

# Monoblock

## With threaded connection

### Models IBM2 and IBM3

WIKA data sheet AC 09.24



for further approvals  
see page 7

### Applications

- Oil and gas industry, chemical and petrochemical industries, power plants, shipbuilding
- For gaseous and liquid aggressive media that are highly viscous or crystallising, also in aggressive environments
- Test benches and calibration equipment
- Control panels (e. g. wellheads, actuators), lubrication systems, dry gas seal systems
- Sampling systems for process analysis

### Special features

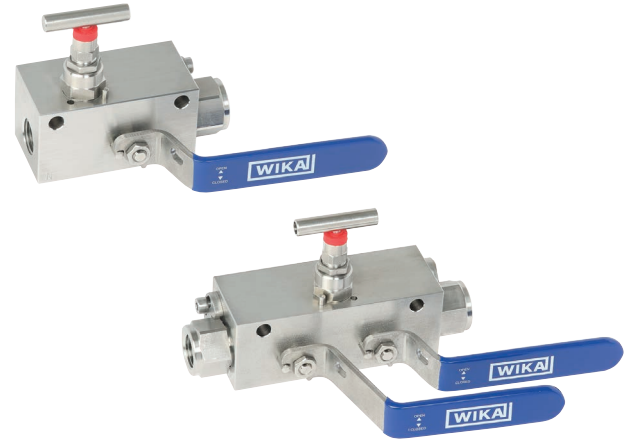
- Increased safety with metal enclosed valve seats and double valve body seal
- High-quality machining guarantees smooth operation with low torque and low wear
- Leak-tested tightness in accordance with BS 6755 / ISO 5208 leakage rate A
- Customisable arrangement with ball and needle valves
- Customer-specific combination of valves and instruments (hook-up) on request

### Description

The monoblock has been designed specifically to fit into the small space of control panel and valve battery installations.

With its very compact dimensions, the monoblock can be used in a wide range of applications providing high overpressure safety within a large spectrum of temperature ranges. The modular monoblock design allows using an arrangement of ball valves and/or needle valves in the same valve body.

For applications with liquid or dirty media, ball valves are recommended due to easy cleaning of the straight-through internal bore.



**Fig. left: Model IBM2, block-and-bleed valve manifold**  
**Fig. right: Model IBM3, double block-and-bleed valve manifold**

The valve seat design and the redundant seals of the valve body ensure high durability and tightness. In case the soft valve seat fails, the metal-to-metal seat will ensure that the valve can still be operated and set to a safe position. The tightness is guaranteed for the connection between the process and the measuring instrument and towards the atmosphere.

The super-finished machining of the internal parts allows a very smooth and precise operation, even at high pressures and after long periods without valve operation. The surface finish is also minimising corrosion with aggressive media and makes it easier to clean.

