

# Pressure Control Valves

## Pilot-operated Control Valves RP 814, 815

Pilot-operated Pressure Reducing Valve



### Technical Data

Connection DN	100 - 800
Nominal Pressure PN	16 - 25
Inlet Pressure	up to 25 bar
Outlet Pressure	1 - 20 bar
Differential Pressure	min. 2 bar
$K_{vs}$ -Value	60 - 2100 m <sup>3</sup> /h
Temperature	130 °C
Medium	liquids and gases

### Description

Medium-controlled pressure reducers are simple control valves offering accurate control while being easy to install and maintain. They control the pressure downstream of the valve without requiring pneumatic or electrical control elements.

The RP 814 and RP 815 pressure reducing valves are pilot-controlled control valves of tubular design consisting of a main valve, a pilot valve connected with the main valve via pipes and a restrictor assembly with built-in strainer.

The valve cone is fitted with a metallic seal.

When the pipeline is depressurised the main valve is kept closed by a preloaded spring. To open the valve a pressure difference ( $p_1 - p_2$ ) of at least 2 bar is required.

When the outlet pressure is below the set pressure the pilot valve is kept open by its spring. The control medium can flow towards the valve outlet. Restrictor D1 produces a pressure drop causing the outlet pressure to be almost equal to the pilot pressure in the main valve. The inlet pressure overcomes the outlet pressure and closing force of the spring and opens the main valve.

As soon as the outlet pressure has reached the set pressure, the pilot valve restricts the flow. This causes the pilot pressure to rise and push the main valve piston into a controlling position in which opening and closing forces are in balance. When the outlet pressure exceeds the set pressure the pilot valve closes. The pilot pressure is equal to the inlet pressure. The forces acting on the piston are in equilibrium and the main valve is kept closed by its spring.

The restrictors are used to optimise the control characteristics. The bypass line around D2 which is fitted with a non-return valve, ensures quick closing.

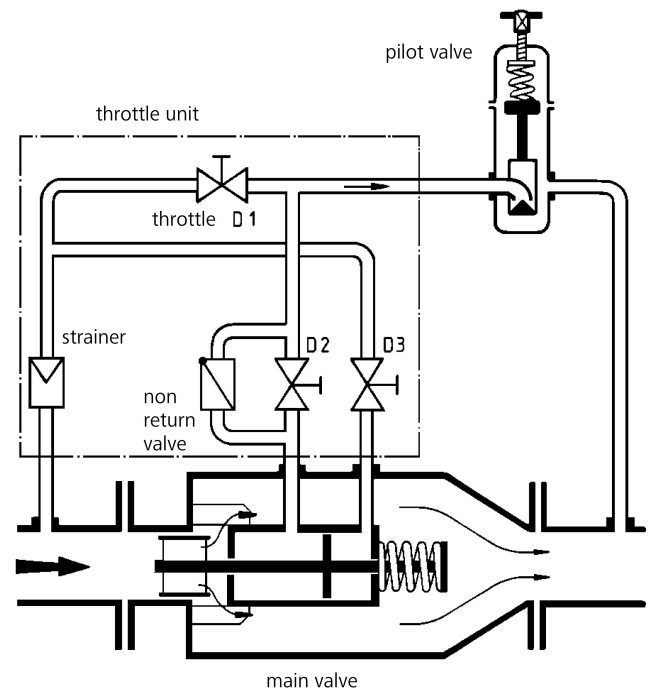
The valve is piped internally. The pulse lines must be installed on-site.

These valves are no shut-off elements ensuring a tight closing of the valve. In accordance with the VDI/VDE guideline 2174 a leakage rate of 0.05 percent of the constant volume flow is permitted for the valve in closed position.

### Options

- » electrical limit switches
- » 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.



