

Simple, Reliable and Accurate

- Sizes R 1/2" - 3/4" - 1" - 1 1/4" - 1 1/2" - 2"
- Pressure Rating PFA 25 bar max.
- Downstream Adjustment Range 1 to 6 bar
- Complies with EN 1567
- Outlet Gauge / Test port

Factory Preset value @ 3 bar

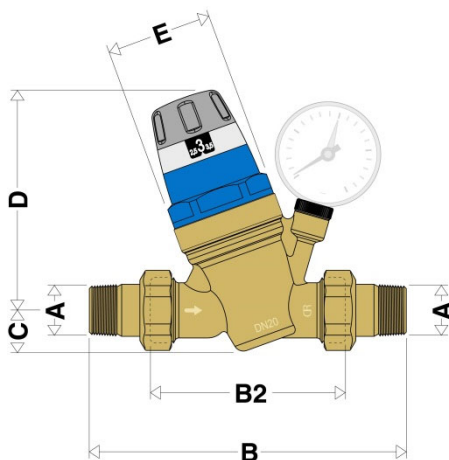


AQUA 80-451 Function and Installation

The pressure reducing valve AQUA 80-451, can be used in water distribution systems and on domestic distribution systems to protect installations from a high inlet (upstream) pressure. Regardless of variations of inlet pressure, the pressure reducing valve AQUA 80-451 will reduce and maintain a lower and constant outlet (downstream) pressure.



AQUA 80-451 Dimensions



AQUA 80-451 Materials

- **Body and moving parts:** dezincification resistant alloy EN 12165 & 12164
- **Cover:** PA 66 G 30
- **Stem:** Stainless Steel
- **Seat:** Synthetic material
- **Diaphragm:** RBR
- **Gaskets:** RBR
- **Strainer:** Stainless Steel

AQUA 80-451 Technical Specifications

Medium: Water

Max. working temperature: 40°C

Factory setting: 3 bar

Connections: BSP Male

Downstream pressure gauge: optional

Dimensions						
A (DN)	B	B2	C	D	E	WEIGHT
	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
1/2"	140	76	20.5	112	Ø 54	0.9
3/4"	160	90	20.5	112	Ø 54	1.1
1"	180	95	20.5	112	Ø 54	1.4
1 1/4"	200	110	40	178	Ø 73	2.6
1 1/2"	220	120	40	178	Ø 73	3.4
2"	250	130	40	178	Ø 73	4.3

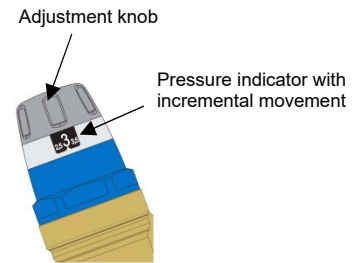
Flow coefficient						
DN	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Kv [m³/h]	2.6	2.8	3.0	5.9	12.6	12.6
Cv [l/s]	0.72	0.78	0.83	1.64	3.5	3.5

Nominal flow rates (recommended average velocity of 2 m/s)						
Ø	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Flow [m³/h]	1.27	2.27	3.6	5.8	9.1	14.0
Flow [l/min]	21.16	37.83	60	96.66	151.66	233.33

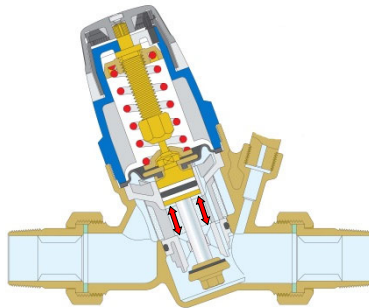
► Process

► AQUA 80-451 Pre-adjustment

The pressure reducing valve AQUA 80-451 is provided with an adjustment knob and a calibrated pressure indicator which is visible from both sides. This pressure indicator has an incremental movement, so that the pressure can be adjusted continuously, with the value being displayed at 0.5 bar increments. The system pressure can thus be pre-set to the required value even before the valve is installed.



► AQUA 80-451 Compensated Seat and Integral Strainer



The pressure reducing valve AQUA 80-451 is supplied with compensated seats. This means that the calibrated pressure value downstream remains constant regardless of changes to upstream pressure. In the figure, the thrust towards opening is counterbalanced by the closing pressure acting on the compensating piston. As the latter has a surface area equal to that of the obturator, the two forces cancel each other out.

The cartridge, which includes the diaphragm, filter, seat, obturator and compensating piston, is pre-assembled as a "self-contained unit" with the cover, and can easily be removed for inspection and maintenance purposes.

► AQUA 80-451 Hydraulic Characteristics

Low pressure loss

The internal hydraulic shape of the valve makes it possible to attain low pressure losses, even when a large number of draw-off outlets are open.

High pressures

The zone exposed to the upstream pressure is constructed in such a way that it can operate at high pressure. Thanks to the PTFE anti-extrusion rings on the compensating piston, the valve can be used in continuous service with upstream pressures up to 25 bar.

Sizing

Steps for proper sizing:

(A) Determination of diameter:

In water distribution systems and domestic distribution systems, the recommended velocity is between 1 m/s to 2 m/s. Using graph (A) the size of the valve is determined by intersecting the blue band and the velocity line (in this case 3/4" for 2 m³/h).

(B) Determination of pressure loss:

Using graph (B) identify the pressure drop intersecting the valve head loss curve (in this case 0.65 bar for 2 m³/h).

