

VP1000

Pressure Independent Control Valve

Product Bulletin

Introduction

The VP1000 Pressure Independent Control Valve is the combination of a differential pressure regulator and a regulating valve for flow adjustment.

The VP1000 valve allows the adjustment of the flow rate in case of partial load of the system and also ensures a stable adjustment of the supply connected to it. The differential pressure regulator corrects any differential pressure variation. This leads to a considerable reduction in temperature variations and adjustment movements and the extended life of moving devices connected to it.

The VP1000 valve offers complete adjustment flexibility. In combination with Johnson Controls actuators they can be set to a specific flow rate value and allow precise modulating control. The valve always guarantees a suitable flow rate, therefore avoiding high energy consumption.

Since the VP1000 valve performs the functions of two valves (balancing and adjustment), installation costs are considerably reduced. The automatic flow rate limitation eliminates system adjustment costs. Since adjustment is very easy to perform, design flow rates can be modified at any time and at low cost.

Since it is not necessary to adjust the valve after its installation, the valve can work immediately after it has been assembled, for example, on the floor where works are already finished.

In order to adjust the flow rate, just set the selected value using the adjustment knob.

Features and benefits

- KVS calculation is not necessary
- Valve authority calculation is not required
- Specific devices or knowledge are not necessary
- Compact design that allows installation in small spaces such as fan-coils or narrow supply spaces
- Simple flow rate adjustment



VP1000 Compact Axial Valve,
VP1000 Axial Valve and VP1000 Ball Valve

Since flow rate is the only parameter to be considered, choosing a suitable valve is fast and easy. The VP1000 valve's maximum adjustment matches the maximum flow rate allowed by the pipe size, on the basis of the values established by international standards.

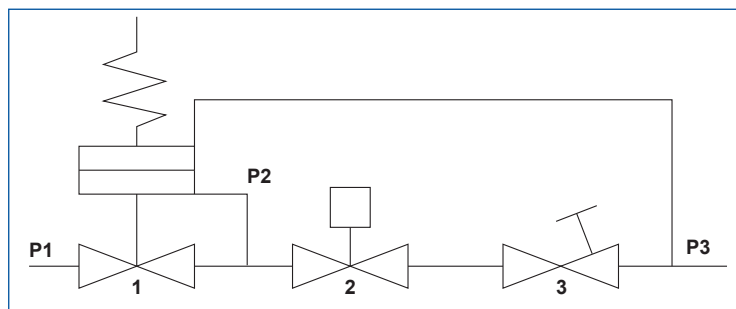
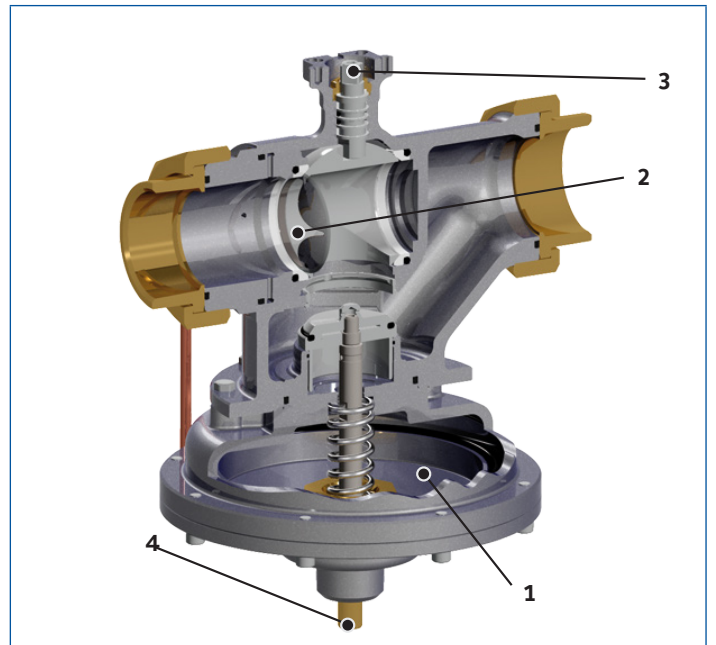
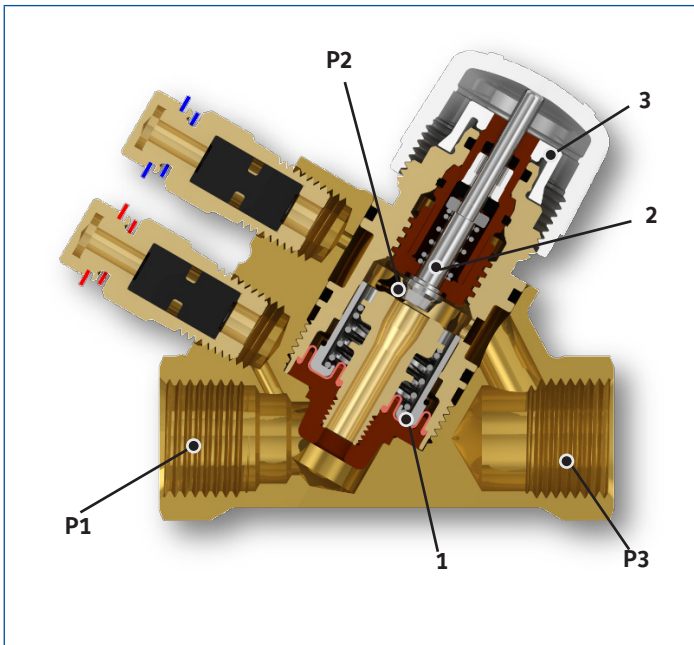
Operating principle

The VP1000 valve is comprised of three main parts:

1. Differential Pressure Regulator
2. Regulating Valve for Flow Adjustment
3. Flow Adjustment Knob
4. Manual Shut Off (VP100 Ball Valve Only)

■ Differential pressure regulator

The differential pressure regulator is the heart of the pressure independent control valve. By keeping a constant differential pressure across the valve seats, constant flow and full authority temperature control can be achieved. Incoming pressure P1 is transmitted to the top face of the diaphragm, outgoing pressure P3 is transmitted to the underside of this same diaphragm. A constant effective differential pressure is maintained between P2 and P3. The diaphragm acts against a spring in order to balance the pressure control and stop the diaphragm oscillating.



Functional Scheme

■ Regulation Valve

Water flow through a valve varies as a function of the area of passage and the pressure differential across that valve. Due to the incorporation of the differential pressure regulator the differential across the valve seats P2 – P3 is constant meaning that flow is now only a function of area of passage. Setting any flow rate value and maintaining it as stable is also possible. The regulation valve presents an equal percentage characteristic. The compact version is default linear but can be set to equipercentage using an actuator.

■ Flow Preset

VP1000 Axial

The maximum value of the flow can be preset, choking the outlet section of the control valve using the graduated adjustment knob. The percentage value, indicated on the scale, matches the maximum flow rate percentage.

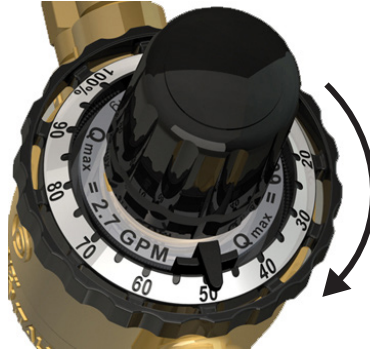
This value can be changed turning the adjustment knob until it reaches the selected position (matching the percentage indicated on the scale). Refer to the adjustment tables on page 19.

A tightening mechanism avoids the valve set values from being changed inadvertently.

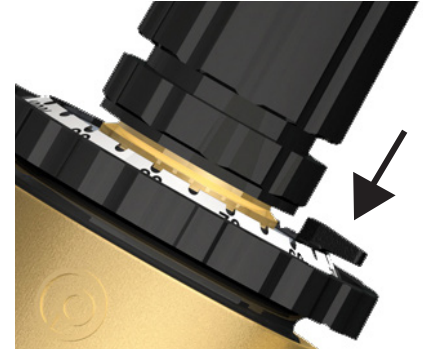
To set the selected flow, follow these steps:



Lift the lock pin to unlock the selector



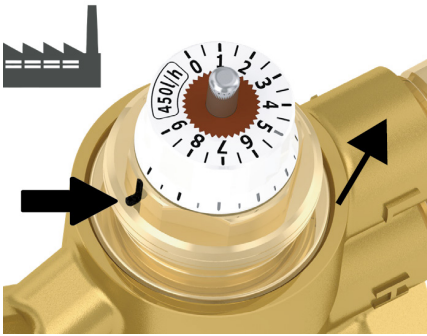
Turn the selector to the target position



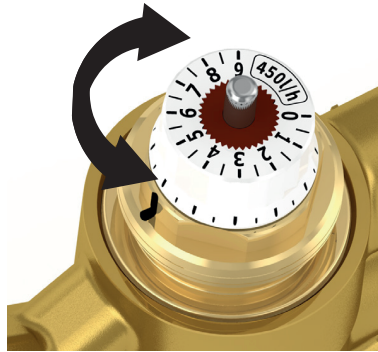
Press the lock pin to lock the selector in the final position

Compact VP1000 Axial

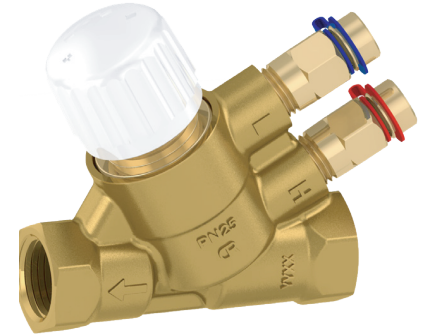
To adjust the maximum flow rate, refer to the adjustment tables on Page 19 to determine the preset dial value. The values on the adjustment dial indicate the setting value of the maximum flow rate. Rotate the adjustment dial to the required dial value.



Remove the handwheel or the actuator. Default setting: pos. 9



Turn the selector to the target position



Re-assemble the handwheel or actuator

VP1000 Ball Valves

The maximum value of the flow can be preset, choking the outlet section of the control valve, using the graduated adjustment kit. The percentage value, indicated on the scale, matches the maximum flow rate percentage.

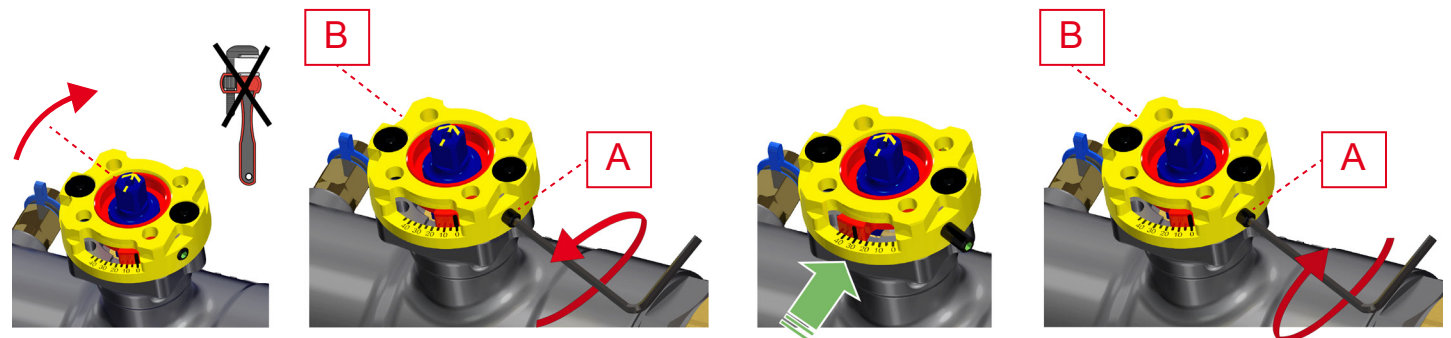
Pre-Setting Assembling

Pre-Setting Components

1. n° 2 countersunk head screw M5x20
2. Pre-setting body
3. Ring indicator
4. P.T.F.E. anti-friction ring
5. Control stem
6. n° 1 Hexagon socket set screw M5x12

Assembled

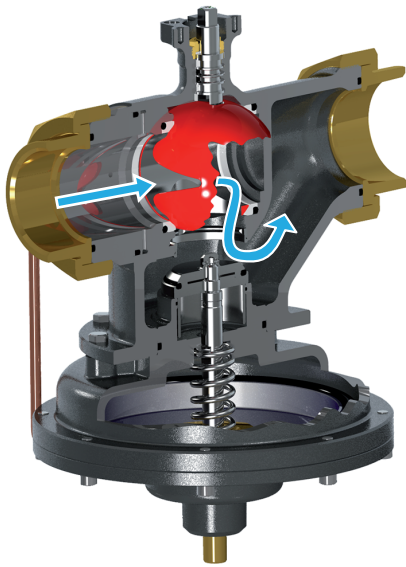
3 mm hexagonal male allen key



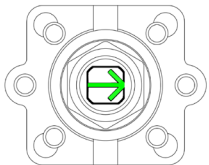
1. Close the valve, by using a 9mm wrench. In case the actuator is on, fully close the valve by using a control signal applied to the actuator or use the manual override.
2. Release the 2 hexagon socket set the screws (A and B) of the locking device using 3mm allen key.
3. Set maximum flow rate by rotating the highlighted red ring indicator.
4. Lock again the 2 hexagon socket set screws (A and B) and re-open the valve. Torque $2 \div 3$ Nm.

