

Calibrated sealing rings for Series 20 and 26 Ball Valves

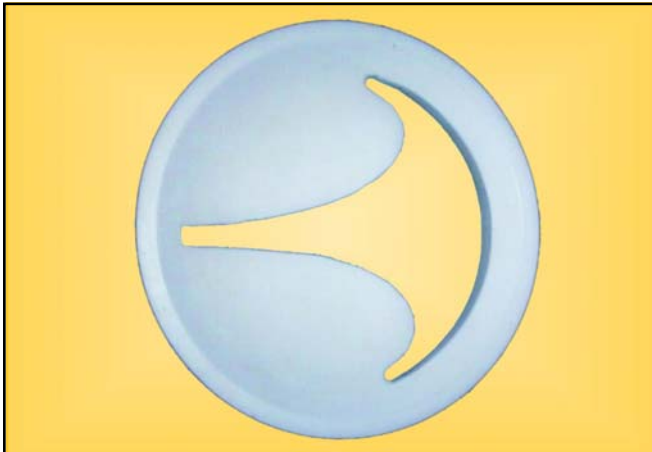


Fig. 1 – Calibrated sealing ring

Application

For control tasks with small pressure drops and high flow rates. Optional calibrated sealing ring versions are available for the following Pfeiffer ball valves:

- Series 20a PTFE-lined Ball Valves
- Series 20b PFA-lined Ball Valves
- Series 26a Precious Metal Ball Valves
- Series 26d Stainless Steel Ball Valves

Calibrated sealing rings for other valves are available on request.

Versions

The sealing rings are available for the following valve sizes and flow rates:

- DN 25 / 1" K_{vs} 6.3 to 16Eq / lin
- DN 40 / 1 1/2" K_{vs} 6.3 to 25Eq / lin
- DN 50 / 2" K_{vs} 6.3 to 63Eq / lin
- DN 80 / 3" K_{vs} 25 to 100Eq / lin
- DN 100 / 4" K_{vs} 25 to 200Eq / lin

For an exact assignment of K_{vs} and valve size refer to Table 2.

Special versions

- Sealing ring of special material, e.g. conductive PTFE
- Special characteristics

Principle of operation

The process medium flows through the ball valve in the direction indicated by the arrow, against the sealing ring. The special design of the sealing ring allows the medium to be controlled.

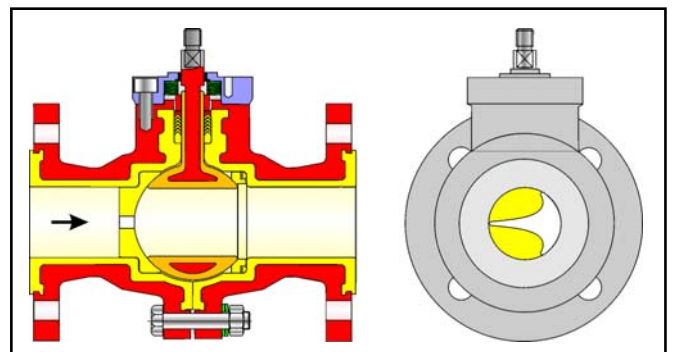


Fig. 2 – Example of a ball valve

Technical data

Nennweite	DN 25 bis DN 100
Leckrate	< 10 ⁻⁶ mbar l/s
Stellverhältnis	40 : 1 / 100 : 1
Grundkennlinie	gleichprozentig / linear

Table 1 – Technical data

K_{vs} coefficients

DN	25	40	50	80	100
6,3	X	X	X		
10	X	X	X		
16	X	X	X		
25		X	X	X	X
30			X	X	X
40			X	X	X
63			X	X	X
80				X	X
100				X	X
125					X
150					X
200					X

Table 2 – K_{vs} coefficients

Further K_{vs} coefficients available on request.

Calibrated Sealing Rings

Definition of K_v

The K_v coefficient represents the flow rate in m^3/h of water at 5 to 30 °C that flows through a control valve with a pressure drop of 1 bar.

Ball valve selection and sizing

The following requirements must be met:

1.)
$$\Delta p < \frac{p_1}{2}$$

2.)
$$\Delta p < 3 \text{ bar}$$

The K_v coefficient can be calculated as follows:

Flow rate for liquids	
m^3/h	kg/h
$K_v = \sqrt{\frac{W}{1000 \cdot \rho \cdot \Delta p}}$	$K_v = Q \sqrt{\frac{\rho}{1000 \cdot \Delta p}}$

- p_1 = Pressure upstream of the valve in bar
 p_2 = Pressure downstream of the valve in bar
 Q = Flow rate in m^3/h
 W = Flow rate in kg/h
 r = kg/m^3 density of liquids

After calculating K_v , select the K_{vs} of the ball valve.

The following applies:

$$K_{vs} \cong 1,3 \cdot K_v$$



Note!

Cavitation must be avoided; the following applies for liquids at room temperature:

$$\frac{\Delta p}{p_1} \leq 0,4$$



Note!

Continuous operation with cavitation is not permitted.

Valve characteristics

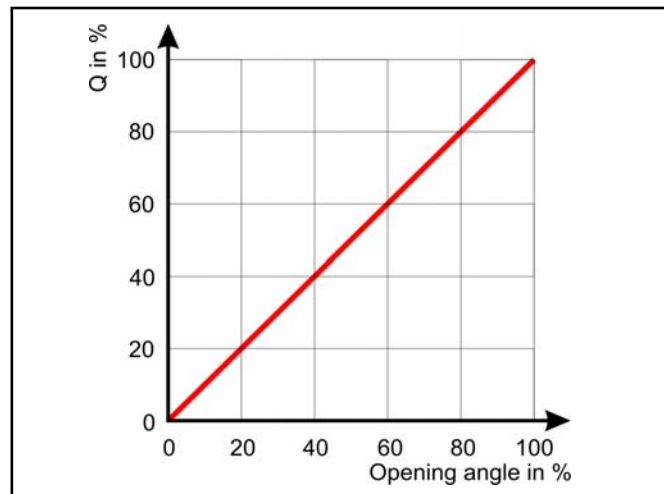


Fig. 3 – Linear characteristic

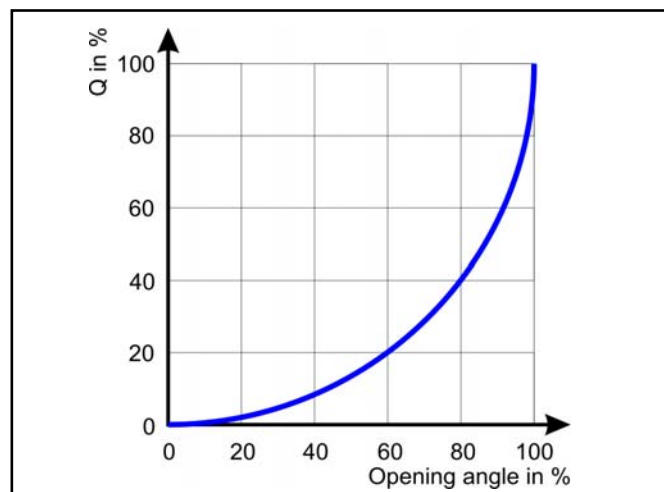


Fig. 4 – Equal percentage characteristic

Details and data

For further details and technical data refer to the associated data sheets:

- Series 20a = TB 20a_EN
- Series 20b = TB 20b_EN
- Series 26a = TB 26a_EN
- Series 26d = TB 26d_EN

For your special requirements please contact our technical sales department

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