2874.04.40	1/2"	30 ÷ 400	0,406 ÷ 1,270	Red - grey panel
	2874.05.10	3/4"	17 ÷ 210	0,100 ÷ 0,412	Black
	2874.05.20	3/4"	17 ÷ 210	0,157 ÷ 0,609	Green
	2874.05.30	3/4"	17 ÷ 200	0,275 ÷ 0,825	Red - white panel
	2874.05.40	3/4"	30 ÷ 400	0,406 ÷ 1,270	Red - grey panel
2874.06.10	1"	17 ÷ 210	0,100 ÷ 0,412	Black	
2874.06.20	1"	17 ÷ 210	0,157 ÷ 0,609	Green	
2874.06.30	1"	17 ÷ 200	0,275 ÷ 0,825	Red - white panel	
2874.06.40	1"	30 ÷ 400	0,406 ÷ 1,270	Red - grey panel	

ACCESSORIES

Code		
2961.00.02		Spanner for cartridge adjustment. It allows adjusting the flow rate to the desired value by acting on the cartridge.
621.01.50		Pressure plugs (size 1/8") to be prearranged on the automatic balancing valve, should the latter be also used for indirectly reading the passing-through flow rate Accessory supplied for 2874 models as standard.
932.01.00		Pair of needle adapters for pressure measurement. Used to connect pressure plugs code 621.01.50 to digital measuring instrument code 3566.00.00.
3566.00.00		Electronic differential pressure measuring instrument suitable for the direct reading of flow rate and pressure values on water circuits. Battery power supply, complete with case and kits for connection to pressure test ports.

SPARE PARTS

8454.005		Black cartridge.	Flow rate range 0.100 ÷ 0.412 m³/h
8454.015		Green cartridge.	Flow rate range 0.157 ÷ 0.609 m³/h
8454.025		Red cartridge - white panel.	Flow rate range 0.275 ÷ 0.825 m³/h
8454.055		Red cartridge - grey panel.	Flow rate range 0.406 ÷ 1.270 m³/h

DESCRIPTION

Automatic balancing valve **allow maintaining a constant flow rate at the desired value, within a wide differential pressure range between upstream and downstream.**

The flow rate value is set through a cartridge adjustable from outside using a special accessory spanner.

During this operation, the valve does not need to be shut off.

THE PURPOSE:

Inserted in hydraulic circuits, the automatic balancing valve **ensures maintaining the design flow rate.**

USE: They are particularly indicated in the following cases:

- Adjustment for pumping stations in central thermal fluid systems.
- Customer junctions balancing.
- Rising pillars balancing.
- Third way adjustment and balancing on thermoregulation units.

CHOICE: It is advisable to choose a automatic balancing valve whose adjustment degree corresponds to about half the cartridge flow rate range.

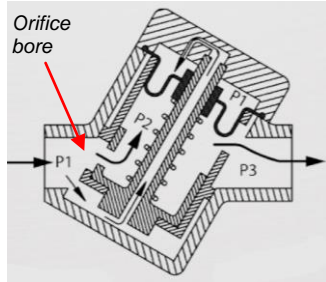
In this way, with the design nominal flow rate, a sufficient calibration margin is preserved so as to cope with any corrections due to inevitable route changes during work. **NOTE:** For differential pressure measurement, pressure test ports are supplied as standard **only** for model 2874 valves.

OPERATING PRINCIPLE:

Pressure P2 is determined by the membrane reacting to pressure P1 acting on the membrane upper chamber.

Interacting with the spring, the difference (P1-P2) remains constant, while maintaining a steady ΔP through the orifice.

As a result, a **constant flow rate is obtained through the valve, regardless of the variations of the pressure difference between upstream and downstream.**

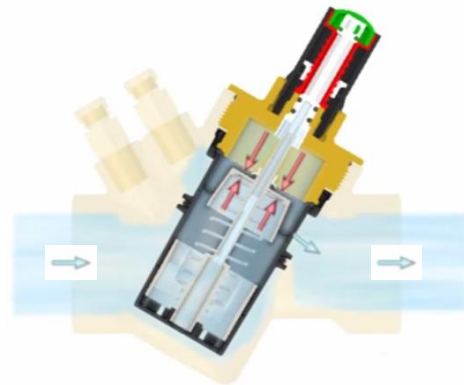


KEY:

P1 and P3: Circuit pressure values

P2: Pressure determined by membrane

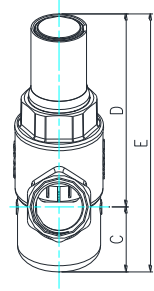
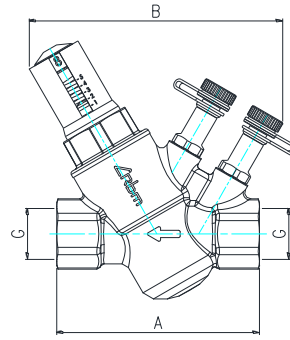
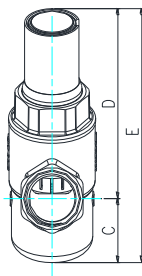
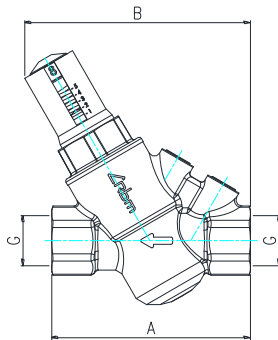
$\Delta P = (P1 - P3) =$ Total pressure difference between upstream/downstream



→ Indicates the flow direction.