■ Flushing mode and Manual Shut Off (Ball Valves Only)

1. Equal Percentage Control Valve



Arrow on Control stem square

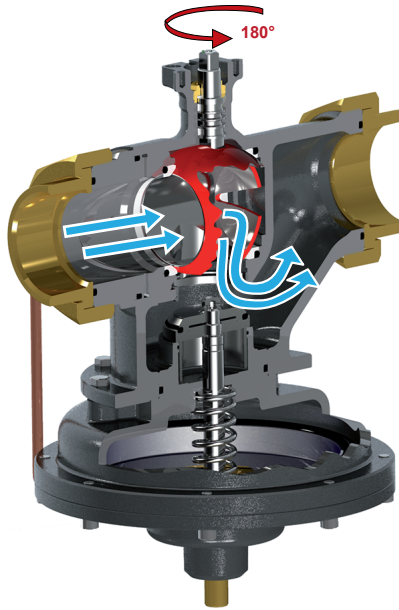


Arrow on Body valve

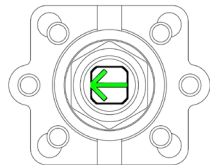


Control valve fully open, controlling the flow through profiled ball and a 90° rotating actuator.

2. Flushing Mode



Arrow on Control stem square

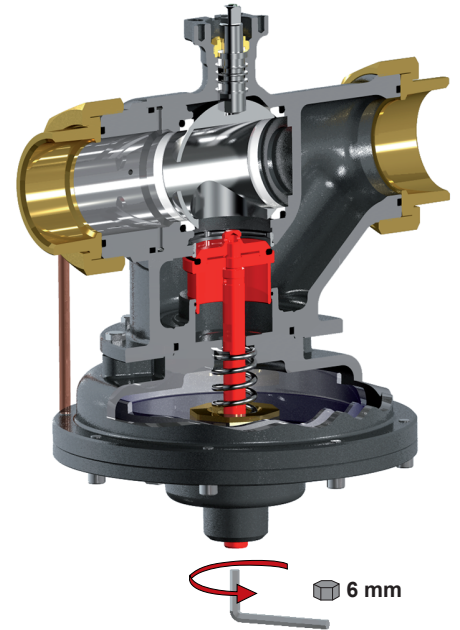


Arrow on Body valve



Control valve rotated by 180°, profiled opening outside flow path. The valve has now full port passage, allowing twice maximum flow, for proper flushing and cleaning actuator.

3. Manual Shut Off Valve



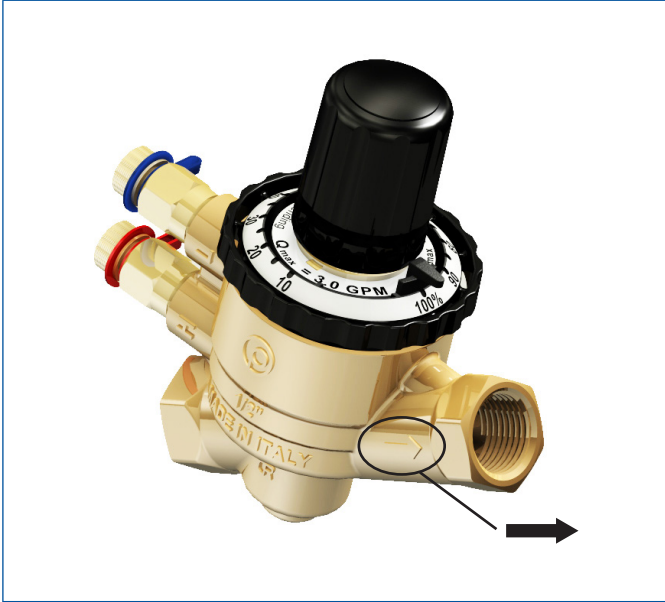
It is possible to manually shut off the valve, by screwing the headwork from bottom side with an hexagonal male allen key.

Installation and Maintenance

■ Use Conditions

The valve has to be mounted with the arrow in the direction of the flow. Mounting it in the wrong direction may damage the system and the valve itself.

If flow reversal is possible, a non-return valve should be mounted.



VP1000 Axial



VP1000 Ball Valve



VP1000 Compact Axial (DN15-DN40)

■ Operating Control

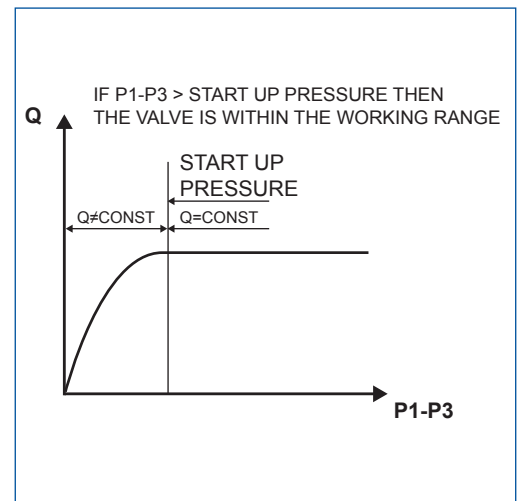
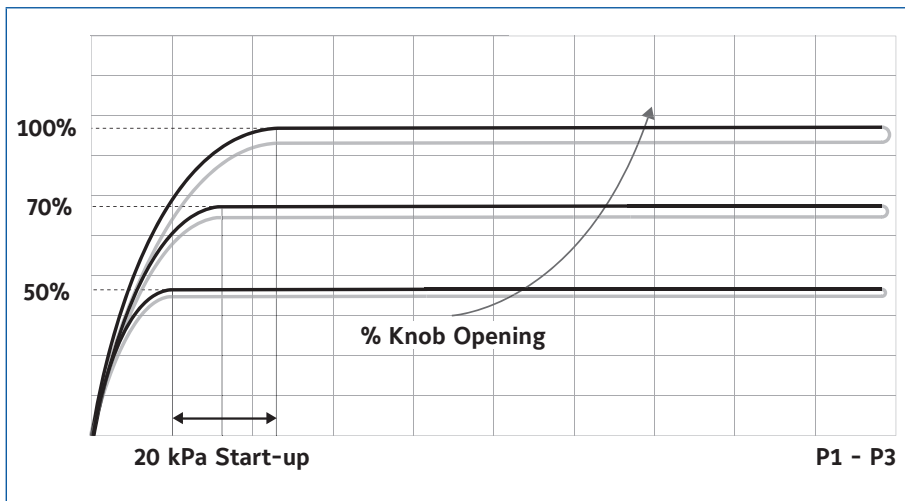
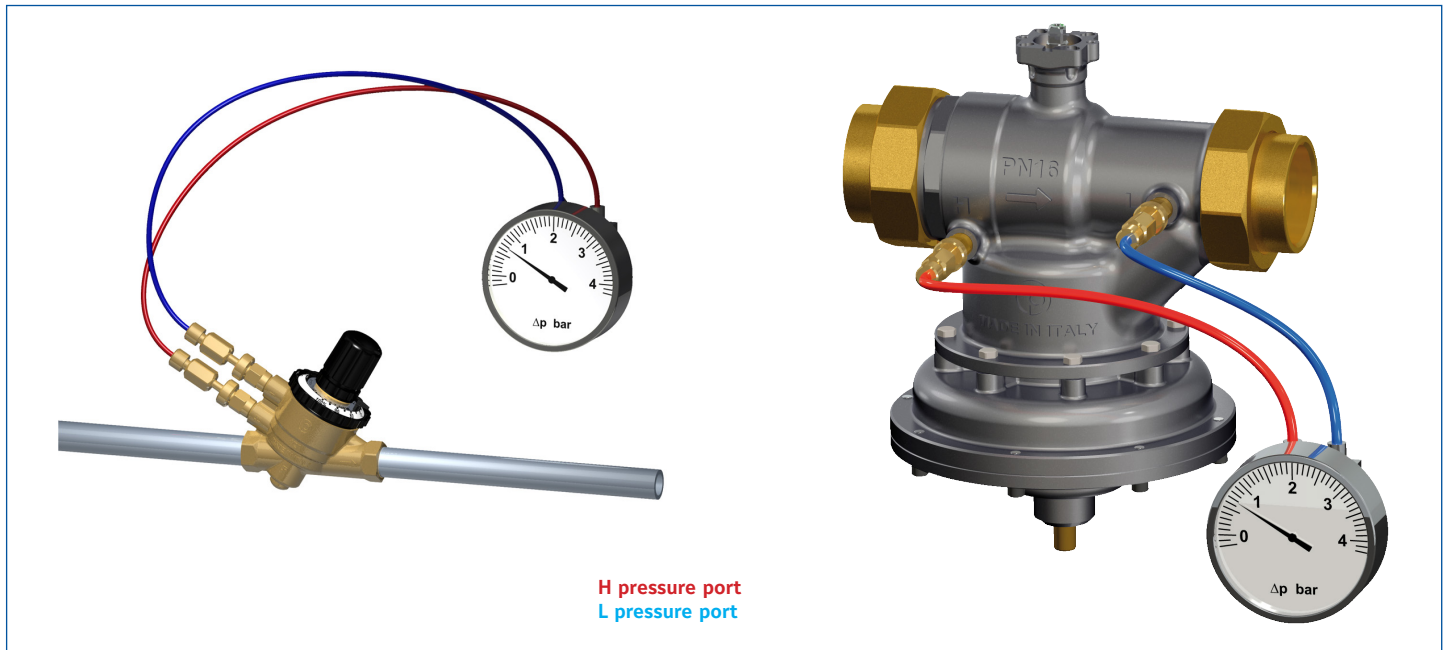
It is necessary to be sure that the valve is actually working in the operating range. In order to verify it, just measure the differential pressure across the valve, as shown in the picture.

If the measured differential pressure is higher than the start-up pressure (see Technical Specifications), the valve is actually keeping the flow stable at the set value.

Dynamic Characteristic Curves

Using a differential pressure gauge to measure the pressure drop the valve absorbs, allows to check whether the valve is in the operating range (and, therefore, whether there actually is a flow control) by simply verifying that the measured value $P1 - P3$ is higher than the start-up value.

If the ΔP measured value is lower than the start-up value, then the valve works as a fixed orifice valve.



■ Maintenance and Cleaning

During valve cleaning operations, use a damp cloth. DO NOT use any detergent or chemical product that may seriously damage or compromise the proper functioning and the reliability of the valve.

