

High-pressure ball valve

Nominal pressure up to 20,000 psi [1,379 bar]

Model HPBV

WIKA data sheet AC 09.31

Applications

- Process industry: Oil & gas, petrochemical, chemical industries, power generation, water and wastewater
- For liquid media (e.g. water, hydraulic oil) in high-pressure applications
- Test benches (e.g. for hydraulic components)
- High-pressure panels
- Wellhead control panels (WHCPs) and hydraulic power units (HPU)

Special features

- Maximum safety ensured by blow-out proof valve stem and ball
- Low-torque operation combined with long service life due to special valve design
- Minimum pressure drop assured by straight-through flow path
- Designed for continuous service with stable and repeatable operation within 2,000 ... 20,000 psi [138 ... 1,379 bar]
- Nominal pressures of 10,000 psi [689 bar], 15,000 psi [1,034 bar] or 20,000 psi [1,379 bar] depending on the connection size

Description

The model HPBV high-pressure ball valve in floating ball design has been developed for high-pressure applications.

With the blow-out proof design of the valve, working safety is ensured, especially in applications with high pressure loading and frequent pressure cycles. The possibility of retightening the gland nut of the valve seat extends the service life of the valve. The valve seat made of PEEK offers excellent resistance to chemicals, heat and wear. The valve can be fully opened/closed with only a quarter turn.



Model HPBV, high-pressure ball valve

Configurator



Standard articles



The model HPBV ball valve, together with the associated accessories, provides the performance demanded by the market. The valve design and high-quality sealing materials ensure long operating time and high leak tightness.

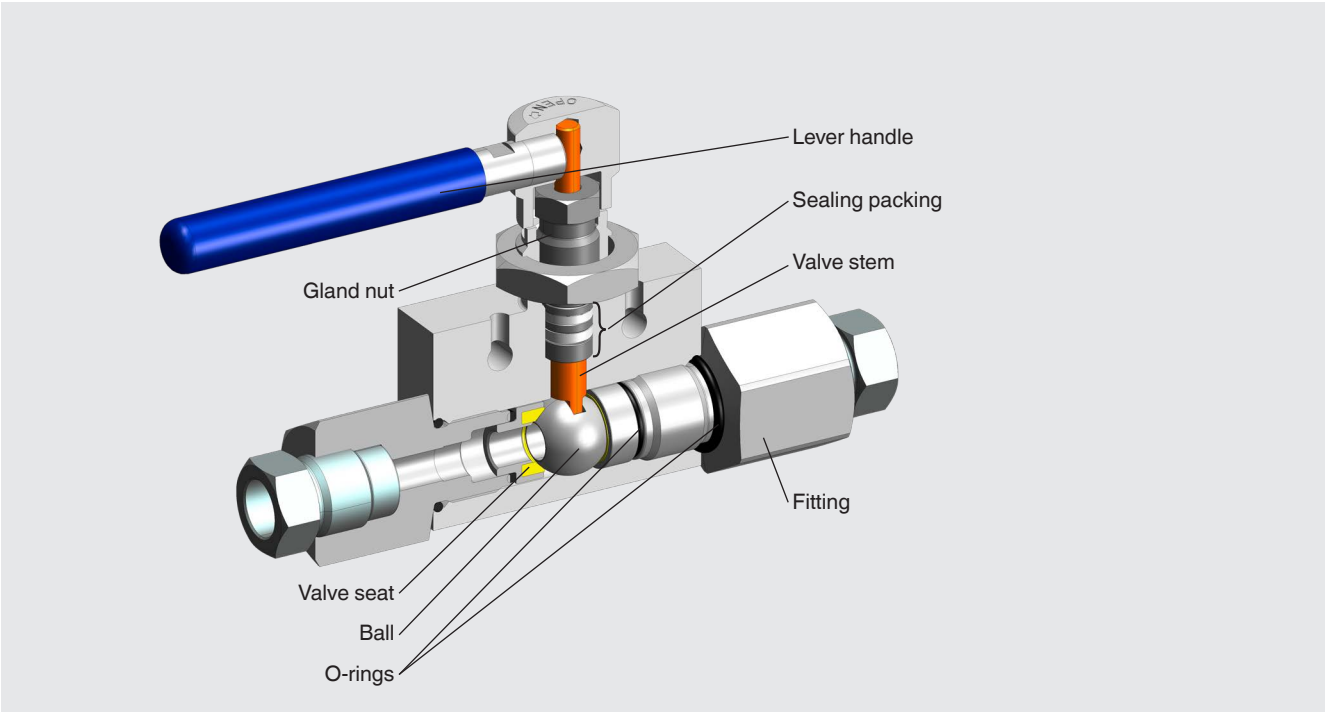
On request, WIKA offers the professional assembly of valves and pressure measuring instruments and also other accessories into a ready-to-install solution, also known as an instrument hook-up. To ensure the performance of the complete system, an additional leak test is carried out on the instrument hook-up.