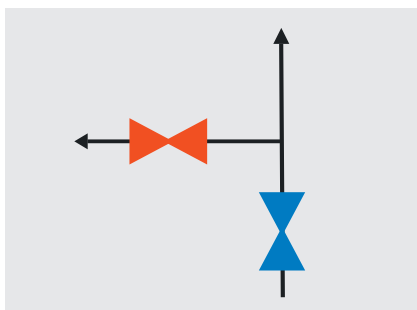
## Specifications

Monoblock, models IBM2 and IBM3	
<b>Standards used</b>	
Design	<ul style="list-style-type: none"> <li>■ EEMUA publication 182, specification for integral block-and-bleed valve manifolds</li> <li>■ ASME B16.34, valves - flanged, threaded and welding end</li> <li>■ ASME BPVC section VIII, rules for construction of pressure vessels division 1</li> <li>■ ASME B31.1, power piping</li> <li>■ ASME B31.3, process piping</li> <li>■ ISO 17292, metal ball valves for petroleum, petrochemical and allied industries</li> <li>■ MSS SP-99, valves for measuring instruments</li> <li>■ ASME B16.5, pipe flanges and flange fittings</li> <li>■ ASME B1.20.1, pipe threads, general purpose (inch)</li> </ul>
Tests	<ul style="list-style-type: none"> <li>■ API 598, valve inspection and testing</li> <li>■ ISO 5208, pressure testing of metallic valves with leakage rate A</li> <li>■ MSS SP-61, pressure testing of valves</li> <li>■ DIN EN 12266-1, pressure tests, test procedures and acceptance criteria for industrial valves</li> <li>■ API607/API6FA/ISO 10497 fire test for valves</li> </ul>
Material requirements	<ul style="list-style-type: none"> <li>■ NACE MR0175 / ISO 15156, use in H<sub>2</sub>S-containing environments in oil and gas production</li> <li>■ Norsok M-630, specification for use in pipelines (Norway)</li> </ul>
Marking	ASME B16.34, valves - flanged, threaded and welding end
<b>Pressure-temperature limits (for diagram, see page 5)</b>	The limits for operating pressure and temperature depend on the sealing material
<b>Function (for functional diagram, see next page)</b>	<ul style="list-style-type: none"> <li>■ Model IBM2: Block and bleed (shut off and vent)</li> <li>■ Model IBM3: Double block and bleed (2 x shut off and 1 x vent)</li> </ul>
<b>Arrangement (for valve types, see next page)</b>	The shut-off valve(s) and the vent valve can be defined individually as ball valve or needle valve.
<b>Connection (inlet/outlet)</b>	<ul style="list-style-type: none"> <li style="width: 50%;">■ ½ NPT female</li> <li style="width: 50%;">■ G ½ female</li> <li style="width: 50%;">■ ½ NPT male</li> <li style="width: 50%;">■ G ½ male</li> <li style="width: 50%;">■ ¾ NPT female</li> <li style="width: 50%;">■ G ¾ female</li> <li style="width: 50%;">■ ¾ NPT male</li> <li style="width: 50%;">■ G ¾ male</li> </ul>
<b>Vent connection</b>	½ NPT female or ¼ NPT female, plug screw is included in delivery, though not pre-fitted.

### Functional diagram

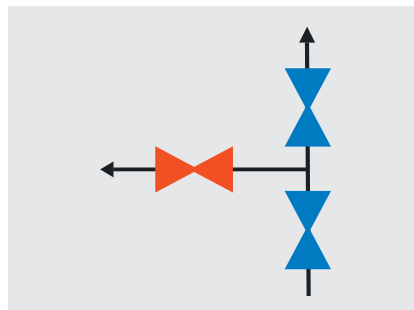
#### Model IBM2

Block and bleed (shut off and vent)



#### Model IBM3

Double block and bleed (2 x shut off and 1 x vent)



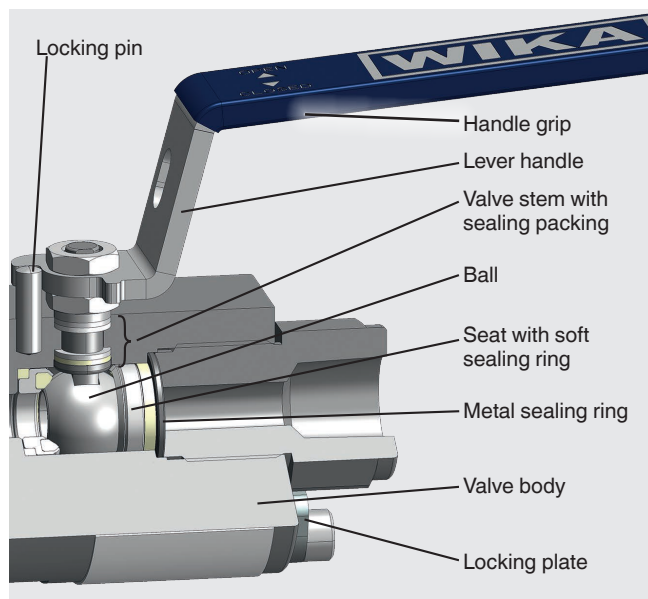
Colour code    Blue: Shut off  
                       Red: Vent