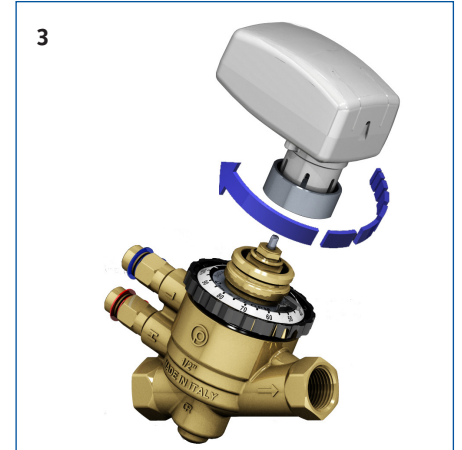
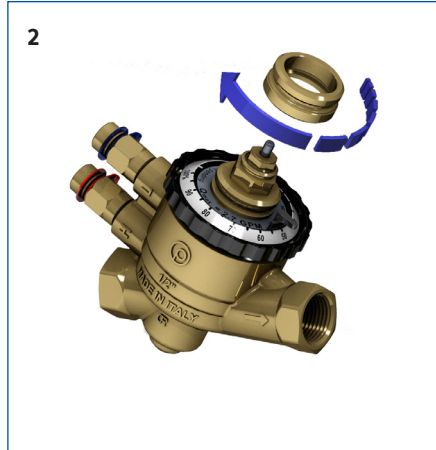
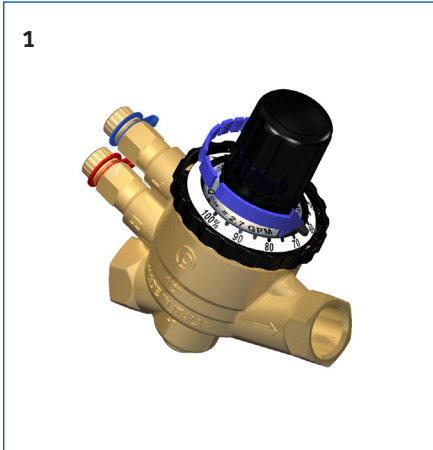
■ Actuator Assembly

Axial VP1000 (DN15 - DN32) with VA-748x Electric Actuators

The axial VP1000 (DN15 to DN32) valves are delivered with a brass adapter to assembly the VA-748x motorized actuators family, Two models are provided according to the size of the valve:

- OA7010 adapter for DN15 and DN20 valves
- OA748X adapter for DN25 and DN32 valves

The adapters are available as accessory in case the operator lost it.

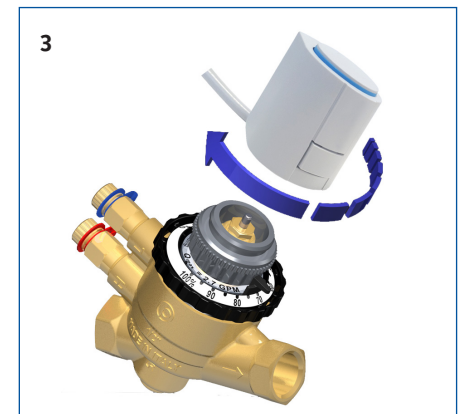
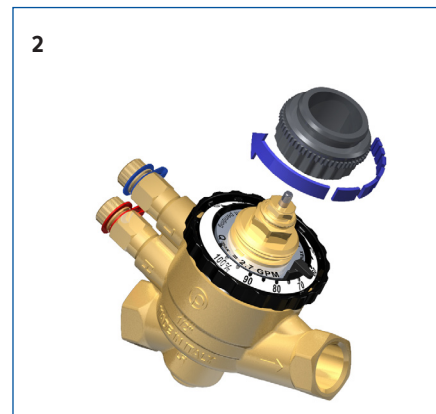
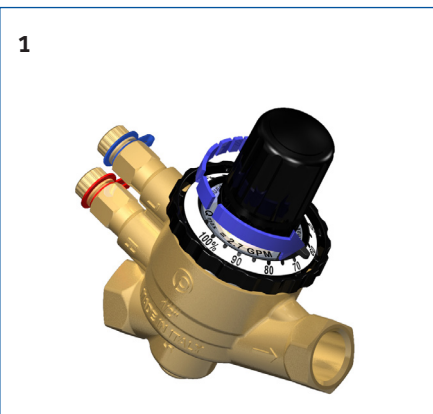


Axial VP1000 (DN15 - DN20) with VA-708x & VA-709x Thermal Actuators

The axial VP1000 (DN15 to DN20) only can be mounted on thermal actuators with an adapter that has to be ordered separately:

- VA-708x thermal actuators needs a different adapter VA64
- VA-709x thermal actuators needs a different adapter 0550390101

See also "Accessories" Table.



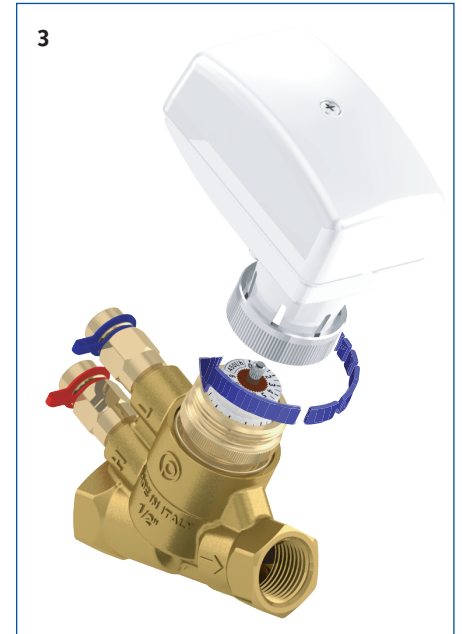
Compact Axial VP1000 (DN15 - DN40) with VA-748x Electric Actuators

The compact VP1000 (DN15 to DN32) valves are delivered with a brass adapter to assembly the VA-748x motorized actuators family, at the exception of the DN40 valve where the adapter is delivered with the actuator.

Two models are provided according to the size of the valve:

- OA7010 adapter for DN15 and DN20 valves
- OA748X adapter for DN25 and DN32 valves
- VA93 adapter for DN40 valves

The adapters are available as accessory in case the operator lost it.

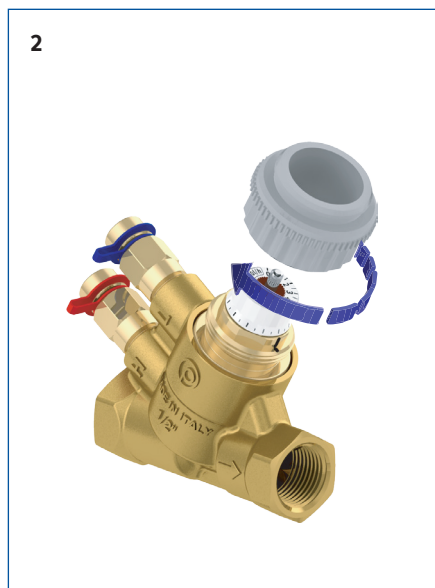


Compact Axial VP1000 (DN15 - DN40) with VA-708x & VA-709x Thermal Actuators

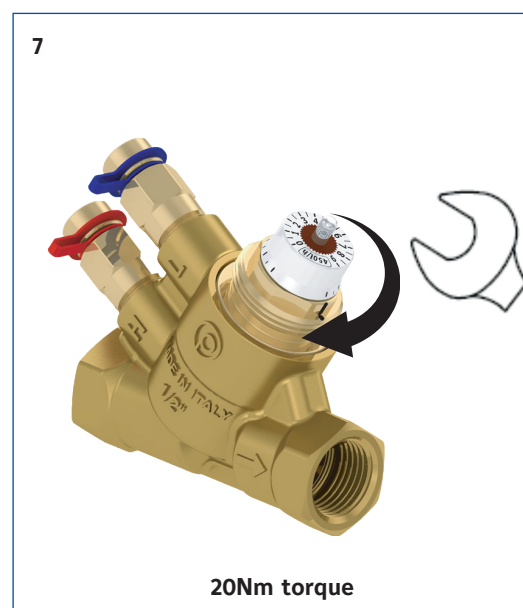
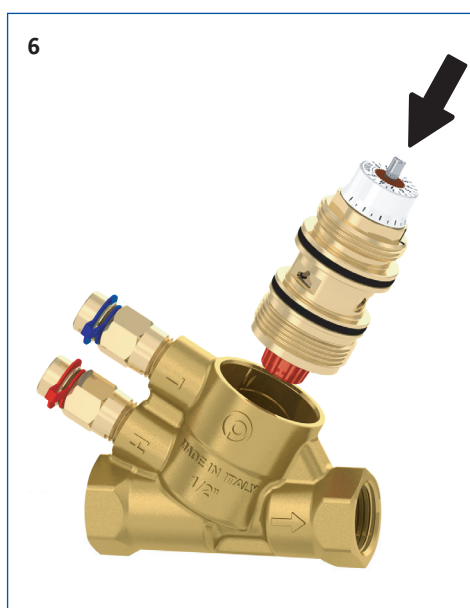
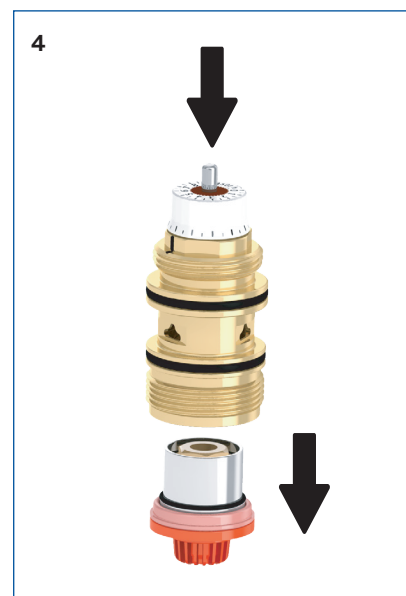
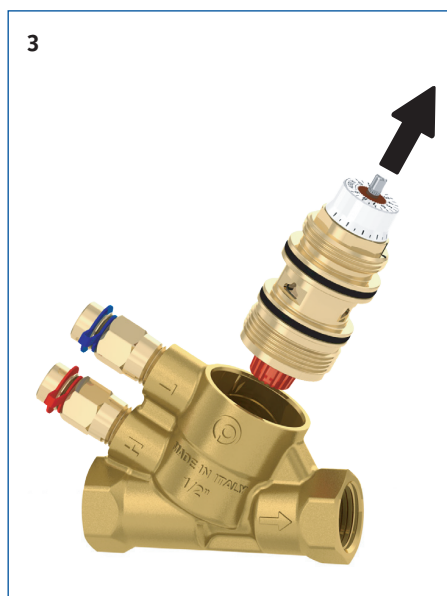
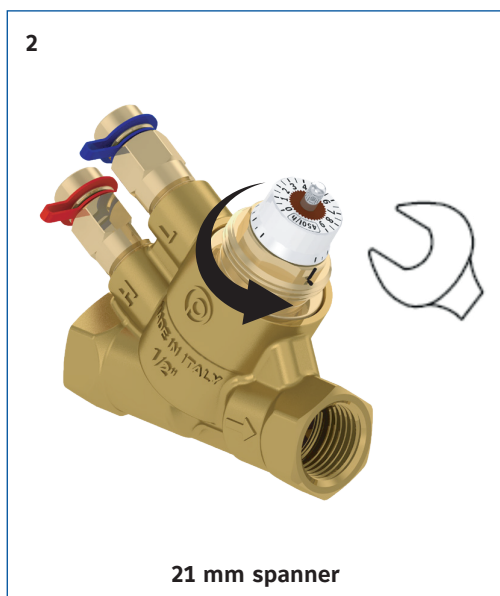
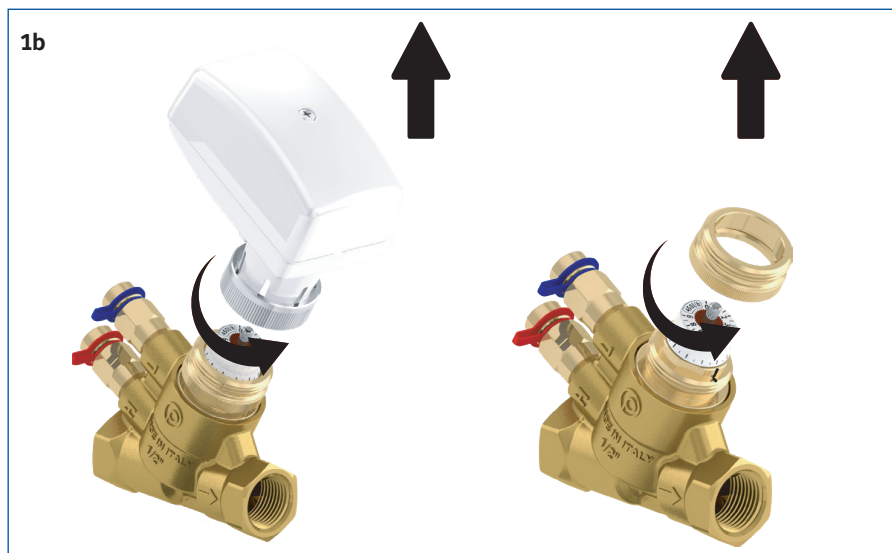
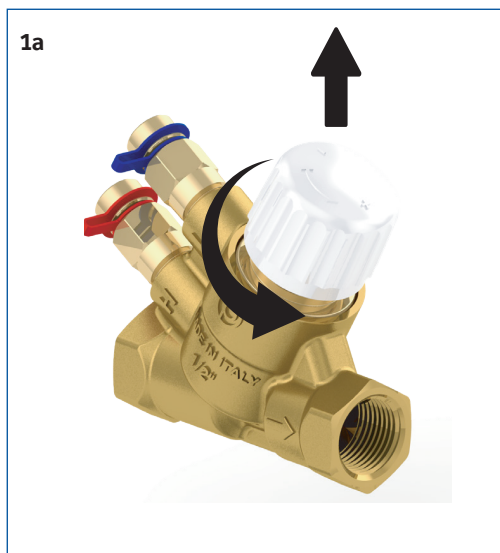
The compact axial VP1000 (DN15 to DN20 only) can be mounted on thermal actuators with an adapter that has to be ordered separately:

- VA-708x thermal actuators needs a different adapter VA64
- VA-709x thermal actuators needs a different adapter 0550390101

See also "Accessories" Table for adapter code.



