

ACVATIX™

2-port shutoff valves and 3-port changeover ball valves, PN 40, with internally threaded connection

VAI60.., VBI60..L, VBI60..T



VAI60..



VBI60..L



VBI60..T

For use in heating, ventilation, and air conditioning plants as shutoff or changeover ball valve. In closed circuits.

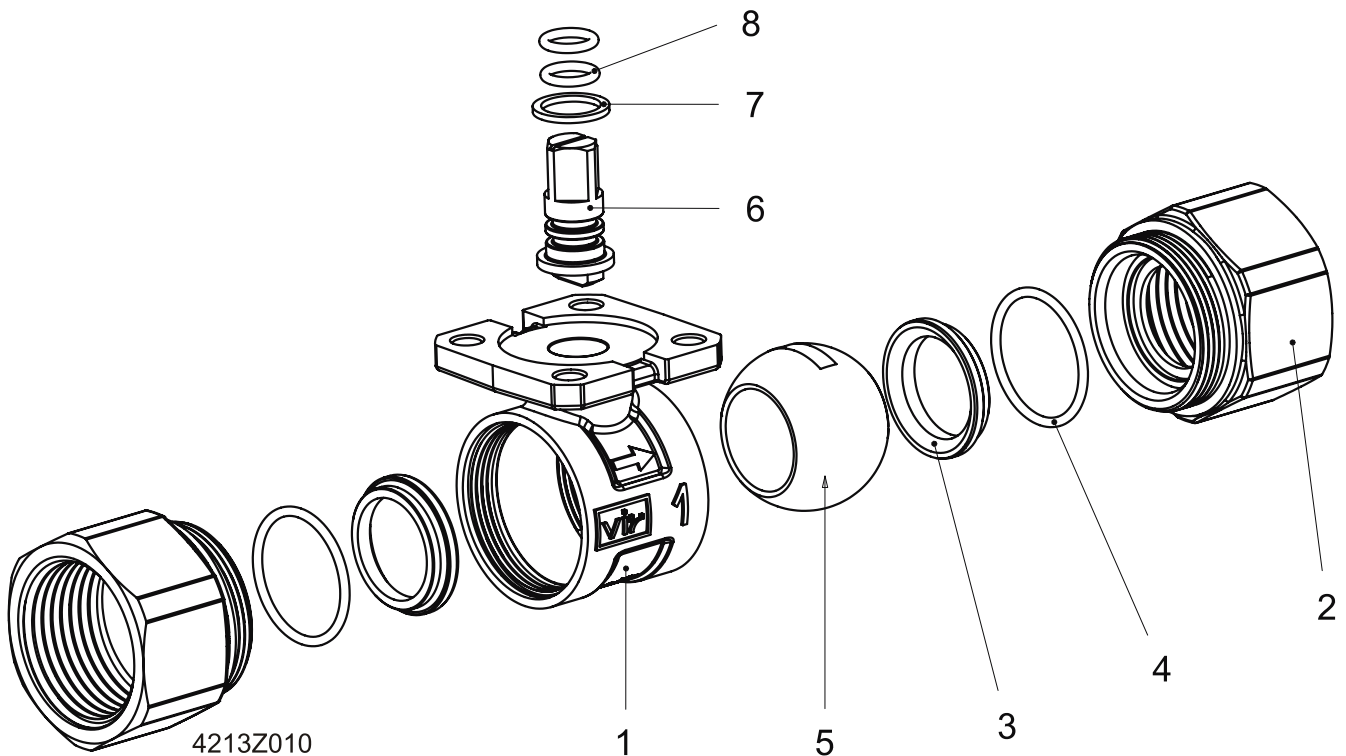
- Ball valve body made of brass, UNS C35330 (DZR)
- DN 15...50
- k_{vs} 5...96 m³/h
- Connections with internal threading Rp per ISO 7-1
- Rotational angle 90°
- Can be used with electromotorized rotary actuators GQD..9A, GMA..9E with spring return and GSD..9A, GLB..9E without spring return

Features

- **Moderately price:**
Optimized flow rates mean smaller ball valves can be selected. Low torque means you can combine them with small, less expensive rotary actuators.
- **Long life expectancy:**
Maintenance-free construction, also thanks to low friction stem and polished ball made of chrome-plated DZR brass.
- **Simple mounting:**
The brackets, premounted on the actuators, means you can mount them on the ball valves without tools.