Materials	
<b>Wetted parts</b>	
Valve body and fittings, ball, valve seats, valve stem, bonnet body, spindle tip	<ul style="list-style-type: none"> <li>■ Stainless steel 316L (standard)</li> <li>■ Duplex F51 (1.4462)</li> <li>■ Super Duplex F55 (1.4501)</li> <li>■ Hastelloy C276 (2.4819)</li> <li>■ Monel 400 (2.4360)</li> <li>■ Steel A350 LF2 (1.0566), galvanised carbon steel per ISO/EN 2081 <sup>1) 2)</sup></li> </ul>
Sealing <sup>3)</sup>	<ul style="list-style-type: none"> <li>■ PEEK (ball valve seat)</li> <li>■ Graphite (needle valve sealing packing)</li> <li>■ PTFE (needle valve sealing packing)</li> </ul>
<b>Non-wetted parts</b>	
Handle, bonnet, valve spindle, locking plate, locking pin, product label, screws	Stainless steel 316/316L
Handle grip	PVC

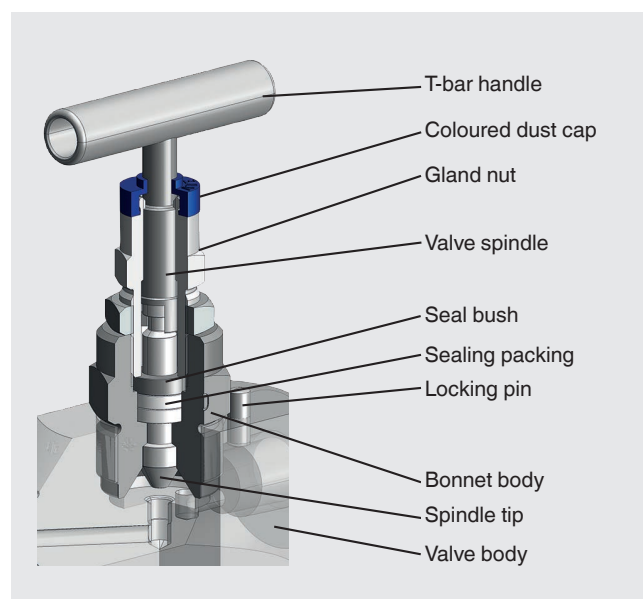
1) Valves can be painted in accordance with the customer specifications  
 2) Valve body from steel A350 LF2 (1.0566), wetted and non-wetted parts from stainless steel 316/316L  
 3) Other materials available on request

## Valve type

### Ball valve



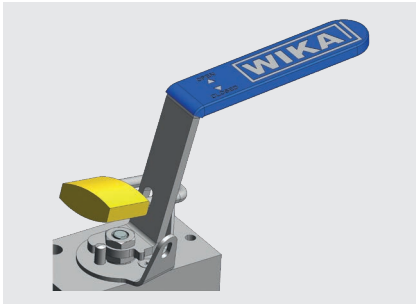
### Needle valve



Specification	Ball valve	Needle valve
<b>Design</b>	<ul style="list-style-type: none"> <li>■ Antistatic design</li> <li>■ Blow-out-safe valve stem</li> <li>■ Self-relieving valve seats</li> </ul>	<ul style="list-style-type: none"> <li>■ Non-rotating spindle tip</li> <li>■ Blow-out-safe spindle tip</li> <li>■ Back seat design</li> <li>■ Metal-to-metal seat</li> </ul>
<b>Colour code</b>	Blue: Shut off Red: Vent	
<b>Valve bore size</b>	10 mm [0.394 in]	5 mm [0.197 in]