Specifications

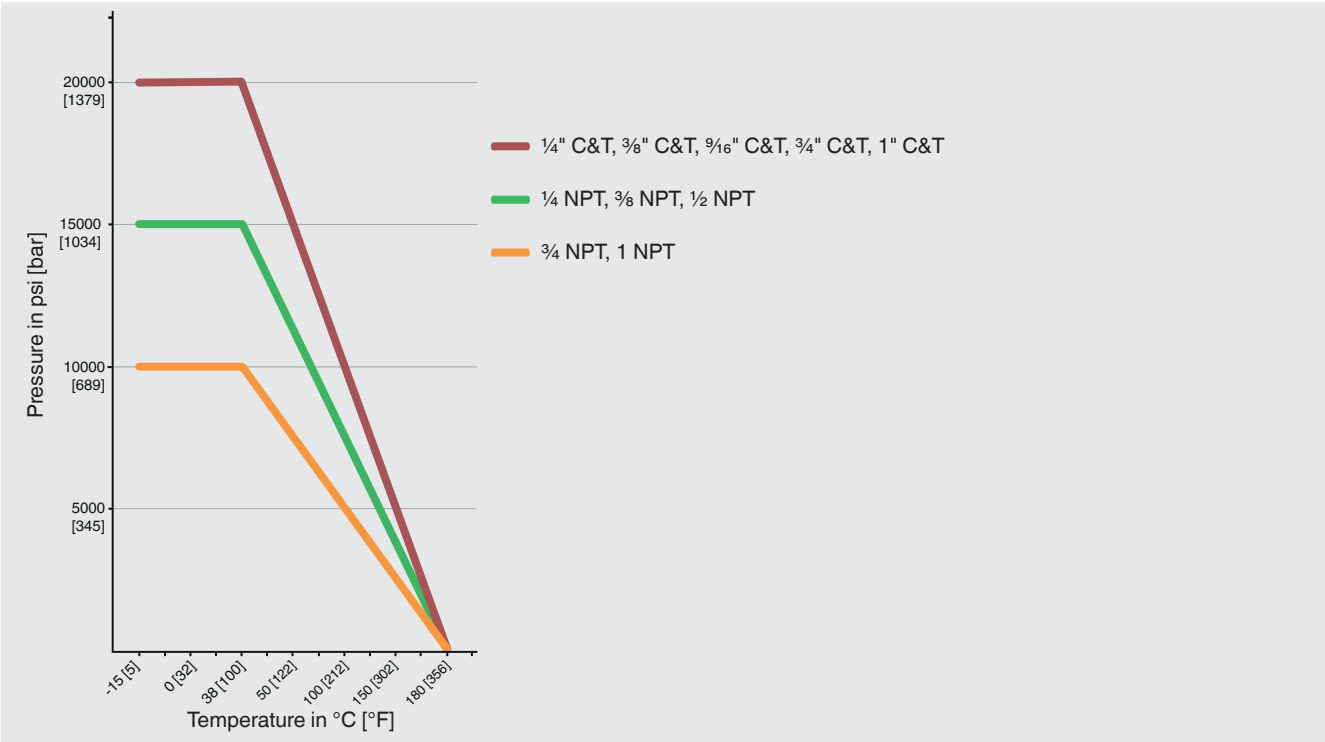
Model HPBV	
Standards used	
Design	■ MSS SP-99, valves for measuring instruments ■ ASME B1.20.1, pipe threads, general purpose (inch) ■ ASME B31.3, process piping
Production tests	Testing in accordance with WIKA standards → For further information see "Certificates" on page 6
Marking	MSS SP-25, markings on valves
Nominal pressure	■ 10,000 psi [689 bar] ■ 15,000 psi [1,034 bar] ■ 20,000 psi [1,379 bar]
Permissible temperature range	-15 ... +180 °C [5 ... 356 °F]
Version	2-way valve, straight bore
Connection type	■ Thread per ANSI / ASME B1.20.1, code NPT ■ Cone/thread (C&T)
Connection size	
10,000 psi [689 bar]	■ ¾ NPT ■ 1 NPT
15,000 psi [1,034 bar]	■ ¼ NPT ■ ⅜ NPT ■ ½ NPT
20,000 psi [1,379 bar]	■ ¼" cone/thread (C&T) ■ ⅜" cone/thread (C&T) ■ ½" cone/thread (C&T) ■ ¾" cone/thread (C&T) ■ 1" cone/thread (C&T)
Features	■ Blow-out proof valve spindle ■ Opening and closing direction marked on lever handle ■ Quarter turn of lever handle opens/closes ■ Bidirectional flow with minimal pressure drop ■ Hydrostatically tested ■ Mounting holes for panel mounting
Special design feature	■ Without ■ Oil- and grease-free for oxygen per ASTM G93 level C