Technical design

Design



1 Housing

3 Seat

5 Marble

7 Slide clutch

2 Internally threaded connection

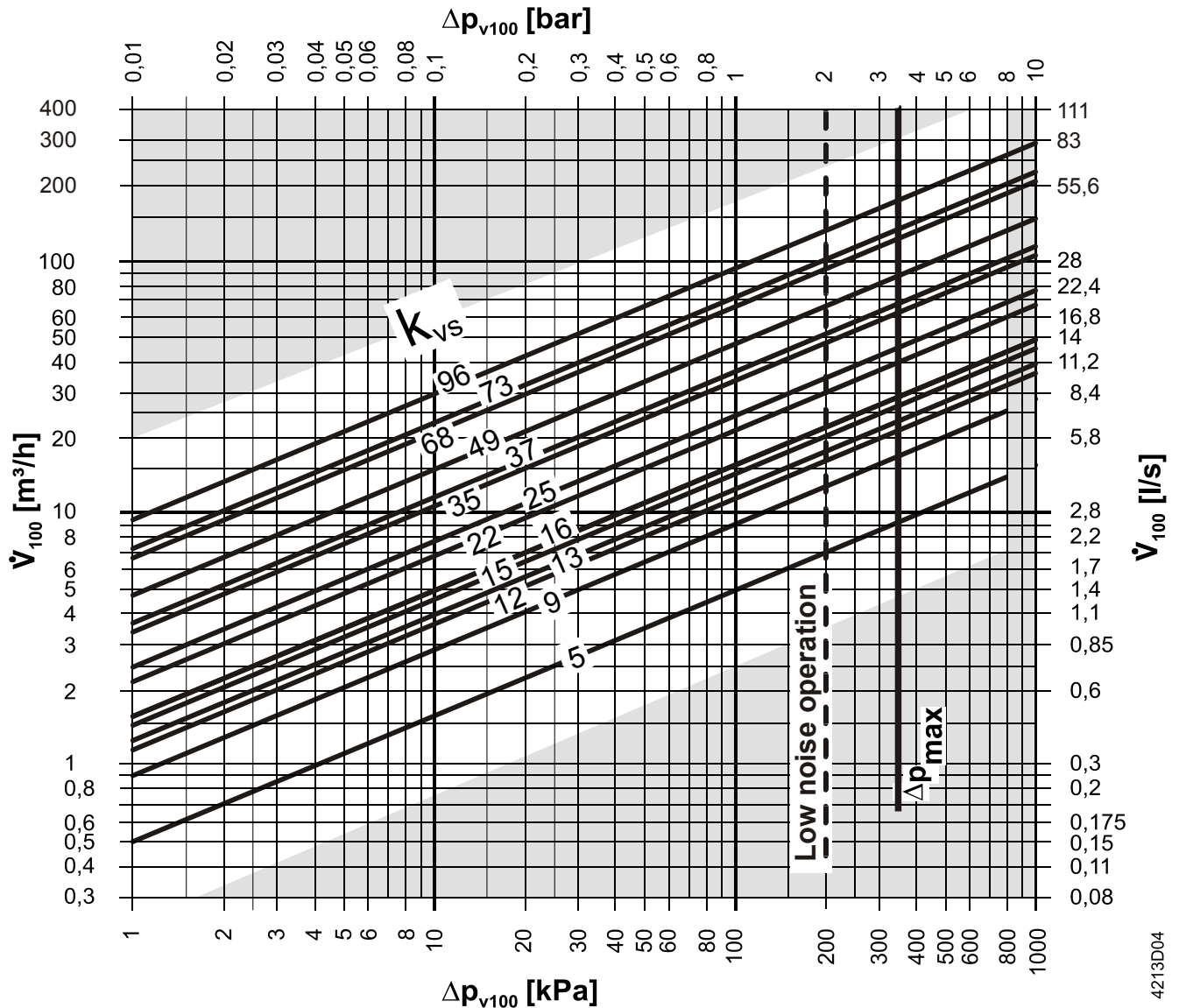
4 O-ring seal

6 Stem, squared

8 O-ring seal

Sizing

Flow diagram:



--- Δp_{max} for VAI60.. and VBI60..., for details, see table on equipment combinations

Δp_{max} = Maximum permissible differential pressure over the ball valve, valid for the entire positioning range of the ball valve rotary actuator unit; if low noise operation is desired, we recommend a maximum permissible differential pressure of 200 kPa

Δp_{v100} = Differential pressure over the fully opened ball valve and over the control path at a volume flow \dot{V}_{100}

\dot{V}_{100} = Volume flow through the fully opened ball valve

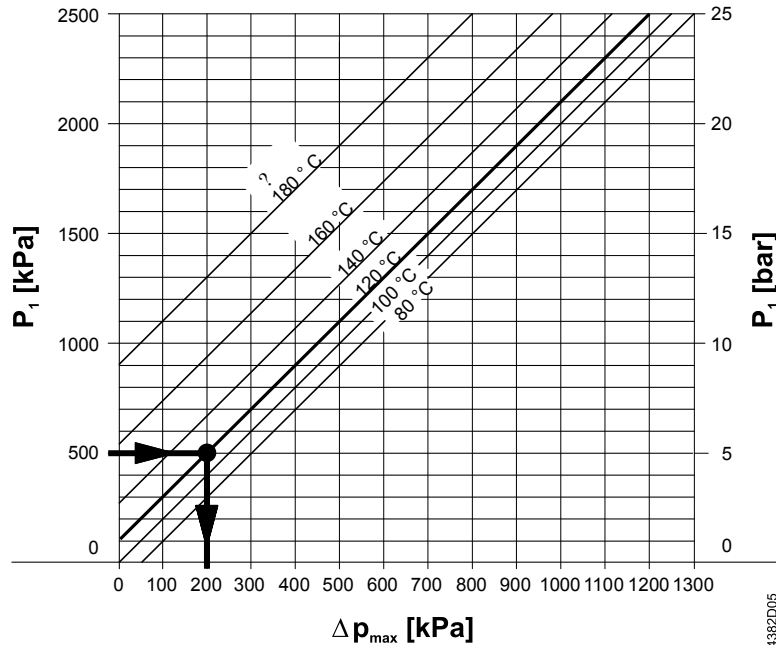
100 kPa = 1 bar \approx 10 mWS

1 m^3/h = 0.278 l/s water at 20 °C

4213D04

Cavitation

Cavitation increases wear and tear of the ball and seat and results in unwanted noise. Cavitation can be prevented by not exceeding the differential pressures as per the flow diagram and maintaining the static pressures depicted below.



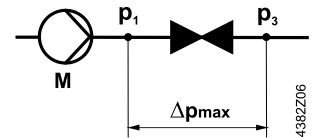
Δp_{\max} = Differential pressure at a nearly closed ball valve to largely avoid cavitation

p_1 = Static pressure at the ball valve inlet

P_3 = Static pressure at the ball valve outlet

M Pump

J Water temperature



Example with hot water:

Pressure p_1 at ball valve inlet: 500 kPa (5 bar)