**Options for ball valve**

**Anti-tamper version with padlock**



**Extended lever handle**



**Options for needle valve**

**Anti-tamper version**



**Anti-tamper key**



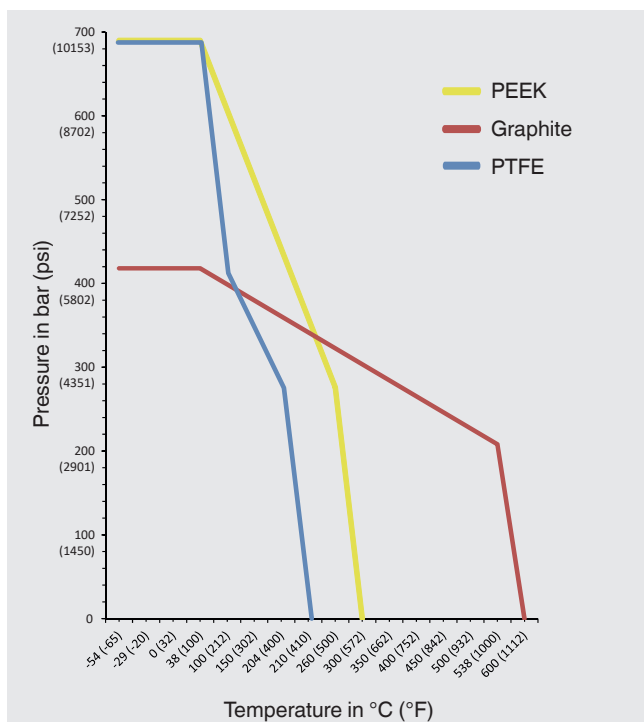
**Anti-tamper version with padlock**



**Extended lever handle**



### Pressure-temperature diagram



	Sealing material	Max. permissible operating pressure in bar at temperature in °C	Max. permissible operating pressure in psi at temperature in °F
Ball valve seat	PEEK <sup>1)</sup>	690 bar at 38 °C	10,000 psi at 100 °F
		276 bar at 250 °C	4,000 psi at 480 °F
Needle valve sealing packing	Graphite	420 bar at 38 °C	6,000 psi at 100 °F
		209 bar at 538 °C	3,030 psi at 1,000 °F
	PTFE	690 bar at 38 °C	10,000 psi at 100 °F
		276 bar at 204 °C	4,000 psi at 400 °F

1) Polyetheretherketone

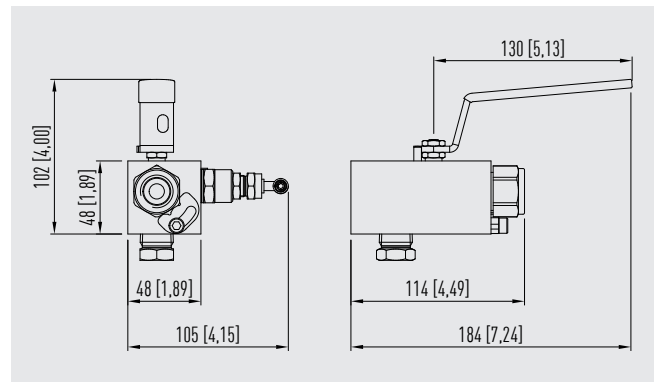
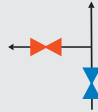
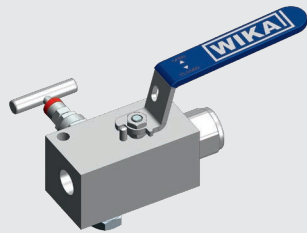
The minimum design temperature is -54 °C [-65 °F]. For permanently low operating temperatures of  $\leq -54$  °C [ $\leq -65$  °F], a special design is required.

## Dimensions in mm [in]

### Model IBM2

Shut off: 1 x ball valve

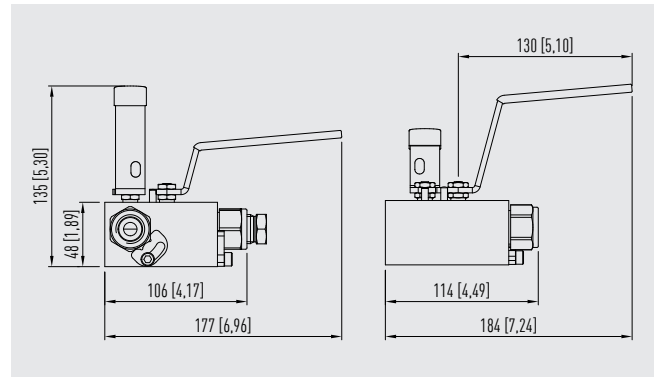
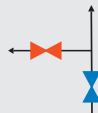
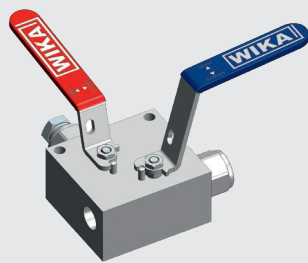
Vent: 1 x needle valve



