

Block-and-bleed valve 2-valve manifold Models IV20 and IV21

WIKA data sheet AC 09.19

EAC

Applications

- Shut off and vent pressure measuring instruments
- For gaseous and liquid aggressive media that are not highly viscous or crystallising, also in aggressive environments
- Process industry: Oil & gas, petrochemical, chemical industries, power generation, water and wastewater

Special features

- Low-wear design due to non-rotating spindle tip in the bonnet
- Low torque and smooth operation of valve handle even at high pressure
- Enhanced safety due to blow-out proof bonnet design
- Valve seat tested for leak tightness per BS6755 / ISO 5208 leak rate A
- Customer-specific combination of valves and instruments (hook-up) on request

Description

With 2-valve manifolds, the block-and-bleed version is standard. The shut-off valve separates the process from measuring instruments such as pressure gauges, switches or transmitters. By closing this valve the instrument can be safely dismantled for services like recalibration or replacement. The vent valve allows the safe venting of the instrument, prior to the dismantling or for zero point check.

Through the non-rotating spindle tip, the wear of the sealing elements is reduced. This results, particularly with frequent opening and closing, in a noticeable increase in the service life.

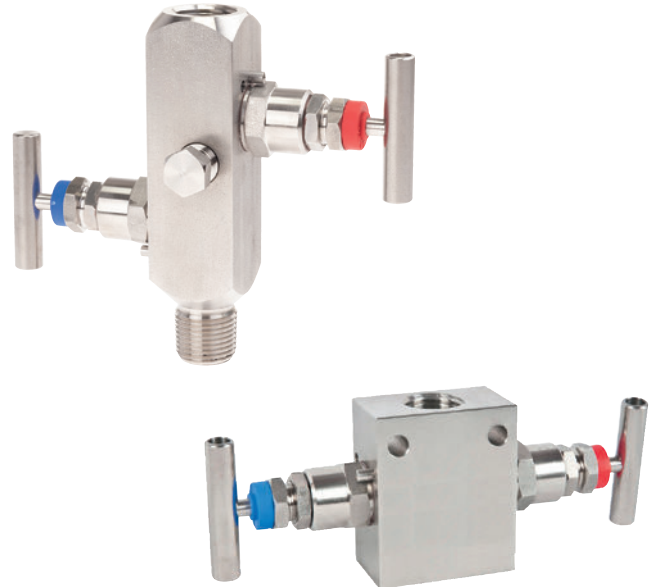


Fig. left: Model IV20, square version

Fig. right: Model IV21, flat version

Through the blow-out proof design of the valve, working safety is improved, especially in applications with high pressure loading.

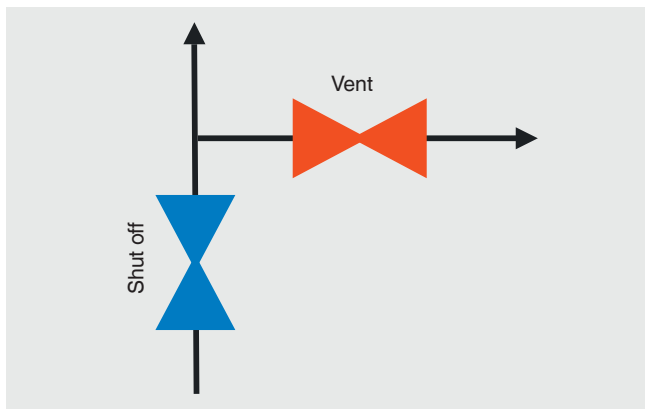
As an option, WIKA offers the professional assembly of valves and pressure measuring instruments and also other accessories into a ready-to-install solution, also known as a hook-up. To ensure the performance of the complete system, an additional leak test is carried out on the hook-up.