Water temperature: 120 °C

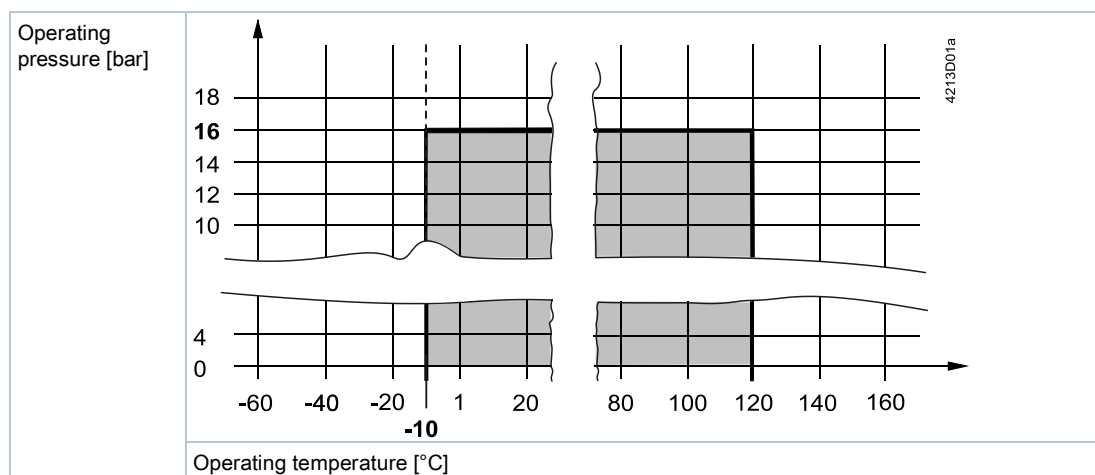
The above diagram clearly indicates that the maximum permissible differential pressure is $\Delta p_{\max} \rightarrow 200$ kPa (2 bar) at a nearly closed ball valve.

Note on chilled water applications

To prevent cavitation in chilled water circuits, sufficient counter pressure must be supplied to the ball valve outlet, e.g. using an additional butterfly valve downstream of the ball valve. Maximum permissible differential pressure over the ball valve: See 80 °C curve in the above diagram.

Operating pressure and operating temperature

Liquids:



Operating pressure and medium temperature per ISO 7005
(Observe all local and applicable laws).

Type summary

| Type | | | DN | k _{vs} [m³/h] |
|---------------------------|-----------------------------|-----------------------------|----|---------------------------|
| Shutoff ball valve 2-port | 3-port changeover valve (L) | 3-port changeover valve (T) | | |
| – | VBI60.15-5L | – | 15 | 5 |
| – | – | VBI60.15-12T | | 12 ¹⁾ |
| VAI60.15-15 | – | – | | 15 |
| – | VBI60.20-9L | – | 20 | 9 |
| – | – | VBI60.20-16T | | 16 ¹⁾ |
| VAI60.20-22 | – | – | | 22 |
| – | VBI60.25-9L | – | 25 | 9 |
| – | – | VBI60.25-16T | | 16 ¹⁾ |
| VAI60.25-22 | – | – | | 22 |
| – | VBI60.32-13L | – | 32 | 13 |
| – | – | VBI60.32-25T | | 25 ¹⁾ |
| VAI60.32-35 | – | – | | 35 |
| – | VBI60.40-25L | – | 40 | 25 |
| – | – | VBI60.40-49T | | 49 ¹⁾ |
| VAI60.40-68 | – | – | | 68 |
| – | VBI60.50-37L | – | 50 | 37 |
| – | – | VBI60.50-73T | | 73 ¹⁾ |
| VAI60.50-96 | – | – | | 96 |

¹⁾ k_{vs} Bypass B > 50 % of k_{vs} A – AB

DN = Nominal size

k_{vs} = Flow nominal value for chilled water (5...30 °C) through a fully opened ball valve at a differential pressure of 100 kPa (1 bar)