$K_{vs}$ -Values [m <sup>3</sup> /h]						
type	nominal diameter DN					
	100	125	150	200	250	300
814	60	100	120	180	250	400
815	180	200	250	400	600	800

$K_{vs}$ -Values [m <sup>3</sup> /h]							
type	nominal diameter DN						
	350	400	450	500	600	700	800
814	600	800	1100	1200	1800	2000	2100
815	1200	1800					

Setting Ranges [bar], Nominal Pressure		
1 - 5	4 - 12	10 - 20
PN 16 - 25/10	PN 16 - 25/25	PN 16 - 25/40

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Materials		
Temperature	80 °C	130 °C
Body	steel optional CrNiMo-steel welded	
Internals	CrNiMo-steel	CrNiMo-steel
Valve Seal	CrNiMo-steel	CrNiMo-steel
O-Ring	NBR	EPDM
Pilot Valve	CrNiMo-steel	CrNiMo-steel
Sense Line		
Throttle Unit		

Dimensions [mm] RP 814													
size	nominal diameter DN												
	100	125	150	200	250	300	350	400	450	500	600	700	800
A	300	325	350	400	450	500	550	600	650	700	800	900	1000
B max.	200	200	220	240	270	300	320	350	380	400	450	500	550
E max.	270	270	270	270	270	270	270	270	270	270	270	270	270

Weights [kg] RP 814													
PN	nominal diameter DN												
	100	125	150	200	250	300	350	400	450	500	600	700	800
16	60	60	65	75	120	150	190	240	300	360	420	480	540
25	75	75	80	90	135	165	220	280	360	400	460	580	720

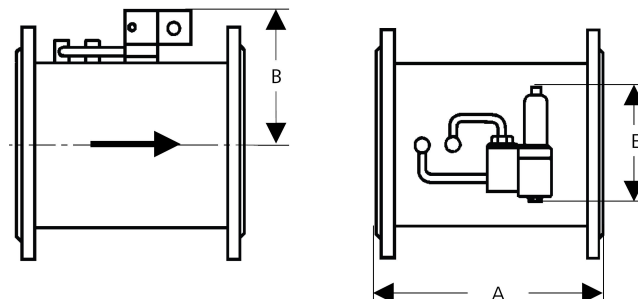
Dimensions [mm] RP 815									
size	nominal diameter DN								
	100	125	150	200	250	300	350	400	
A	350	400	480	600	730	850	980	1100	
B max.	220	240	270	300	320	350	400	450	
øD max.	360	400	425	485	555	620	730	845	
E max.	270	270	270	270	270	270	270	270	

Weights [kg] RP 815									
PN	nominal diameter DN								
	100	125	150	200	250	300	350	400	
16	85	110	125	170	220	270	340	400	
25	90	115	135	180	240	300	370	430	

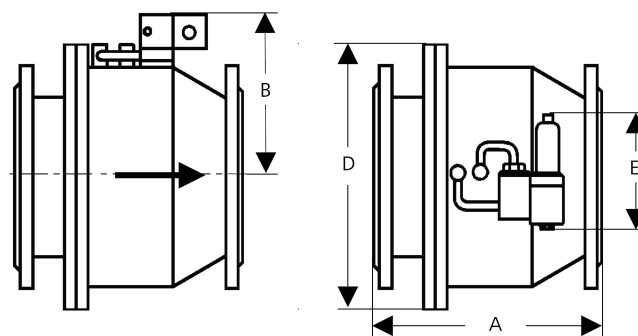
Special designs on request.  
 The pressure has always been indicated as overpressure.  
 Mankenberg reserves the right to alter or improve the designs or specifications of the products described herein without notice.

### Dimensional Drawing

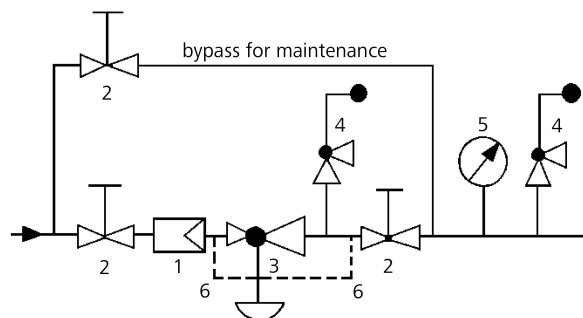
RP 814



RP 815



### Recommended Installation



- 1 Strainer
- 2 Shut-off Valves
- 3 Pressure Reducer
- 4 Safety Valves
- 5 Pressure Gauge
- 6 Sense Line G 1/2

sense line connection 10 - 20 x DN behind the valve  
 use MANKENBERG-Products