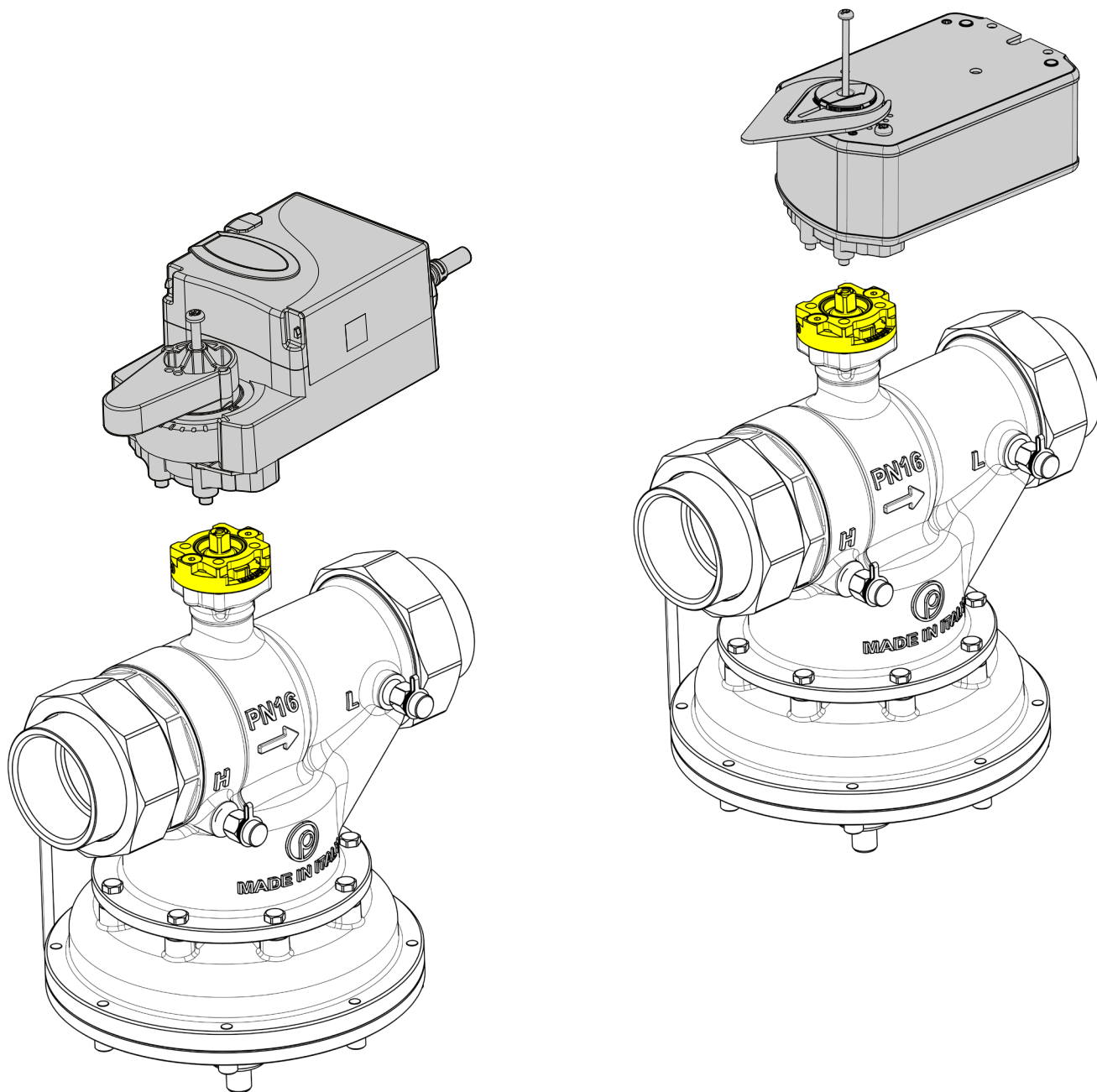
Compact VP1000 Cartridge Replacement



VP1000 Ball Valves

Actuator Adjustment

After the maximum Flow Adjustment (See Paragr. 3) a calibration of the actuator is necessary to adapt the input signal to the new valve rotation.

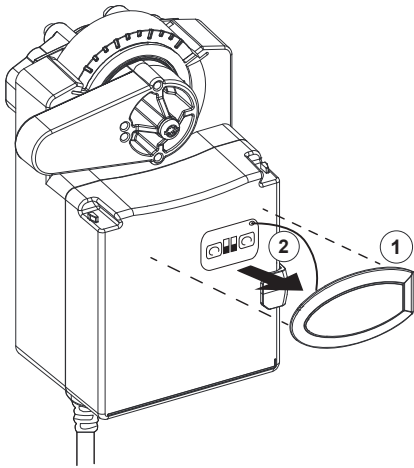


For the calibration of the VA9310 proceed as follow:

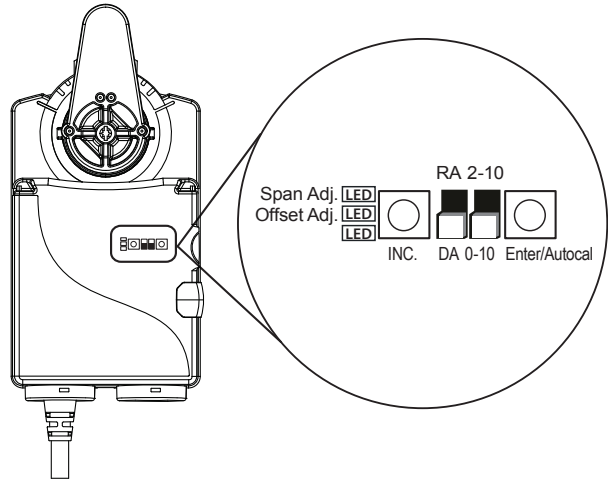
The Calibration function enables the actuator to redefine the selected input signal range proportionally across a reduced rotation range. The actuator maintains calibration when power is lost or removed.

Locate the oval cover on the front of the unit and pull the cover outward. See figure below for viewing the DIP switches and LEDs meaning.

With power applied to the actuator, press **Enter/Autocal** until all three LEDs are on.



Remove the oval cover



DIP Switches and LEDs Placement

The actuator begins rotating until the end-stops are found. When the actuator reach the starting position and stops it's calibrated and ready to work.

For the calibration of the VA9208 proceed as follow:

The CAL function enables the actuator to redefine the selected input signal range proportionally across a reduced rotation range. The actuator maintains calibration when power is lost or removed.

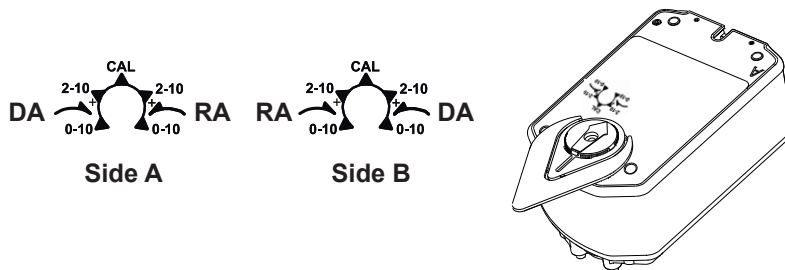
Follow these steps to calibrate the input signal range:

1. With power applied to the actuator, move the mode selection switch to the CAL position and leave it in this position for approximately 5 seconds. The actuator begins rotating until the end-stops are found.
2. Move the mode selection switch to the desired input signal range. Selection can be made while the calibration process is in progress, or after it is complete. The selected input signal is proportionally reconfigured to the reduced rotation range.

Note: During normal operation, if the actuator stroke increases due to seal or seat wear, input signals are au-tomatically reconfigured to the increased rotation range in approximately 0.5° increments.

Note: If the actuator mounting position is changed or if the linkage is adjusted, repeat Step 1 and Step 2 to repeat the CAL function.

The mode selection switch must remain out of the CAL position for at least 2 seconds before re-initiating the CAL function. If the mode selection switch is left in the CAL position, the actuator defaults to 0-10 V input signal range, DA.

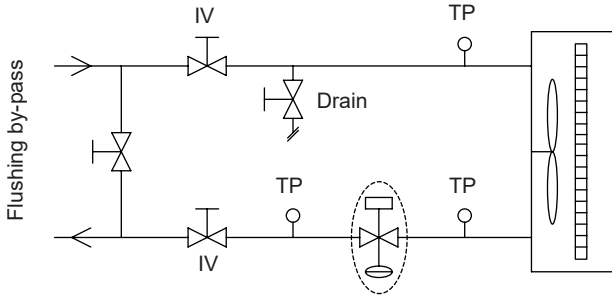


Applications Examples

■ Systems with variable thermal power

The use of a motorised control valve that automatically limits the flow rate, ensures stable energy supply, independently from the available pressures and, at the same time, thanks to the possibility of controlling the flow rate regulator, it allows effective adjustment of ambient temperature.

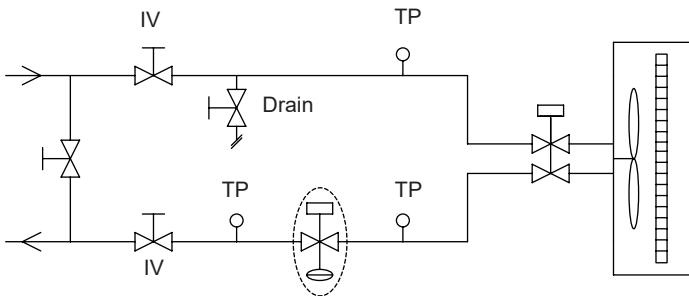
PICV is used as a constant flow limiter and control valve.



■ Systems with constant thermal power

If the valve is used to adjust fan-coil flow, it ensures the required flow rate to the equipment and it favours the hydraulic balance of the system. The exchanger always works in the best conditions possible with any differential pressure and the system is split into hydraulically separated areas.