Materials	
Wetted parts	
O-rings	FKM Temperature range: -15 ... +180 °C [5 ... +356 °F]
Valve body, fittings, ball, valve seat, sealing packing rings	■ Stainless steel 316/316L (1.4401/1.4404) ■ Other materials on request
Valve stem	■ Stainless steel 17-4PH (1.4542) per ASTM A564 ■ Other materials on request
Valve seats	PEEK
Sealing packing	PTFE, glass-fibre filled
Non-wetted parts	
Handle	Stainless steel 316/316L, PVC coated (blue)
Bonnet, spindle, locking plate, locking pin, product label, screws	Stainless steel

Ball valve design



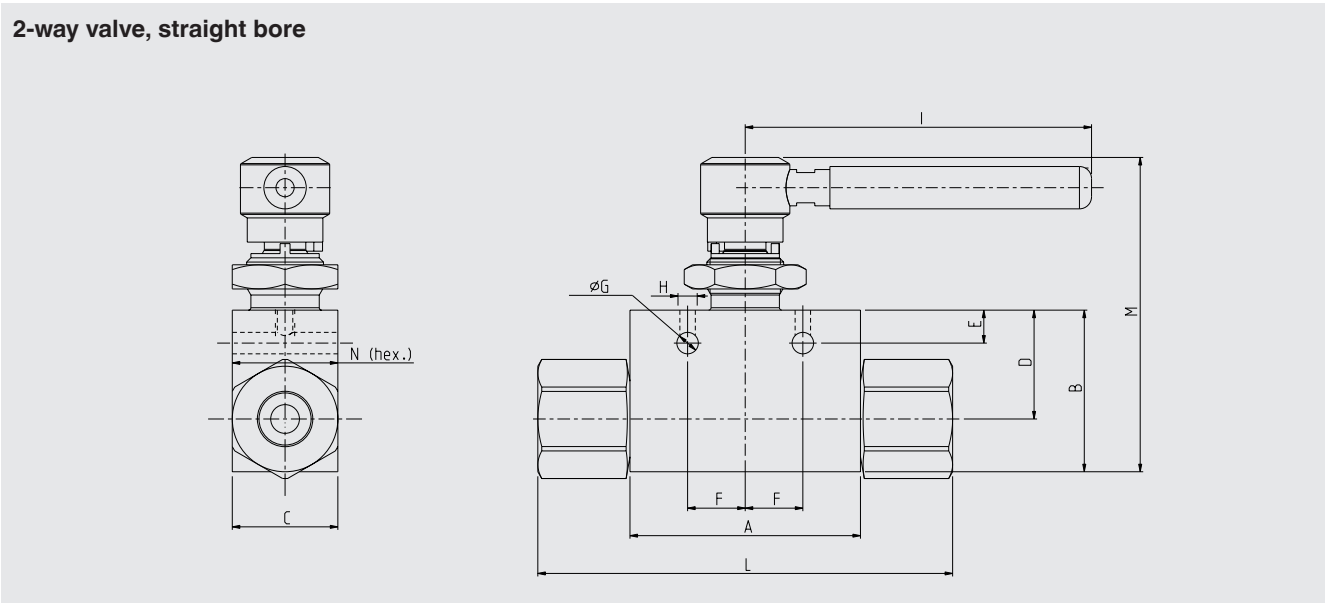
Pressure-temperature diagram



Process connection	Max. allowable operating pressure in bar at temperature in °C	Max. allowable operating pressure in psi at temperature in °F
3/4 NPT, 1 NPT	689 bar at 38 °C	10,000 psi at 100 °F
1/4 NPT, 3/8 NPT, 1/2 NPT	1,034 bar at 38 °C	15,000 psi at 100 °F
1/4" C&T, 3/8" C&T, 9/16" C&T, 3/4" C&T, 1" C&T	1,379 bar at 38 °C	20,000 psi at 100 °F

Dimensions in mm [in]

Thread per ANSI / ASME B1.20.1, female thread/female thread
Nominal pressure: 15,000 psi [1,034 bar]