Insulation shells

Insulation shells are available for heating/cooling insulation as a separate accessory:

| Type | Material | Density | Thermal conductivity at tm 40 °C | Operating temperature |
|-------------|-------------------|----------------------|----------------------------------|-----------------------|
| ALI..V..G.. | Polyethylene foam | 29 kg/m ³ | 0.0372 W/mK | -10 °C...100 °C |

| For 2-port shutoff ball valves | | For 3-port changeover valves | |
|--------------------------------|------------------|------------------------------|------------------|
| Ball valve | Insulation shell | Ball valve | Insulation shell |
| VAI60.15.. | ALI15VAI60/61 | VBI60.15.. | ALI15VBI60/61 |
| VAI60.20.. | ALI20VAI60/61 | VBI60.20.. | ALI20VBI60 |
| VAI60.25.. | ALI25VAI60/61 | VBI60.25.. | ALI25VBI60/61 |
| VAI60.32.. | ALI32VAI60/61 | VBI60.32.. | ALI32VBI60/61 |
| VAI60.40.. | ALI40VAI60/61 | VBI60.40.. | ALI40VBI60/61 |
| VAI60.50.. | ALI50VAI60/61 | VBI60.50.. | ALI50VBI60/61 |

Insulation shells for shutoff and changeover ball valves

| | |
|--|---|
|  |  |
| ALI..VAI.. | ALI..VBI.. |
| For dimensions, see Section Dimensions [→ 13] | |

Filter

Installed upstream of the ball valve:

| Type | Stock number | Description | DN | Mesh width [mm] |
|-------|--------------|--------------------------------|----|-----------------|
| ALX15 | S55845-Z174 | Filter with internal threading | 15 | 0.5 |
| ALX20 | S55845-Z175 | Filter with internal threading | 20 | 0.8 |
| ALX25 | S55845-Z176 | Filter with internal threading | 25 | 0.8 |
| ALX32 | S55845-Z177 | Filter with internal threading | 32 | 0.8 |
| ALX40 | S55845-Z178 | Filter with internal threading | 40 | 0.8 |
| ALX50 | S55845-Z179 | Filter with internal threading | 50 | 0.8 |

Equipment combinations

| Type | Rotary actuators | | | | | | | |
|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|-------------------|--------------|
| | GSD..9A | | GQD..9A | | GMA..9E | | GLB..9E | |
| | Δp_{\max} | Δp_s | Δp_{\max} | Δp_s | Δp_{\max} | Δp_s | Δp_{\max} | Δp_s |
| Ball valve | [kPa] | | | | | | | |
| VAI60.15-15 | 350 | 1400 | 350 | 1400 | 350 | 1400 | 350 | 1400 |
| VAI60.20-22 | | | | | | | | |
| VAI60.25-22 | | | | | | | | |
| VAI60.32-35 | - | - | - | - | | 1000 | | 1000 |
| VAI60.40-68 | - | - | - | - | | 800 | | 800 |
| VAI60.50-96 | - | - | - | - | | 600 | | 600 |
| VBI60.15-5L | 350 | - | 350 | - | 350 | - | 350 | - |
| VBI60.20-9L | | - | | - | | - | | - |
| VBI60.25-9L | | - | | - | | - | | - |
| VBI60.32-13L | - | - | - | - | | - | | - |
| VBI60.40-25L | - | - | - | - | | - | | - |
| VBI60.50-37L | - | - | - | - | | - | | - |
| VBI60.15-12T | 350 | - | 350 | - | 350 | - | 350 | - |
| VBI60.20-16T | | - | | - | | - | | - |
| VBI60.25-16T | | - | | - | | - | | - |
| VBI60.32-25T | - | - | - | - | | - | | - |
| VBI60.40-49T | - | - | - | - | | - | | - |
| VBI60.50-73T | - | - | - | - | | - | | - |

Δp_{\max} = Maximum permissible differential pressure over the valve ball control path, valid for the entire positioning range of the ball valve rotary actuator unit; if low noise operation is desired, we recommend a differential pressure of 200 kPa

Δp_s = Maximum permissible differential pressure (closing pressure) at which the ball valve rotary actuator unit securely closes against the pressure