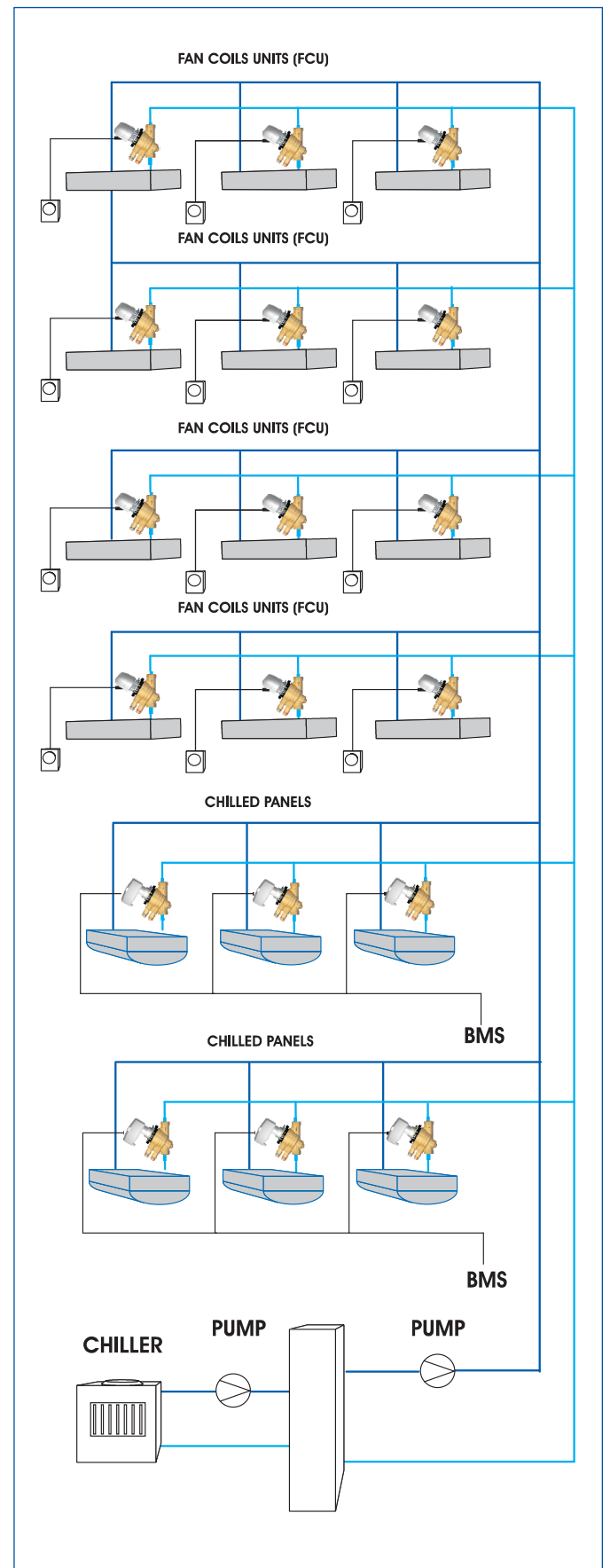
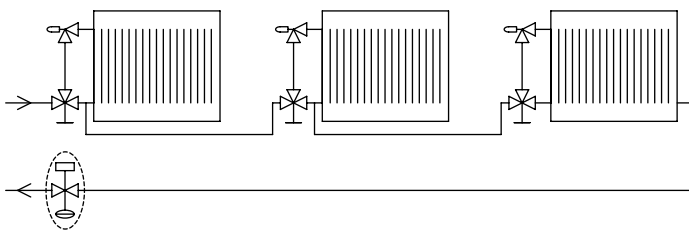
PICV is used as a constant flow limiter.



■ Single-pipe heating systems

An automatic valve placed on the system return line ensures a stable flow rate on the main branches at any thermostatic valve opening, thus reducing the possible sudden changes due to pressure variations in the system.

PICV is used as a constant flow limiter.

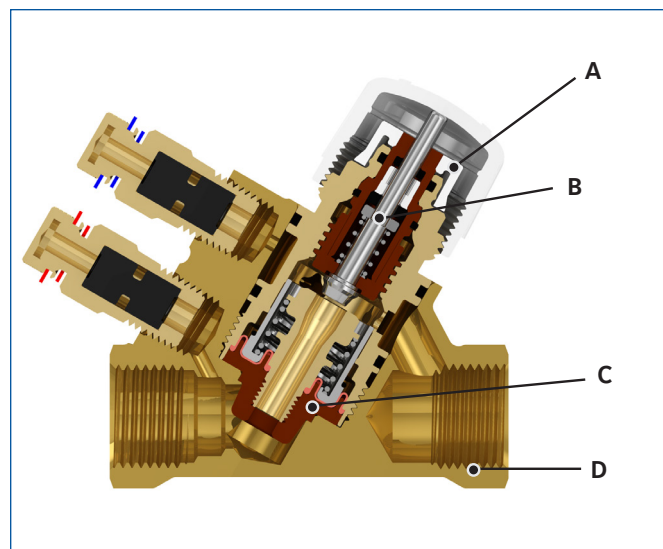


Technical Specifications

■ VP1000 Compact Axial DN15 - DN20

Material list

<i>Pre-setting knob (A)</i>	ABS + PC
<i>Regulating valve (B)</i>	High resistance polymer - EPDM, stainless steel AISI 303
<i>Cartridge with diaphragm (C)</i>	High resistance polymer, WMQ silicon, stainless steel, HNBR
<i>Body (D)</i>	Dezincification resistant brass CW602N



Accuracy 0 ÷ 1 bar	± 5 %
ΔP max.	600 kPa / 6 bar
Temperature	-10 ÷ 120 °C
Working pressure max.	2500 kPa / 25 bar
Stroke	3 mm
Rangeability	50÷100 IEC 60534-2-3
Leakage	Class IV IEC 60534-4

	VP10xHAA	VP10xHDA	VP10xHDC	VP10xJAJ	VP10xJDB
Flow rate max.	150 l/h - 0,042 l/s	450 l/h - 0,125 l/s	850 l/h - 0,236 l/s	1000 l/h - 0,278 l/s	1850 l/h - 0,514 l/s
Start-up	25 kPa 0,25 bar	35 kPa 0,35 bar	25kPa 0,25 bar	30 kPa 0,30 bar	35 kPa 0,35 bar
Fittings	Rp 1/2" F EN 10226-1	Rp 1/2" F EN 10226-1	Rp 1/2" F EN 10226-1	Rp 3/4" F EN 10226-1	Rp 3/4" F EN 10226-1

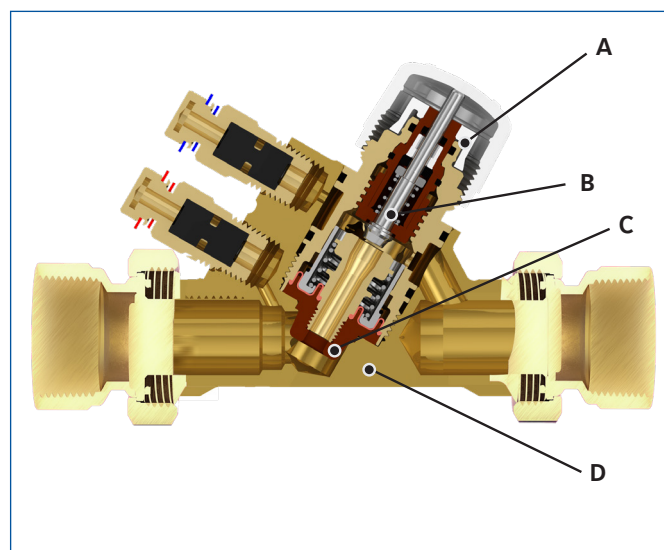
Compliance Johnson Controls, Inc., declares that these products are in compliance with the essential requirements and other relevant provisions of the PED (Pressure Equipment Directive) 2014/68/UE (Paragraph 4, comma 3).

Technical Specifications

■ VP1000 Compact Axial DN25 - DN40

Material list

<i>Pre-setting knob (A)</i>	ABS + PC
<i>Regulating valve (B)</i>	High resistance polymer - EPDM, stainless steel AISI 303
<i>Cartridge with diaphragm (C)</i>	High resistance polymer, WMQ silicon, stainless steel, HNBR
<i>Body (D)</i>	Dezincification resistant brass CW602N



Accuracy 0 ÷ 1 bar	± 5 %
ΔP max.	600 kPa / 6 bar
Temperature	-10 ÷ 120 °C
Working pressure max.	2500 kPa / 25 bar
Rangeability	50÷100 IEC 60534-2-3
Leakage	Class IV IEC 60534-4

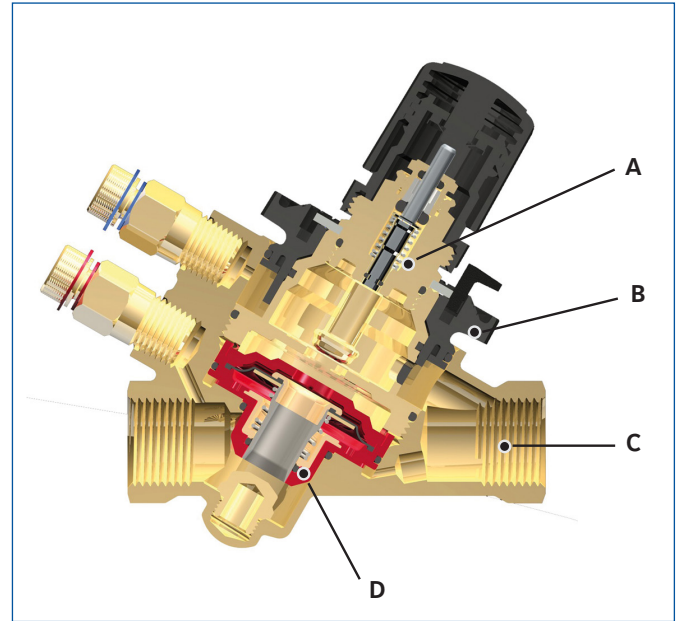
	VP10xKDD	VP10xKDE	VP100LDF	VP100MBC
Flow rate max.	2500 l/h - 0,694 l/s	3300 l/h - 0,917 l/s	5200 l/h - 1,444 l/s	9000 l/h - 2,5 l/s
Start-up	30 kPa 0,30 bar	30 kPa 0,30 bar	35 kPa 0,35 bar	40 kPa 0,40 bar
Fittings	Rp 1" F EN 10226-1	Rp 1" F EN 10226-1	RC 1 1/4" F EN 10226-1	Rp 1 1/2" F EN10226-1
Stroke	6 mm			7.5 mm

Compliance Johnson Controls, Inc., declares that these products are in compliance with the essential requirements and other relevant provisions of the PED (Pressure Equipment Directive) 2014/68/UE (Paragraph 4, comma 3).

VP1000 Axial DN15 - DN20

Material list

Regulating Valve (A)	Brass CW614N, stainless steel 18/8
Presetting (B)	High resistance polymer, brass CW614N
Body (C)	Brass CW602N
Cartridge (D)	High resistance polymer EPDM, stainless steel AISI 303
Gaskets	EPDM-x

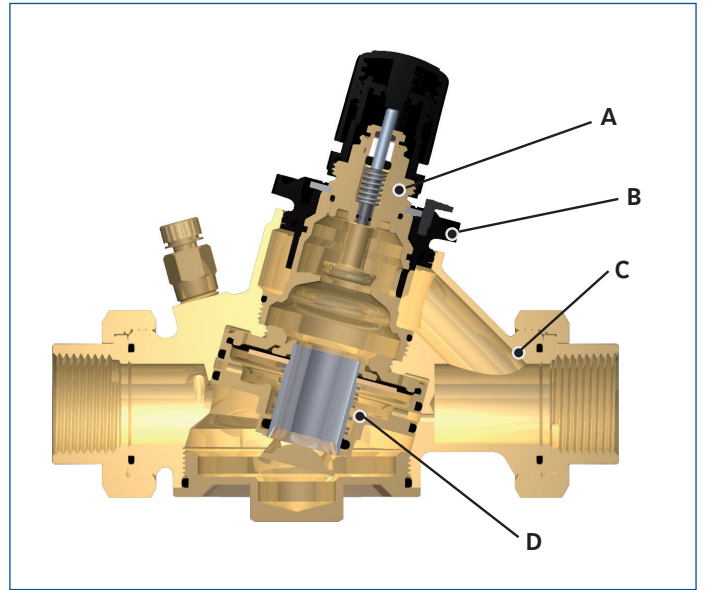


Accuracy 0 ÷ 1 bar	± 5 %				
ΔP max.	600 kPa / 6 bar				
Temperature	-10 ÷ 120 °C				
Working pressure max.	2500 kPa / 25 bar				
Stroke	3 mm				
Rangeability	50÷100 IEC 60534-2-3				
Leakage	Class IV IEC 60534-4				
	VP10xAAA	VP10xAAE	VP10xAAG	VP10xBAJ	VP10xBAN
Flow rate max.	150 l/h - 0,042 l/s	600 l/h - 0,167 l/s	780 l/h - 0,217 l/s	1000 l/h - 0,278 l/s	1500 l/h 0,417 l/s
Start-up	20 kPa 0,20 bar	25 kPa 0,25 bar	25 kPa 0,25 bar	30 kPa 0,30 bar	35 kPa 0,35 bar
Fittings	Rp 1/2" F EN 10226-1	Rp 1/2" F EN 10226-1	Rp 1/2" F EN 10226-1	Rp 3/4" F EN 10226-1	Rp 3/4" F EN 10226-1
Compliance	Johnson Controls, Inc., declares that these products are in compliance with the essential requirements and other relevant provisions of the PED (Pressure Equipment Directive) 2014/68/UE (Paragraph 4, comma 3).				