→ Indicates pressure variations.

DIMENSIONAL FEATURES



Valve without pressure plugs (series 2873)

Code	Size G	A [mm]	B [mm]	C mm	D [mm]	E [mm]
2873.04.X0	1/2"	83	94,3	26,6	79	105,6
2873.05.X0	3/4"	95,1	100,3	26,6	79	105,6
2873.06.X0	1"	102	104,3	26,6	79	105,6

Valve with pressure plugs (series 2874)

Code	Size G	A [mm]	B [mm]	C mm	D [mm]	E [mm]
2874.04.X0	1/2"	83	104	26,6	79	105,6
2874.05.X0	3/4"	95,1	106	26,6	79	105,6
2874.06.X0	1"	102	100	26,6	79	105,6

CONSTRUCTION FEATURES

Body:	Brass
Cartridge:	Polymer with EPDM membrane
Indicator with graduated scale	
Threaded connections:	FF UNI-EN-ISO 228
Pressure plug connections:	G1/8"

TECHNICAL FEATURES

Max. operating pressure:	16 bar (1600 kPa)
Operating temperature range:	- 20 ÷ +120°C
Fluid:	Water and Water+Glycol 50%
Adjustment partition no.:	Refer to the table on page

FLOW RATE ADJUSTMENT

The flow rate value is set through a cartridge adjustable from outside using a special accessory spanner code 2961.00.02

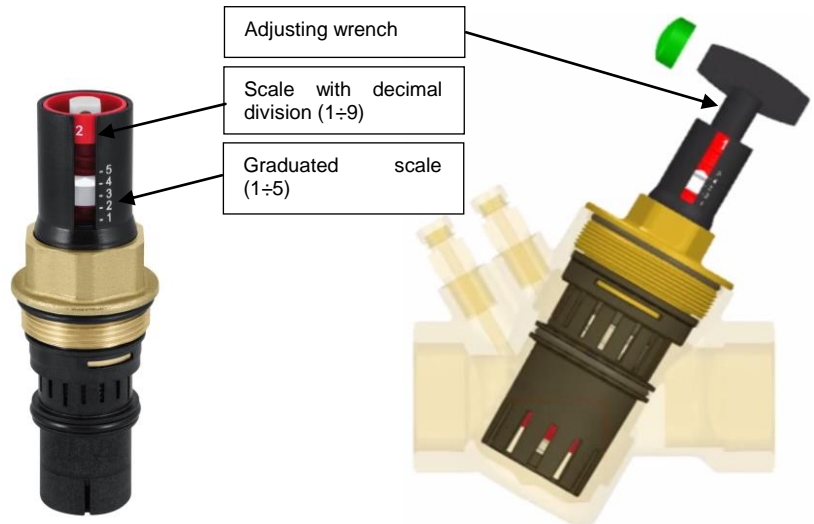
The adjustment value is readable through the double indicator on the cartridge:

- Graduated scale
- Scale with decimal division.

When adjusting the flow rate, the valve does not need to be shut off.

In order to realize the regulation it is necessary to proceed with a complete cartridge closure (position 1,0) and later open the same cartridge up till the desired value.

Depending on the flow rate range, 4 different types of cartridges are available. With regard to this, please see the "SPARE PARTS" section on this data sheet.



FLOW RATE ADJUSTMENT TABLES

rpm Adjustment	Cartridge BLACK (code 8454.005) ΔP range 17÷210 kPa	Cartridge GREEN (code 8454.015) ΔP range 17÷210 kPa	Cartridge RED - white panel (code 8454.025) ΔP range 17÷200 kPa	Cartridge RED - grey panel (code 8454.055) ΔP range 30÷400 kPa
	l/h	l/h	l/h	l/h
1,0	100	157	275	406
1,1	108	168	293	427
1,2	116	180	310	449
1,3	123	191	326	470
1,4	131	202	343	492
1,5	139	214	360	513
1,6	147	225	377	535
1,7	155	236	393	556
1,8	162	247	410	578
1,9	170	259	426	599
2,0	178	270	443	621
2,1	186	281	459	642
2,2	194	293	475	664
2,3	201	304	491	685
2,4	209	315	507	707
2,5	217	327	523	728
2,6	225	338	539	750
2,7	233	349	554	771
2,8	240	360	569	793
2,9	248	372	584	814
3,0	256	383	599	836
3,1	264	394	614	857
3,2	272	406	628	879
3,3	279	417	642	900
3,4	287	428	655	922
3,5	295	440	669	943
3,6	303	451	682	965
3,7	311	462	695	987
3,8	318	473	707	1010
3,9	326	485	719	1030
4,0	334	496	731	1050
4,1	342	507	742	1070
4,2	350	519	753	1090
4,3	357	530	764	1120
4,4	365	541	774	1140
4,5	373	553	784	1160
4,6	381	564	793	1180
4,7	389	575	802	1200
4,8	396	586	810	1220
4,9	404	598	818	1240
5,0	412	609	825	1270