Specifications

| Block-and-bleed valve, models IV20 and IV21 | |
|---|---|
| Standards used | |
| Design | <ul style="list-style-type: none"> ■ ASME B16.34, valves - flanged, threaded and welding end ■ ASME B1.20.1, pipe threads, general purpose (inch) ■ ASME B31.3, process piping ■ MSS SP-99, valves for measuring instruments |
| Tests | <ul style="list-style-type: none"> ■ API 598, valve inspection and testing ■ ISO 5208, pressure testing of metallic valves with leakage rate A ■ MSS SP-61, pressure testing of valves |
| Material requirements | <ul style="list-style-type: none"> ■ NACE MR0175 / ISO 15156, use in H₂S-containing environments in oil and gas production ■ Norsok M-630, specification for use in pipelines (Norway) |
| Marking | MSS SP-25, marking on valves |
| Valve position (see dimensions on page 6 ff.) | <ul style="list-style-type: none"> ■ Angled ■ In-line ■ Side-by-side |
| Process connection / instrument connection | <ul style="list-style-type: none"> ■ ½ NPT male / ½ NPT female ■ ½ NPT female / ½ NPT female ■ ¼ NPT male / ¼ NPT female ■ ¼ NPT female / ¼ NPT female ■ G ½ male / G ½ female |
| Vent connection | ¼ NPT female, plug screw is included in delivery, though not pre-fitted |
| Mounting | <ul style="list-style-type: none"> ■ Without mounting holes ■ Suitable for mounting bracket, with mounting holes ¹⁾ |
| Permissible operating pressure | <ul style="list-style-type: none"> ■ ≤ 420 bar or 6,000 psi ■ ≤ 690 bar or 10,000 psi ¹⁾ |
| Bonnet design (see page 4 ff.) | <ul style="list-style-type: none"> ■ Standard version ■ Extended handle version |
| Bonnet options | <ul style="list-style-type: none"> ■ Without ■ Anti-tamper version without padlock, vent ■ Anti-tamper version without padlock, shut off and vent ■ Anti-tamper version with padlock, vent ■ Anti-tamper version with padlock, shut off and vent ■ Small T-bar handle ■ T-bar handle from stainless steel 316L |
| Special design feature | <ul style="list-style-type: none"> ■ Without ■ For oxygen, oil and grease free |

1) Only with material of the sealing packing from PTFE, see page 5

Functional diagram



Material

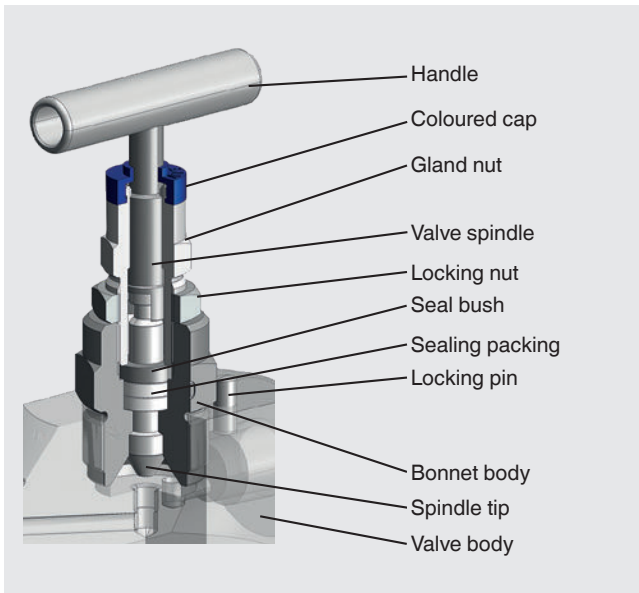
Wetted parts

| | |
|-----------------|---|
| Valve body | <ul style="list-style-type: none"> ■ Stainless steel 316/316L (standard) |
| Bonnet body | <ul style="list-style-type: none"> ■ Monel 400 ■ Hastelloy 276 |
| Spindle tip | <ul style="list-style-type: none"> ■ Others on request |
| Sealing packing | <ul style="list-style-type: none"> ■ PTFE (standard) ■ Graphite ■ RTFE <p>Reinforced PTFE, material for optional certificate "Emission protection in accordance with TA-Luft (VDI 2440) and ISO-15848-1"</p> |

Non-wetted parts

| | |
|---|--|
| Gland nut, valve spindle, seal bush, locking nut, locking pin | Stainless steel 316L |
| Handle | <ul style="list-style-type: none"> ■ Stainless steel (standard) ■ Stainless steel 316/316L |