■ VP1000 Axial DN25 - DN32

Material list

Regulating Valve (A)	Brass CW614N, stainless steel 18/8
Presetting (B)	High resistance polymer, brass CW614N
Body (C)	Brass CW602N
Cartridge (D)	Brass CW614N - EPDM, stainless steel AISI 303
Gaskets	EPDM-x

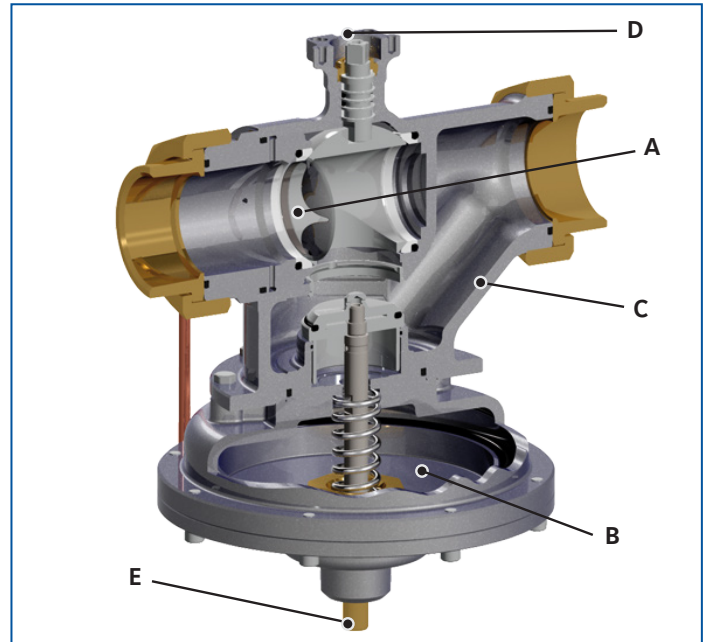


Accuracy 0 ÷ 1 bar	± 5 %			
ΔP max.	600 kPa / 6 bar			
Temperature	-10 ÷ 120 °C			
Working pressure max.	2500 kPa / 25 bar			
Stroke	6 mm			
Rangeability	100÷150 IEC 60534-2-3			
Leakage	Class III IEC 60534-4			
	VP100CAU	VP100CAW	VP100DAW	VP100DAY
Flow rate max.	2200 l/h - 0,611 l/s	2700 l/h - 0,750 l/s	2700 l/h - 0,750 l/s	3000 l/h - 0,833 l/s
Start-up	25 kPa 0,25 bar	30 kPa 0,30 bar	30 kPa 0,30 bar	35 kPa 0,35 bar
Fittings	Rp 1" union F EN 10226-1	Rp 1" union F EN 10226-1	Rp 1 ¼" union F EN 10226-1	Rp 1 ¼" union F EN 10226-1
Compliance	Johnson Controls declares that these products are in compliance with the essential requirements and other relevant provisions of the PED (Pressure Equipment Directive) 2014/68/UE (Paragraph 4, comma 3).			

■ VP1000 Ball Valves DN40-DN50

Material list

Regulating Valve (A)	Brass CW602N, Stainless steel 18/8
Cartridge (B)	High resistance polymer - EPDM, stainless steel AISI 303
Body (C)	Ductile Iron
Presetting (D)	Brass CW602N
Gaskets	EPDM-x



Accuracy 0÷1 bar	± 5 %					
Temperature	-10 ÷ 120 °C					
Working pressure max.	1600 kPa / 16 bar					
Stroke	90°					
Rangeability	>100 IEC 60534-2-3					
Leakage	Class VI IEC 60534-4					
	VP101DBB	VP101EBB	VP101EBC	VP101EBD	VP101FBD	VP101FBF
Flow rate max.	6000 l/h 1,667 l/s	9000 l/h 2,5 l/s	11000 l/h 3,056 l/s	12000 l/h 3,33 l/s	18000 l/h 5,00 l/s	
Start-up	30 kPa 0,30 bar	35 kPa 0,35 bar	40 kPa 0,40 bar	35 kPa 0,35 bar	35 kPa 0,35 bar	35 kPa 0,35 bar
ΔP max.	600 kPa / 6 bar					
Fittings	Rp 1 ¼" union F	Rp 1 ½" union F		Rp 2" union F		

EN 10226-1

Compliance Johnson Controls, Inc., declares that these products are in compliance with the essential requirements and other relevant provisions of the PED (Pressure Equipment Directive) 2014/68/UE (Paragraph 4, comma 3).

Adjustment Tables

Presetting %	VP10xAAA		VP10xAEE		VP10xAAG		VP10xBAJ		VP10xBAN	
	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s
100	150	0,042	600	0,167	780	0,217	1000	0,278	1500	0,417
90	135	0,038	540	0,150	702	0,195	900	0,250	1350	0,375
80	120	0,033	480	0,133	624	0,173	800	0,222	1200	0,333
70	105	0,029	420	0,117	546	0,152	700	0,194	1050	0,292
60	90	0,025	360	0,100	468	0,130	600	0,167	900	0,250
50	75	0,021	300	0,083	390	0,108	500	0,139	750	0,208
40	60	0,017	240	0,067	312	0,087	400	0,111	600	0,167
30	45	0,013	180	0,050	234	0,065	300	0,083	450	0,125
20	---	---	120	0,033	156	0,043	200	0,056	---	---
10	---	---	60	0,017	78	0,022	100	0,028	---	---

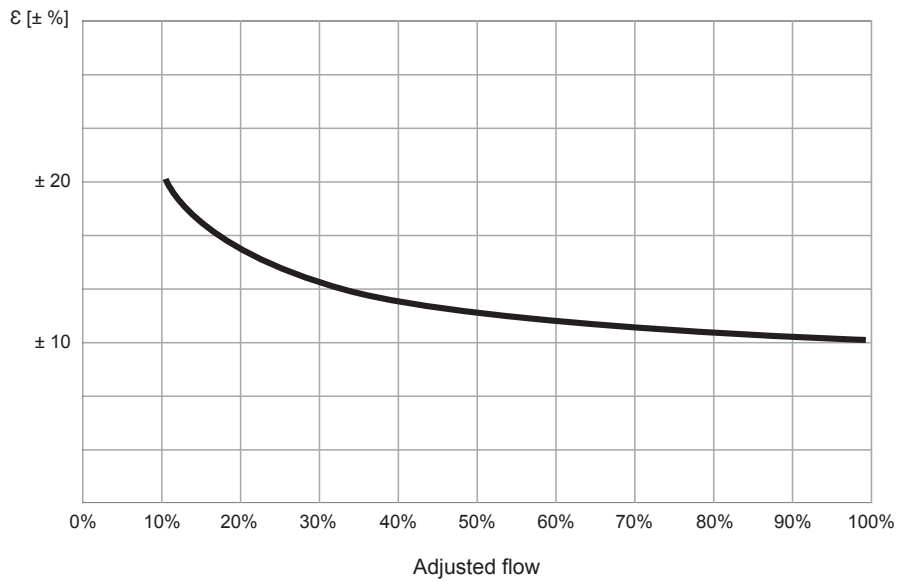
Presetting %	VP100CAU		VP100CAW		VP100DAW		VP100DAY	
	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s
100	2200	0,611	2700	0,750	2700	0,750	3000	0,833
90	1980	0,550	2430	0,675	2430	0,675	2700	0,750
80	1760	0,489	2160	0,600	2160	0,600	2400	0,667
70	1540	0,428	1890	0,525	1890	0,525	2100	0,583
60	1320	0,367	1620	0,450	1620	0,450	1800	0,500
50	1100	0,306	1350	0,375	1350	0,375	1500	0,417
40	880	0,244	1080	0,300	1080	0,300	1200	0,333
30	660	0,183	810	0,225	810	0,225	900	0,250
20	440	0,122	540	0,150	540	0,150	600	0,167
10	220	0,061	270	0,075	270	0,075	300	0,083

Presetting	VP10xHAA		VP10xHDA		VP10xHDC		VP10xJAJ		VP10xJDB	
	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s
9	150	0,042	450	0,125	850	0,236	1000	0,278	1850	0,514
8	133.5	0,037	408	0,113	774	0,215	897	0,249	1734	0,481
7	114	0,031	358	0,099	689	0,191	782	0,217	1548	0,430
6	99.5	0,027	281	0,078	606	0,168	678	0,188	1320	0,366
5	85	0,023	219	0,060	496	0,138	564	0,156	1080	0,300
4	71	0,019	179	0,049	393	0,109	442	0,122	846	0,235
3	55	0,015	135	0,037	331	0,092	359	0,099	624	0,173
2	39.5	0,010	94	0,026	265	0,074	278	0,077	492	0,136
1	19	0,005	53	0,014	157	0,044	154	0,042	276	0,076
0.5	9	0,002	32	0,008	62.5	0,017	45	0,012	174	0,048

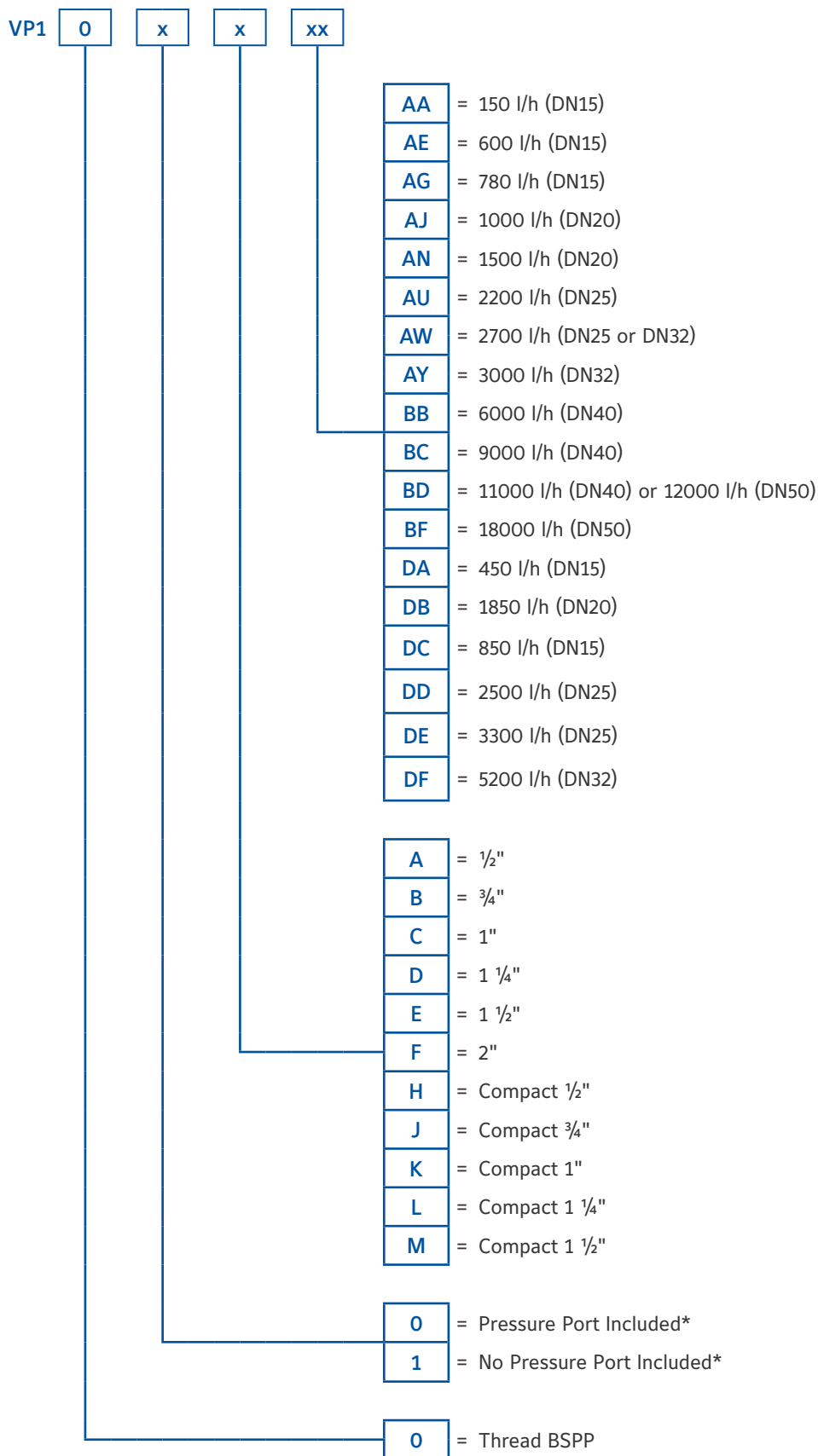
Presetting	VP10xKDD		VP10xKDE		VP100LDF		VP100MBC	
	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s
9	2500	0,694	3300	0,917	5200	1,444	9000	2,5
8	2202	0,612	3046	0,846	4680	1,300	8040	2,233
7	1875	0,521	2682	0,745	4164	1,157	7200	2
6	1577	0,438	2255	0,629	3582	0,995	6240	1,733
5	1304	0,362	1849	0,514	2880	0,800	5070	1,408
4	1048	0,291	1387	0,385	2220	0,617	3954	1,098
3	798	0,222	884	0,246	1578	0,438	2814	0,782
2	560	0,156	543	0,151	1026	0,285	2064	0,573
1	339	0,094	173	0,048	540	0,150	1110	0,308
0.5	165	0,046	76	0,021	265	0,074	-	-