Tolerance: bigger value between $\pm 5\%$ of the imposed flow rate and $\pm 2\%$ of the maximum flow rate

Example: taking in examination the cartridge code 8454.005, regulated at 2,8 rotation (imposed flow rate 240 l/h) the tolerance to be considered is equal to the bigger value between $\pm 5\%$ of 240 l/h (12 l/h) and $\pm 2\%$ of 412 l/h (8,24 l/h). Therefore in this case the tolerance to be considered is ± 12 l/h

INSTALLATION TIPS

When installing the RBM automatic balancing valve, it is recommended to comply with the following requirements:

- The automatic balancing valve can be installed on both vertical and horizontal pipes.
- Note: the flow direction according to the indication on the valve body



- Arrange to install a strainer upstream of the automatic balancing valve (mesh size for the strainer minimum 800 µm). Should this not be feasible in horizontal paths and in order to prevent hardly removable sludges and impurities from densifying, the pressure test ports connections should be always oriented in such a way as to be positioned upwards during installation.

POSSIBLE APPLICATIONS

Automatic balancing valve are mainly used **on the hydraulic circuit delivery pipe**. Below are some typical application examples:

Fig. 1:

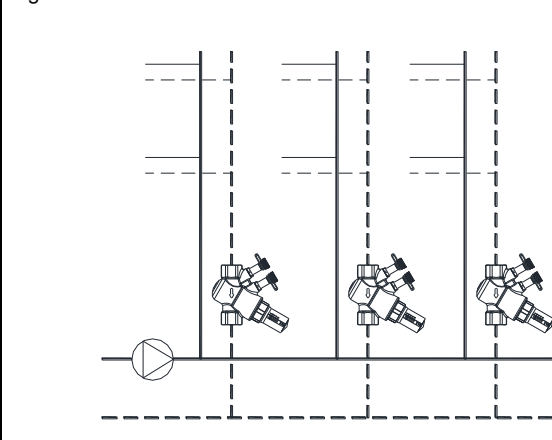


Fig. 2:

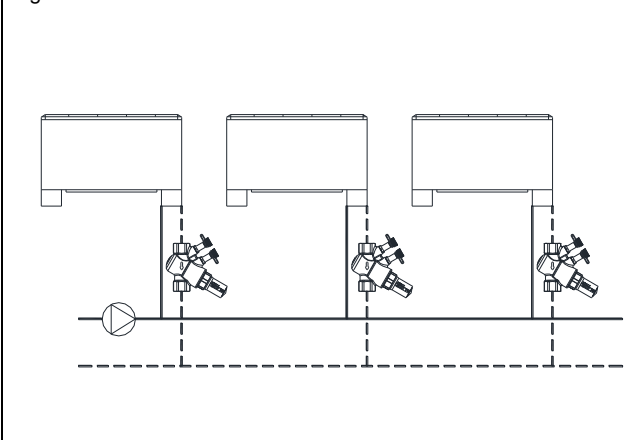


Figure 1 - Automatic balancing valve with rising pillars balancing function

Figure 2 - Automatic balancing valve with the function of serving in-line terminal elements (radiators, convectors, fan-coils, etc.).

SPECIFICATION ITEMS

SERIES 2873

Automatic balancing valve with cartridge adjustable from outside, prearranged for the insertion of pressure plugs for flow rate indirect reading. Brass body. Polymer cartridge with EPDM membrane. Indicator with graduated scale. Threaded connections FF UNI-EN-ISO 228. Max operating pressure 16 bar. Allowed temperatures from -20 to +120°C. Allowed fluid water and water + glycol 50%. Pressure gauge plugs connection G 1/8". Available sizes 1/2" ÷ 1". Work field 17÷210 kPa (17÷200 kPa, 30÷400 kPa). Available flow rate field from 0.10 to 1.27 m³/h.

SERIES 2874

Automatic balancing valve with cartridge adjustable from outside, provided with pressure plugs for flow rate indirect reading. Brass body. Polymer cartridge with EPDM membrane. Indicator with graduated scale. Threaded connections FF UNI-EN-ISO 228. Max operating pressure 16 bar. Allowed temperatures from -20 to +120°C. Allowed fluid water and water + glycol 50%. Pressure gauge plugs connection G 1/8". Available sizes 1/2" ÷ 1". Work field 17÷210 kPa (17÷200 kPa, 30÷400 kPa). Available flow rate field from 0.10 to 1.27 m³/h.

SERIES 2961

Spanner for cartridge adjustment. It allows adjusting the flow rate to the desired value by acting on the cartridge.



RBM spa reserves the right to improve and change the described products and related technical data at any moment and without prior notice: always refer to the instructions attached with the supplied components; this sheet is an aid, should the instructions be extremely schematic. Our technical department is always at your disposal for any doubt, problem or clarification.