Bonnet, standard version



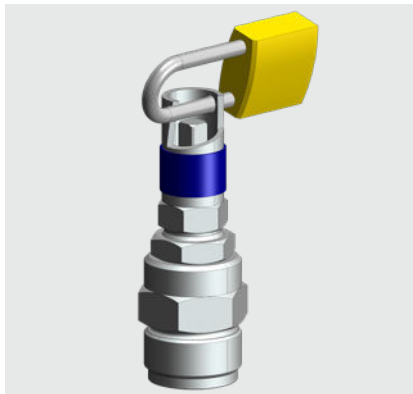
Specifications

| | |
|--------------------------------|---|
| Standards complied with | <ul style="list-style-type: none"> ■ ASME VIII div. 1 and MSS SP-99 ■ TA-Luft (VDI 2440) and ISO-15848-1 (option) |
| Dust cap colour code | Blue: Shut off Red: Vent |
| Spindle tip | Non-rotating, low-wear, blow-out-safe |
| Valve seat | Metal-to-metal, back seat design |
| Valve bore size | 4 mm [0.16 in] |

Anti-tamper version



Anti-tamper version with padlock



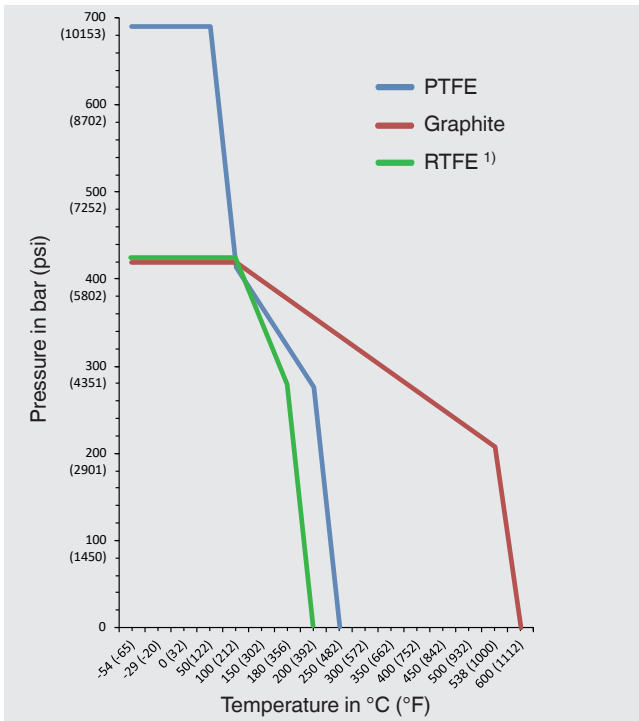
Extended handle version



Accessory: Anti-tamper key



Pressure-temperature diagram



| Material of the sealing packing | Max. permissible operating pressure in bar at temperature in °C | Max. permissible operating pressure in psi at temperature in °F |
|---------------------------------|---|---|
| PTFE | 690 bar at 38 °C | 10,000 psi at 100 °F |
| | 276 bar at 204 °C | 4,000 psi at 400 °F |
| Graphite | 420 bar at 38 °C | 6,000 psi at 100 °F |
| | 209 bar at 538 °C | 3,030 psi at 1.000 °F |
| RTFE 1) | 420 bar at 38 °C | 6,000 psi at 100 °F |
| | 276 bar at 180 °C | 4,000 psi at 356 °F |

1) Reinforced PTFE, material for optional certificate „Emission protection in accordance with TA-Luft (VDI 2440) and ISO-15848-1

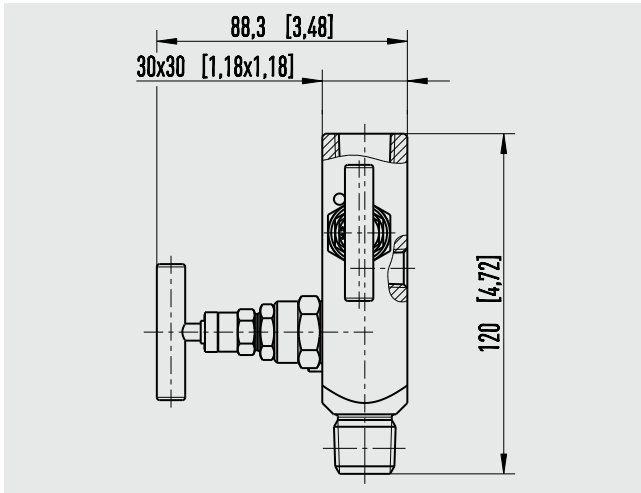
The minimum design temperature is -54 °C [-65 °F].

For continuously low operating temperatures ≤ -54 °C [≤ -65 °F] a special design is needed.