Presetting %	VP101DBB VP101EBB		VP101EBC		VP101EBD		VP101FBD		VP101FBF	
	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s	Max Flow Rate l/h	Max Flow Rate l/s
100	6000	1,667	9000	2,500	11000	3,056	12000	3,333	18000	5
90	5400	1,500	8100	2,250	9900	2,750	10800	3,000	16200	4,5
80	4800	1,333	7200	2,000	8800	2,444	9600	2,667	14400	4
70	4200	1,167	6300	1,750	7700	2,139	8400	2,333	12600	3,5
60	3600	1,000	5400	1,500	6600	1,833	7200	2,000	10800	3
50	3000	0,833	4500	1,250	5500	1,528	6000	1,667	9000	2,5
40	2400	0,667	3600	1,000	4400	1,222	4800	1,333	7200	2
30	1800	0,500	2700	0,750	3300	0,917	3600	1,000	5400	1,5
20	---	---	---	---	---	---	---	---	---	---
10	---	---	---	---	---	---	---	---	---	---

Flow setting accuracy



Ordering Codes



* On the DN40 and DN50 ball valves, the pressure port are always included despite the Codes VP101xxx

Valve - Actuators Combinations (VP1000 Axial only)

The VP1000 valve can be used with the VA-708x Thermal On-Off and VA-748x electronic modulating actuators.

VA-708x Thermal Actuator

Product Codes	Power Supply	Control Type	Factory Setting	Valve Series
VA-7081-21	24 VAC/VDC	On/Off or DAT	Normally Closed (stem retracts when energized) 2 m cable length	VP10xAAA
VA-7081-23	230 VAC			VP10xAEE
VA-7080-21	24 VAC/VDC		Normally Open (stem extends when energized) 2 m cable length	VP10xAAG
VA-7080-23	230 VAC			VP10xBAJ VP10xBAN VP10xHAA VP10xHDA VP10xHDC VP10xJAJ VP10xJDB

See "VA-708x" Product Bulletin for more information.

VA-709x Thermal Actuator

Product Codes	Power Supply	Control Type	Factory Setting	Valve Series
VA-7090-21	24 VAC	Proportional	Normally Open (stem extends when energized) 2 m cable length	VP10xAAA VP10xAEE VP10xAAG VP10xBAJ VP10xBAN VP10xHAA VP10xHDA VP10xHDC VP10xJAJ VP10xJDB

See "VA-709x" Product Bulletin for more information.

VA-748x Motorized Actuator

Product Codes	Power Supply	Control Type	Factory Setting	Valve Series
VA-7483-8201	24V AC/DC	Proportional Auto Stroke Detection with Feedback	Field Configurable	VP10xAAA
VA-7483-8201-RA				VP10xAAE
VA-7482-8201		Proportional Auto Stroke Detection		VP10xAAG
VA-7482-8201-RA				VP10xBAJ
VA-7484-8001				VP10xBAN
VA-7484-8001-RA		Proportional Auto Stroke Detection with Feedback and Fail Safe		VP100CAU
VA-7480-0001				VP100CAW
VA-7481-0001	230 VAC	Floating	VP100DAW	
VA-7480-0003			VP100DAY	
VA-7481-0003			VP10xHAA	
			VP10xHDA	
			VP10xHDC	
VA-7482-3001	24 VAC/DC	Proportional	Field Configurable	VP10xJAJ
VA-7482-3001-RA				VP10xJDB
VA-7493-8201-RA	24VAC/DC	Proportional	Field Configurable	VP10xKDD
				VP10xKDE
				VP100LDF
				VP100MBC

See "VA-748x" Product Bulletin for more information.

Valves-Rotary Actuators Optional Assembly Codes (VP1000 Ball Valves only)

Valve and actuator could be assembled in factory. This option has to be evaluated with JC sales representative. Code of the assembly is obtained by adding an actuator suffix to the valve code. Actuator suffix identifies the type of actuator. Example: non spring return actuator mounted on VP101EBC ball valve. Item code of the assembly is VP101EBC+510HGA

Actuator Suffix	Description
+510HGA*	VA9310-HGA-1, 10 Nm, Non Spring Return Actuator, 24 V AC/DC, Proportional Control
+538GGA	VA9208-GGA-1, 8 Nm, Spring Return Actuator, 24 V AC/DC, Proportional Control, assembled in Spring Open Valve configuration.
+538GGC	VA9208-GGC-1, 8 Nm, Spring Return Actuator, 24 V AC/DC, Proportional Control, two auxiliary switches, assembled in Spring Open Valve configuration.
+558GGA	VA9208-GGA-1, 8 Nm, Spring Return Actuator, 24 V AC/DC, Proportional Control, assembled in Spring Close Valve configuration.
+558GGC	VA9208-GGC-1, 8 Nm, Spring Return Actuator, 24 V AC/DC, Proportional Control, two auxiliary switches, assembled in Spring Close Valve configuration.

Note: *Auxiliary switches available as kit. See Product Bulletin of VA9310 for more details.

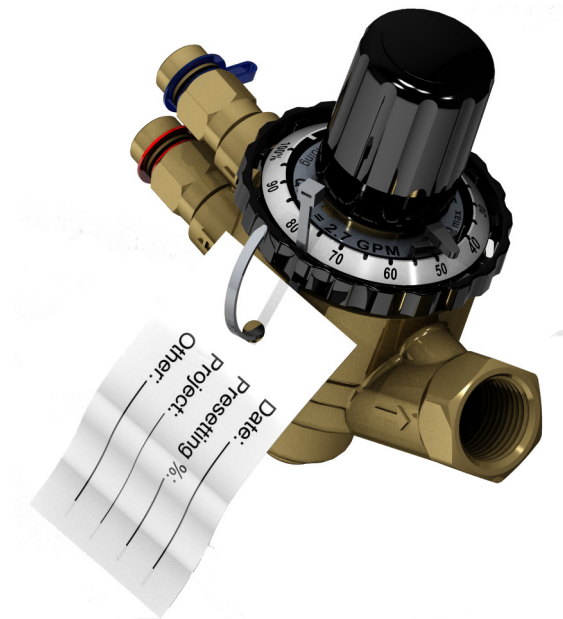
Accessories

General Accessories		
Codes	Description	Picture (indicatively)
VA64	Adapter for VA-708x actuator	
0550390101	Adapter for VA-709x actuator	
0A7010	Adapter for VA-748x actuator when used with DN15/DN20 valves	
0A748X	Adapter for VA-748x actuator when used with DN25/DN32 valves	
VA93	Adapter for VA-7493 actuator when used with compact DN40 valve	
T90	Pressure Plug (quantity 2)	
VP1DM	Digital differential pressure manometer kit	
Compact Valve Series Accessories		
INSL-01	Insulation kit for DN15 valves (VP10xHxx)	
INSL-03	Insulation kit for DN20 valves (VP10xJxx)	
INSL-05	Insulation kit for DN25 valves (VP10xKxx)	
REPLCRT-HAA	Cartdrige replacement for VP10xHAA valve	
REPLCRT-HDA	Cartdrige replacement for VP10xHDA valve	
REPLCRT-JAJ	Cartdrige replacement for VP10xJAJ valve	
REPLCRT-JDB	Cartdrige replacement for VP10xJDB valve	
Ball Valve Series Accessories		
B90T	2x union nuts with O-rings for VP1000 ball valve DN40	
B91	2x union nuts with O-rings for VP1000 ball valve DN50	

After Installation (VP1000 Axial only)

The VP1000 is delivered with a carton tag where the installer can note all the characteristics of the valve (Date, Presetting, Project, other).

The valve tag is water resistant and is made of innovative material to prevent any damage in the field.



Johnson Controls does not accept any liability for improper or wrong use of this product.

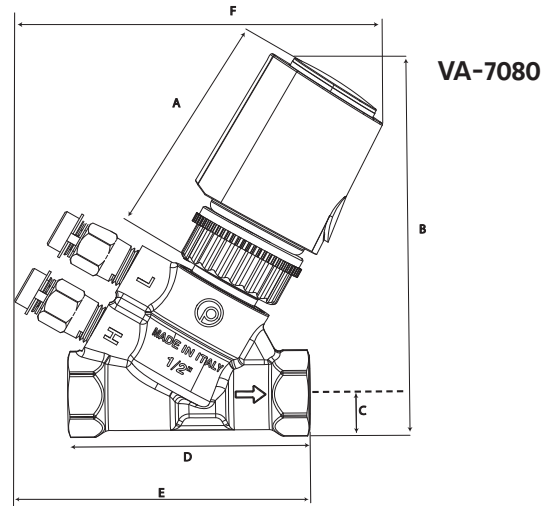
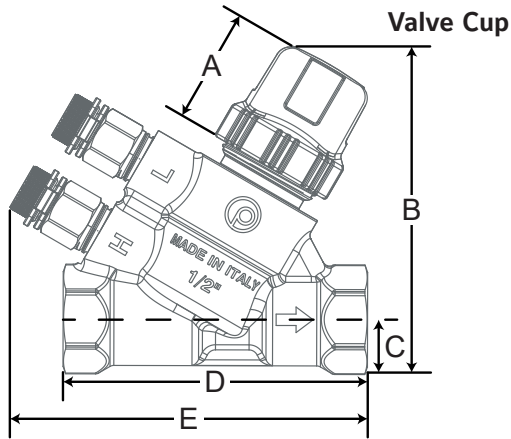
Always protect the pressure regulator by using strainers upstream of the valve and, in any case, make sure water quality complies with EN8065 standards (Fe < 0.5 mg/kg and Cu < 0.1 mg/kg).

Furthermore, maximum iron oxide in the water passing through this product should not exceed 25 mg/kg (25 ppm).

To ensure the main pipework is cleaned appropriately, flushing by-passed should be used without flushing through the pressure regulator of the PICV thereby preventing debris that might clog the valve.