### Model IBM2

Shut off: 1 x ball valve

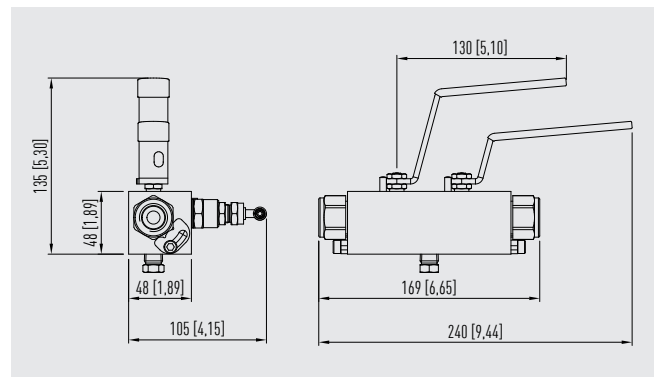
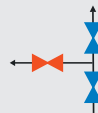
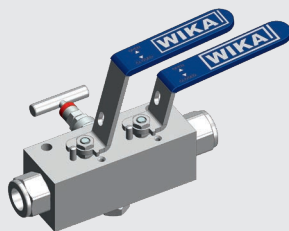
Vent: 1 x ball valve



### Model IBM3

Shut off: 2 x ball valve

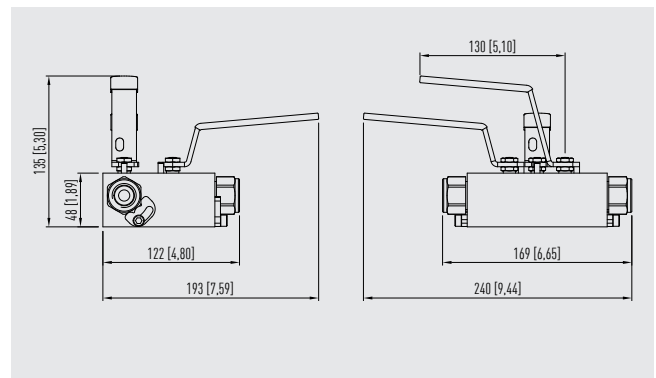
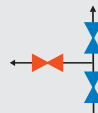
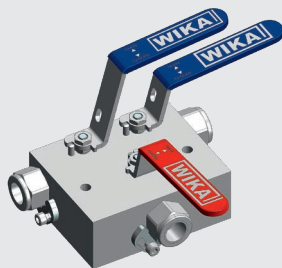
Vent: 1 x needle valve



### Model IBM3

Shut off: 2 x ball valve

Vent: 1 x ball valve



## Approvals

Logo	Description	Country
	<b>EAC (option)</b> Machinery directive	Eurasian Economic Community

## Manufacturer's information and certificates

Logo	Description
-	<b>PMI <sup>1)</sup> test certificate (option)</b> All wetted parts
-	<b>Type tested for fire safety in accordance with API 607, ISO 10497, BS 6755-2 <sup>2)</sup></b>

1) Positive material identification  
 2) Only for ball valve

## Certificates

- 2.2 test report per EN 10204
- 3.1 inspection certificate per EN 10204 (option)
  - Material certificate for all wetted parts per NACE MR0103/MR0175
  - Confirmation of pressure tests per API 598 <sup>3)</sup>

3) Shell test: 15 s test duration with 1.5 times the permissible working air pressure  
 Seat test: 15 s test duration with 6 bar air/nitrogen

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