Dimensions in mm [in]

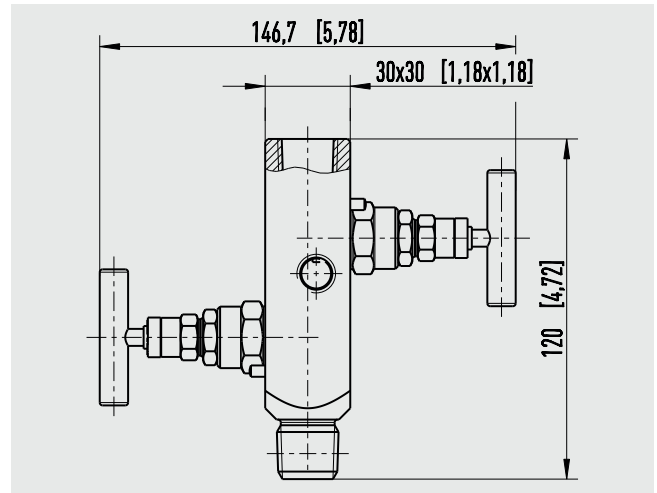
Model IV20, square version

Valve position: Angled



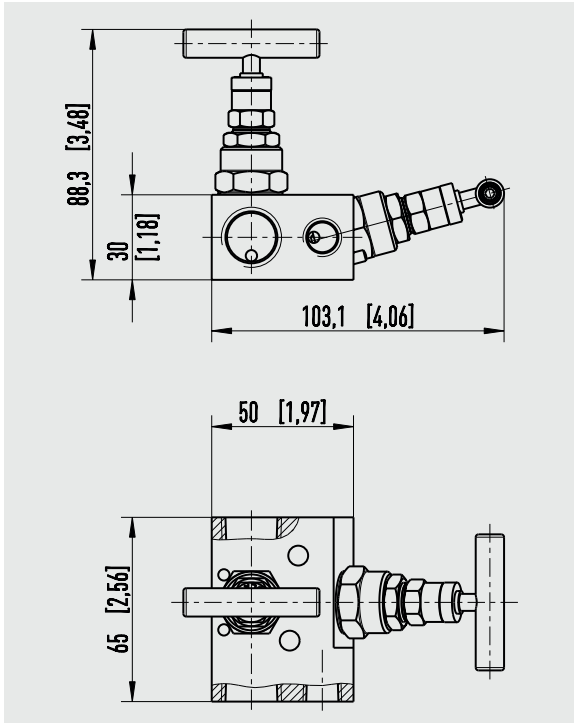
Plug screw for venting connection is included in delivery, though not pre-fitted.