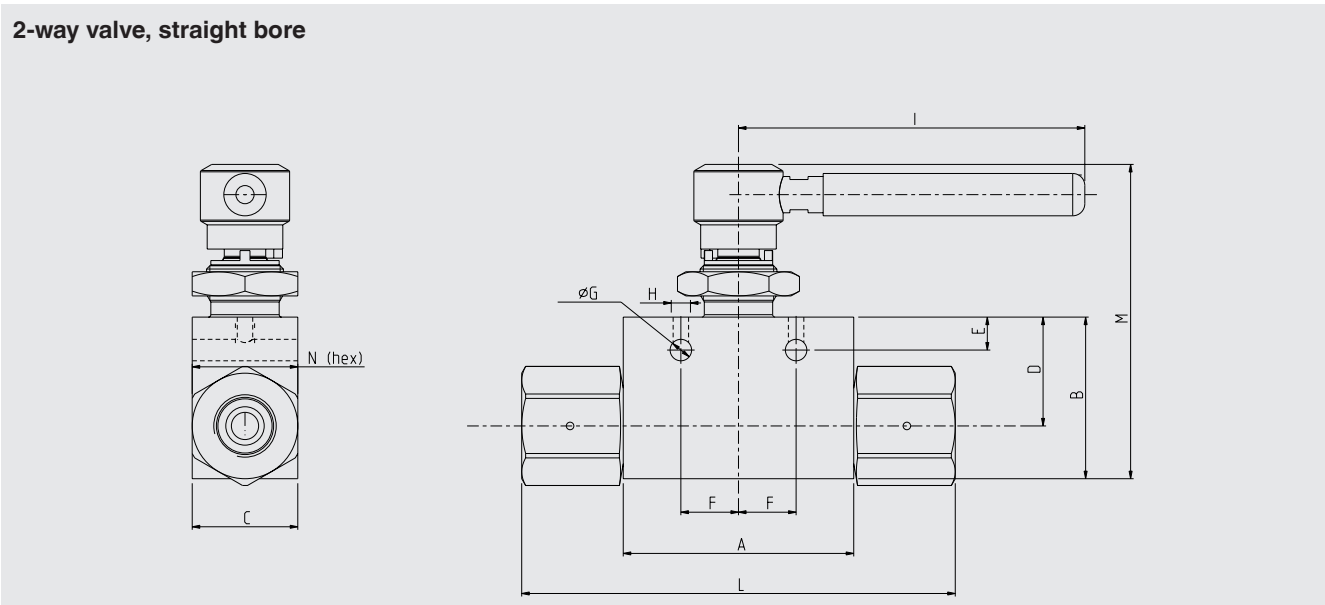


2-way valve, straight bore

Thread	Dimensions in mm [in]												
	A	B	C	D	E	F	G	H	I	L	M	N	Orifice
¼ NPT	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	114 [4.49]	119 [4.69]	104 [4.09]	25.4 [1.00]	6.4 [0.25]
⅜ NPT	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	114 [4.49]	119 [4.69]	104 [4.09]	30 [1.18]	6.4 [0.25]
½ NPT	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	114 [4.49]	137.1 [5.4]	104 [4.09]	34.9 [1.37]	9.5 [0.37]
¾ NPT ¹⁾	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	115 [4.53]	129.5 [5.1]	104 [4.09]	34.9 [1.37]	9.5 [0.37]
1 NPT ¹⁾	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	116 [4.57]	158.3 [6.23]	104 [4.09]	44.45 [1.75]	9.5 [0.37]

1) The maximum operating pressure is limited to 10,000 psi [689 bar].

Cone/thread (C&T)
 Nominal pressure: 20,000 psi [1,379 bar]



2-way valve, straight bore

Thread	Dimensions in mm [in]												
	A	B	C	D	E	F	G	H	I	L	M	N	Orifice
¼" C&T	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	114 [4.49]	119 [4.69]	104 [4.09]	25.4 [1.00]	2.8 [0.11]
⅜" C&T	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	114 [4.49]	119 [4.69]	104 [4.09]	25.4 [1.00]	5.2 [0.2]
½" C&T	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	114 [4.49]	143 [5.63]	104 [4.09]	34.9 [1.37]	9.0 [0.35]
¾" C&T	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	114 [4.49]	153.5 [6.04]	104 [4.09]	34.9 [1.37]	9.5 [0.37]
1" C&T	76.2 [3.00]	53 [2.09]	38 [1.50]	36 [1.42]	10.9 [0.43]	19.05 [0.75]	7.1 [0.28]	¼"-20 UNC	114 [4.49]	177 [6.97]	104 [4.09]	44.45 [1.75]	9.5 [0.37]

Manufacturer's declaration

Logo	Description
-	PMI ¹⁾ test certificate (option) All wetted parts

1) Positive material identification

Certificates

Description	
Certificates	3.1 inspection certificate per EN 10204, confirmation of pressure tests per WIKA standards ¹⁾

1) The following tests are performed on 100 % of the valves:
- Valve shell test: 15 s test duration with 1.1 times the allowable working pressure
- Valve seat test: 15 s test duration with 1 times the allowable working pressure on the shut-off bonnet

Ordering information

Model / Nominal pressure / Connection type / Nominal width / Valve bore size / Diagram /
Bonnet design/ Special design feature / Valve body / Sealing / Handle / Options



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