

# Pressure Control Valves

## Pilot-operated Control Valves RP 116

### Pilot-operated Backpressure Regulator

#### Technical Data

Connection DN	50 - 400
Nominal Pressure PN	16
Inlet Pressure	1,5 - 15 bar
K <sub>vs</sub> -Value	45 - 1400 m <sup>3</sup> /h
Temperature	70 °C
Medium	water

#### Description

Self-acting back pressure regulators are simple control valves offering accurate control while being easy to install and maintain. They control the pressure upstream of the valve without requiring pneumatic or electrical control elements.

The RP 116 overflow valve is a pilot-controlled control valve consisting of main valve with position indicator, control unit, pilot valve, pressure gauge, stop valves and connecting pipes. The main valve cone is fitted with a soft seal. This valve which has been specially developed for drinking water applications, features an electrostatically deposited coating on internal and external surfaces and meets the KTW recommendation of the German Ministry for Health.

When the pipeline is depressurised or inlet and outlet pressures are equal, the main valve is kept closed by its spring.

When the inlet pressure rises above the set pressure the control medium flows towards the valve outlet via the open pilot valve. A restrictor in the control unit produces a pressure drop upstream of the diaphragm causing the inlet pressure to overcome the control pressure and spring force and open the main valve.

As soon as the inlet pressure has reached the set pressure, the pilot valve restricts the flow. This causes the pilot pressure to rise and push the main valve cone into a controlling position.

When the inlet pressure falls below the set pressure the pilot valve closes. The pilot pressure continues to rise and the main valve also closes.

The pressure difference between inlet pressure and outlet pressure must be at least 0.5 bar!

The control unit contains adjustable restrictors which allow the control characteristics of the pressure reducer to be matched to the system (closing, opening and response speeds).

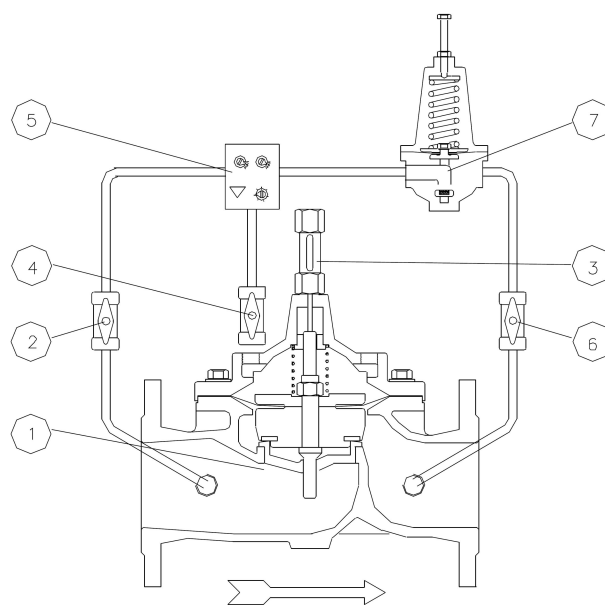
The overflow valve is completely piped. It does not require any additional pilot lines.

These valves are no shut-off elements ensuring a tight closing of the valve. In accordance with DIN EN 60534-4 and/or ANSI FCI 70-2 they may feature a leakage rate in closed position in compliance with the leakage classes V (soft seal cone =  $1.8 \times 10^{-5} \times \Delta p \times D^*$  [l/h], \*D=seat diameter).

#### Options

- » set pressure range 1 - 7 bar
- » nominal diameters  $\geq$  DN 500
- » rated pressure level PN 10, PN 25
- » special versions on request

Operating instructions, know how and safety instructions must be observed. All the pressure has always been indicated as overpressure. We reserve the right to alter technical specifications without notice.



- |                  |                  |                  |
|------------------|------------------|------------------|
| 1 main valve     | 2 shut-off valve | 3 vane relay     |
| 4 shut-off valve | 5 control unit   | 6 shut-off valve |
| 7 pilot valve    |                  |                  |

#### K<sub>vs</sub>-values [m<sup>3</sup>/h]

nominal diameter DN	50	65	80	100	125
K <sub>vs</sub> -value m <sup>3</sup> /h	45	60	95	150	160

#### K<sub>vs</sub>-values [m<sup>3</sup>/h]

nominal diameter DN	150	200	250	300	400
K <sub>vs</sub> -value m <sup>3</sup> /h	350	600	950	1300	1400

# Pressure Control Valves

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Pilot-operated Backpressure Regulator



### Materials - Main Valve

Temperature	70 °C
Body	spherodial cast iron Epoxy-coated*
Cover	spherodial cast iron Epoxy-coated*
Internals	stainless steel, bronze, spherodial cast iron Epoxy-coated*
Spring	stainless steel
Valve Seal	NBR
O-Ring	NBR
Diaphragm	NBR-Nylon-reinforced*
Screws and Nuts	stainless steel

### Materials - Pilot Circuit

Control Unit	stainless steel
Pilot Valve	brass, internals made of stainless steel NBR diaphragm
Filter Sieve	1.4404
Sense Line	stainless steel
Fittings	brass
Shut-off Valves	brass, nickel plated

\* in accordance with KTW-recommendation

### Dimensions [mm] and Weights [kg]

size	nominal diameter DN				
	50	65	80	100	125
A	230	290	310	350	400
B	162	194	218	260	304
C	83	93	100	118	135
D	233	255	274	316	383
kg	18	23,5	28	39	47

### Dimensions [mm] and Weights [kg]

size	nominal diameter DN				
	150	200	250	300	400
A	480	600	730	850	1100
B	370	454	570	710	710
C	150	180	213	242	310
D	431	523	620	670	709
kg	84	138	264	405	560

### Customs Tariff Number

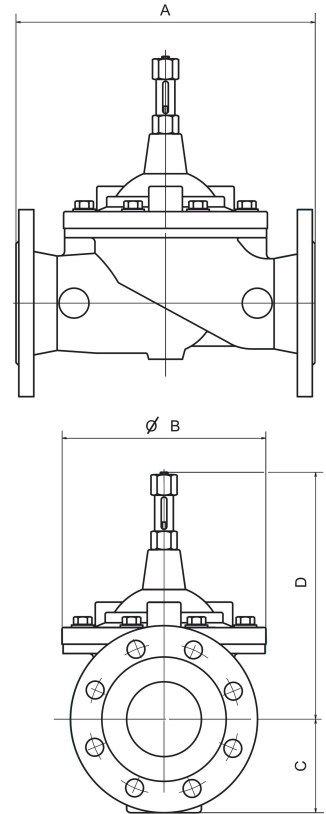
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Special designs on request.

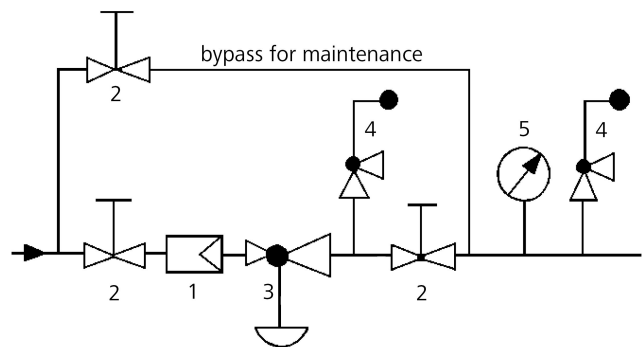
The pressure has always been indicated as overpressure.

Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

### Dimensional Drawing



### Recommended Installation



- 1 Strainer
  - 2 Shut-off Valves
  - 3 Overflow Valve
  - 4 Safety Valves
  - 5 Pressure Gauge
- use MANKENBERG-Products