Valve position: In-line



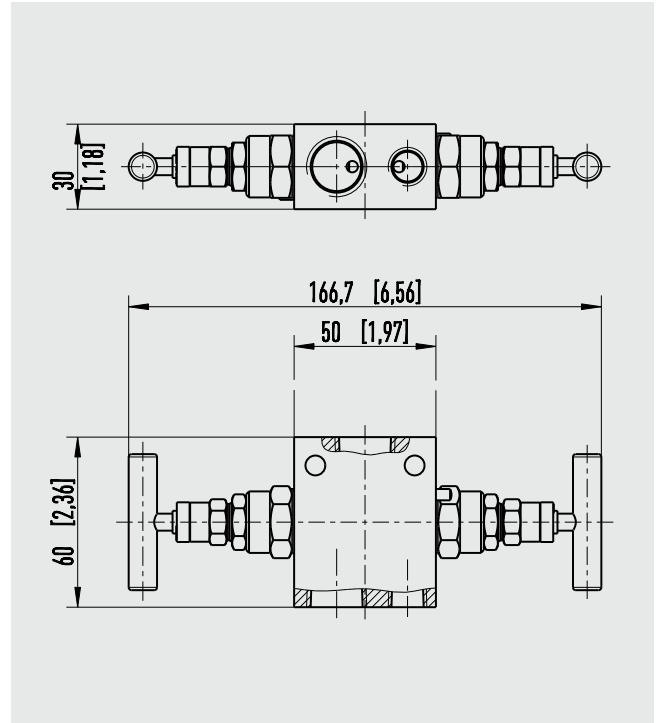
Model IV21, flat version

Valve position: Angled

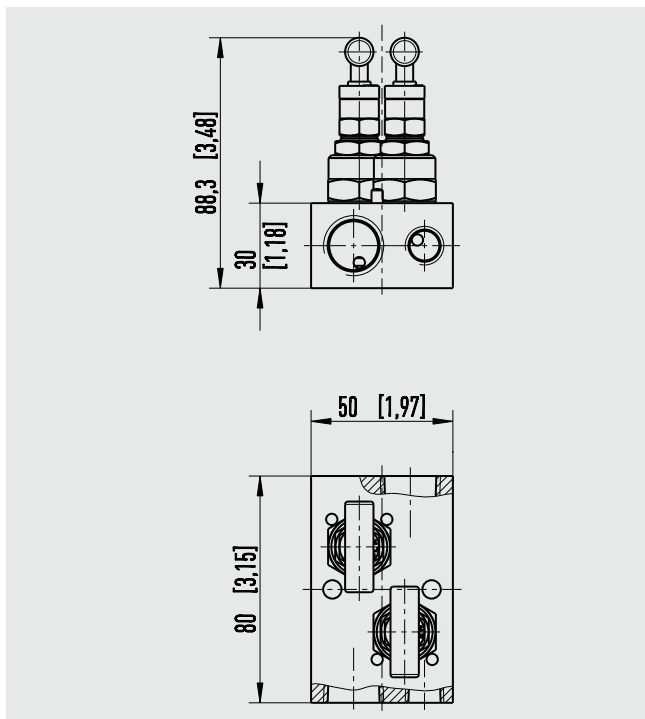


Plug screw for vent connection is included in delivery, though not pre-fitted.

Valve position: In-line



Valve position: Side-by-side



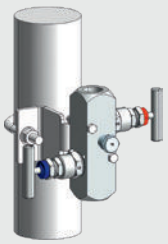
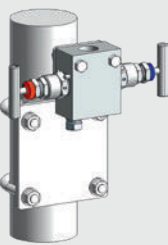
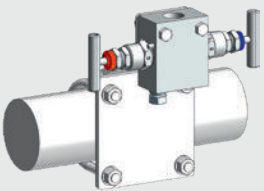
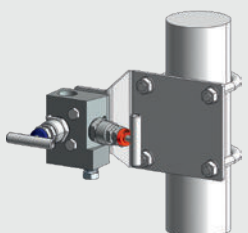
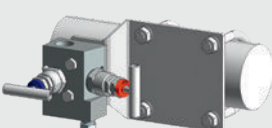
Plug screw for vent connection is included in delivery, though not pre-fitted.

Accessories


Only for versions with mounting option "R": Suitable for mounting bracket, with mounting holes

Scope of delivery: 1 mounting bracket, 1 or 2 U-bolts, 2 screws for valve mounting

Material: Stainless steel

| Mounting bracket with mounting material | | | |
|---|---|---------------------------|--------------|
| For model | | Alignment of the pipeline | Order number |
| IV20 |  | Vertical | 14252307 |
| IV21, valve position: In-line |  | Vertical | 14147672 |
| |  | Horizontal | |
| IV21, valve position: Angled |  | Vertical | 14252309 |
| |  | Horizontal | |

Approvals

| Logo | Description | Country |
|---|--------------|-----------------------------|
|  | EAC (option) | Eurasian Economic Community |
| - | CRN | Canada |

Manufacturer's information and certificates

| Logo | Description |
|------|--|
| - | PMI ¹⁾ test certificate (option) Valve body |
| - | Certificate for oxygen versions (option) - Oil and grease free for oxygen per ASTM G93 level C - Sealing packing and lubricants in accordance with BAM requirements - Limits of the permissible operating ranges for pressure and temperature: 420 bar at 60 °C or 6,000 psi at 140 °F 90 bar at 200 °C or 1,305 psi at 392 °F |
| - | Emission protection in accordance with TA-Luft (VDI 2440) and ISO-15848-1 (option) - Tightness class: AH - Endurance class: C01 - Temperature class: -29 ... +180 °C [-20 ... +356 °F] |

1) Positive material identification

Certificates

- 3.1 inspection certificate per EN 10204
 - Material certificate for the valve body per NACE (MR0103/MR0175)
 - Confirmation of pressure tests per API 598 ²⁾
- 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 ²⁾

2) Shell test: 15 s test duration with 1.5 times the permissible working pressure
Seat test: 15 s test duration with 1.1 times the permissible working pressure

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