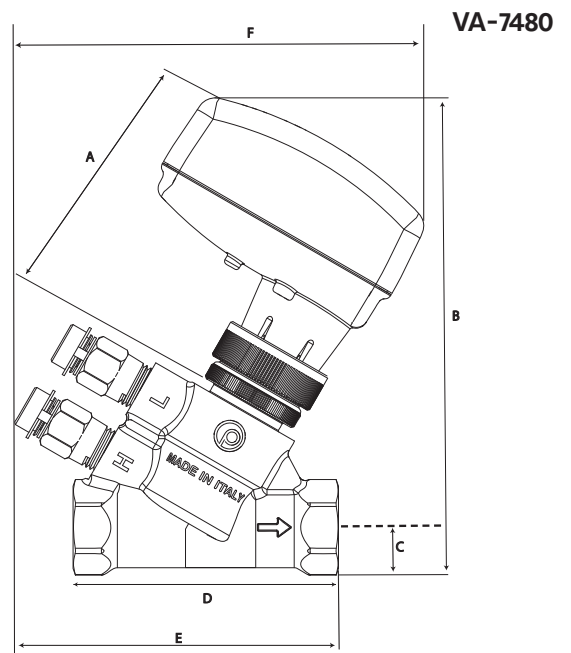
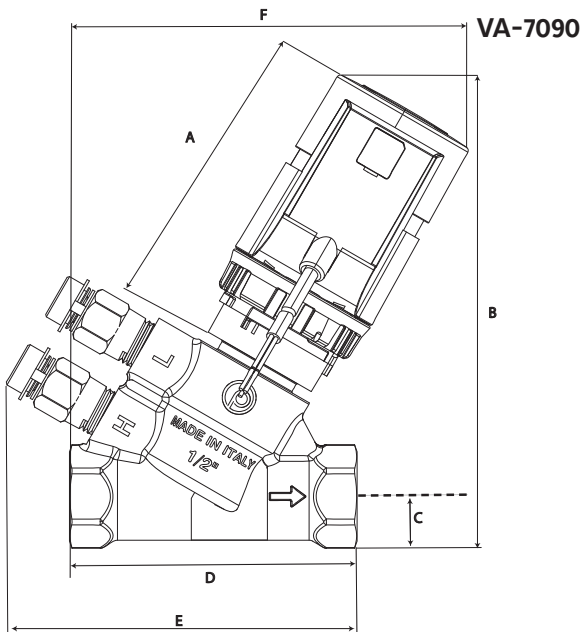
Dimensions (mm)

■ Compact Axial DN15 - DN20



Size	A	B	C	D	E
DN15	33	83	14.5	80.5	98
DN15-VP10xHDC	33	84.5	14.5	93.5	110.5
DN20	33	88	17.5	98	116

Size	A	B	C	D	E	F
DN15	64.5	120	14.5	80.5	98	119
DN15-VP10xHDC	64.5	122	14.5	93.5	110.5	123
DN20	64.5	125	17.5	98	116	126

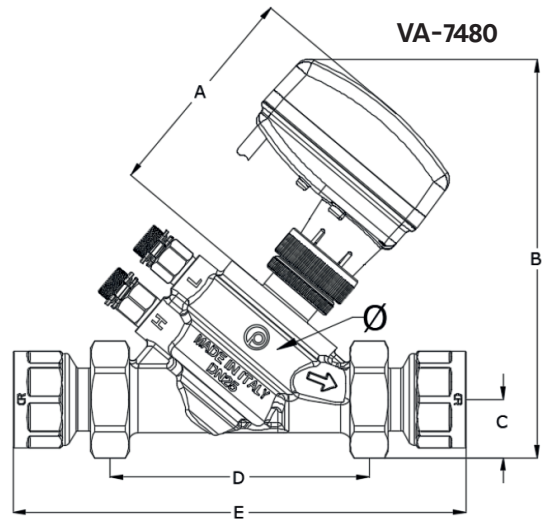
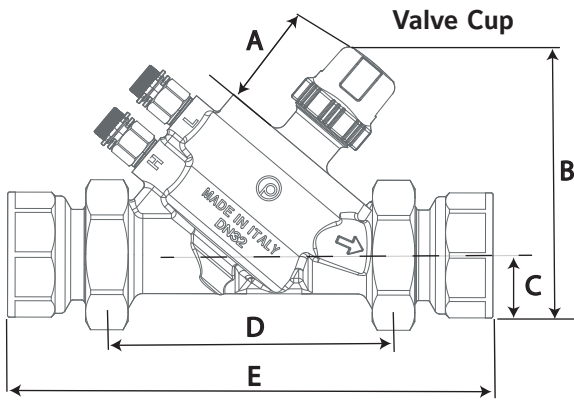


Size	A	B	C	D	E	F
DN15	74	127	14.5	80.5	98	119
DN15-VP10xHDC	74	129	14.5	93.5	110.5	123
DN20	74	132	17.5	98	116	126

Size	A	B	C	D	E	F
DN15	80.5	145	14.5	80.5	98	124
DN15-VP10xHDC	80.5	147	14.5	93.5	110.5	127
DN20	80.5	150	17.5	98	116	131

Dimensions (mm)

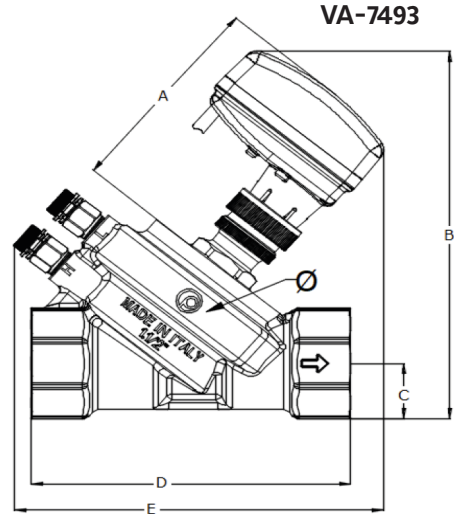
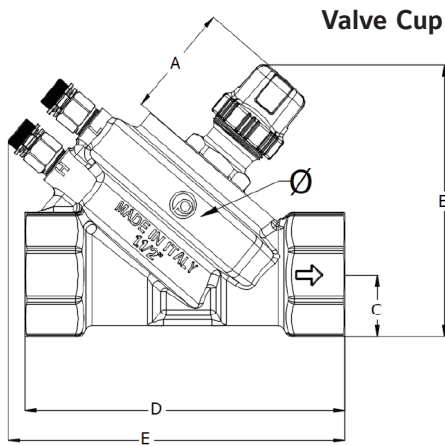
■ Compact Axial DN25 - DN32



Size	A	B	C	D	E
DN25	41	99	24	108	182
DN32	46	113	30	120	194

Size	A	B	C	D	E
DN25	83	155	23.5	108	182
DN32	88	169	30	120	194

■ Compact Axial DN40

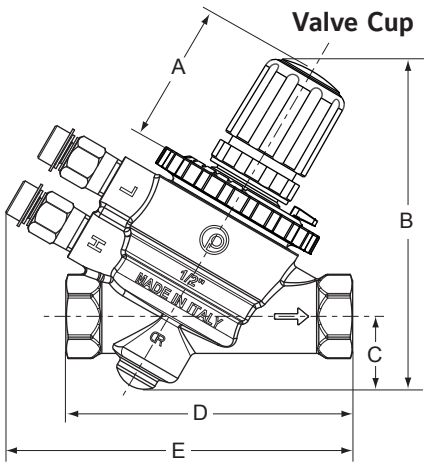


Size	A	B	C	D	E
DN40	49.5	119	27	143	150.5

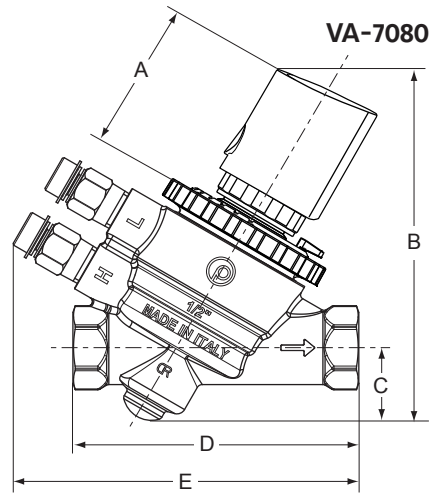
Size	A	B	C	D	E
DN40	98.5	181	27	143	165

Dimensions (mm)

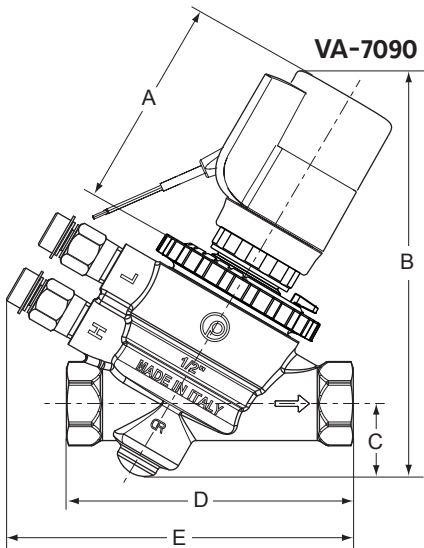
■ Axial DN15 - DN20



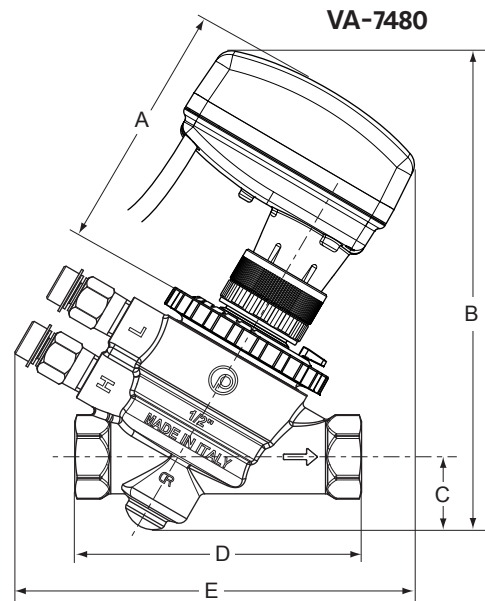
Size	A	B	C	D	E
DN15	47	115	25	99	120
DN20	47	115	25	108	127



Size	A	B	C	D	E
DN15	81.7	164	25	99	120
DN20	81.7	164	25	108	127



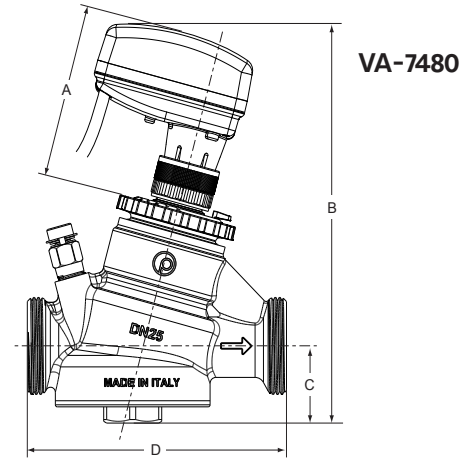
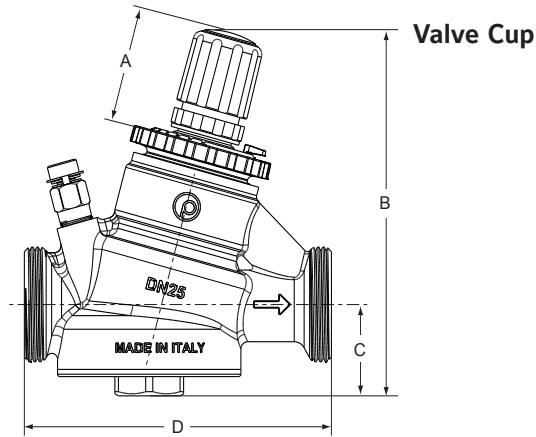
Size	A	B	C	D	E
DN15	75	144	14.5	99	120
DN20	75	149	17.5	108	127



Size	A	B	C	D	E
DN15	80	144	14.5	99	120
DN20	80	149	17.5	108	127

Dimensions (mm)

■ Axial DN25 - DN32



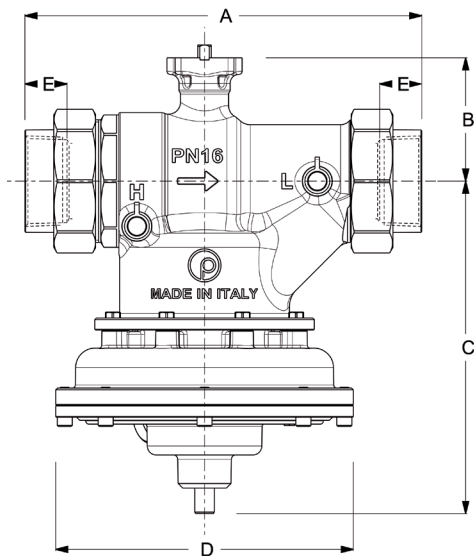
Size	A	B	C	D*
DN25	47	152	38	184
DN32				209

Note: *Dimensional data without fittings

Size	A	B	C	D*
DN25	83	196	38	184
DN32				209

Note: *Dimensional data without fittings

■ Ball Valves DN40- DN50



Size	A	B	C	D	E	Fittings
DN40	230	89	180	156	23.6	1 1/4", 1 1/2" or 2"
DN50	264	97	221	198	28	2"

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