Overview of rotary actuators for ball valves

| Type ¹⁾ | Operating voltage | Positioning | | Spring return | | Data sheet |
|-------------------------|-------------------|--------------------------|-----------------------|---------------|------|--------------|
| | | Signal | Time | Function | Time | |
| GSD141.9A | AC/DC 24 V | Open-close ²⁾ | 30 s | - | - | N4655 |
| GSD341.9A | AC 230 V | | | | | |
| GQD121.9A | AC/DC 24 V | 2-position | 30/15 s ³⁾ | Yes | 15 s | N4659 |
| GQD321.9A | AC 230 V | | | | | |
| GMA121.9E | AC/DC 24 V | 2-position | 90/15 s ³⁾ | Yes | 15 s | N4658 |
| GMA321.9E | AC 230 V | | | | | |
| GLB131.9E ⁴⁾ | AC 24 V | (2) 3-position | 150 s | - | - | N4657 |
| GLB331.9E ⁴⁾ | AC 230 V | | | | | |
| GLB141.9E | AC/DC 24 V | 2 or 3 point | 150 s | - | - | A6V10636203 |
| GLB341.9E | AC 100-240 V | | | | | |
| GDB111.9E/KN | AC 24 V | KNX-TP | 150/120 s | - | - | A6V107255318 |
| GLB111.9E/MO | AC 24 V | Modbus RTU | 150/120 s | - | - | A6V10938035 |

¹⁾ Actuator type: Electromotive

²⁾ 2-wire SPDT (single pole double throw)

³⁾ Open/close

⁴⁾ While stock lasts

Ordering

Please indicate material, article type, order text, and quantity; example:

| Material | Article type | Order text | Quantity |
|-------------|--------------|---|----------|
| VAI60.25-22 | VAI60.25-22 | Open/close ball valve internally threaded, 2-port | 2 |
| GLB131.9E | GLB131.9E | Actuator for ball valve, NSR | 2 |

Delivery

Ball valves, rotary actuators, and mounting kits are not assembled and are delivered in individual packaging.

Applications with auxiliary functions

A standard actuator with corresponding functionality can be used if a ball valve application requires a rotary actuator with auxiliary functions (e.g. auxiliary switch or potentiometer). In this case, mounting kit ASK77.x is required in **addition** to the rotary actuator.

Follow the mounting instructions when mounting.

| Rotary actuator | Options | Order text: Mounting kit |
|--|---------------------------------|--|
| GMA..1E (with spring return) | Potentiometer, auxiliary switch | ASK77.2 Accessory Kit BV for GMAxx1.9E |
| GLB..1E (without spring return) | Potentiometer, auxiliary switch | ASK77.3 Accessory Kit BV for GLBxx1.9E |
| GQD..1A (with spring return) | Auxiliary switch | ASK77.5 Accessory Kit BV for GQDxx1.9A |
| GSD..1A ¹⁾ (without spring return) | Auxiliary switch | ASK77.5 Accessory Kit BV for GSDxx1.9A |

Note

¹⁾ GSDx4x.1A are not compatible with ball valves.

Product documentation

Related documents such as environmental declarations, CE declarations, etc., can be downloaded at the following Internet address:

<http://siemens.com/bt/download>

Safety

| | |
|--|---|
| | ⚠ DANGER |
| | <p>There is a risk to operating personnel and device when working on the unit</p> <p>Failure to comply with these safety notes can result in personal injury and damage to property from pipe pressure, electrical voltage, or device in operation.</p> <p>▷ Note the following when servicing a ball valve/rotary actuator:</p> <ul style="list-style-type: none"> • Switch off both pump and operating voltage. • Close shutoff valves. • Release pressure in the pipes and allow them to cool down completely. • Disconnect electrical connections from the terminals as needed. • The rotary actuator must be properly installed prior to recommissioning the ball valve. |

| | |
|--|--|
| | ⚠ CAUTION |
| | <p>National safety regulations</p> <p>Failure to comply with national safety regulations may result in personal injury and property damage.</p> <ul style="list-style-type: none"> • Observe national provisions and comply with the appropriate safety regulations. |

Engineering

We recommend installing the ball valve with spring return since temperatures are lower on heating plants which increases the lifespan of the sealing gland on the stem.

Ensure there is no cavitation (see Section Technical design [→ 2]).

A filter must be installed upstream of the ball valve to increase functional safety.

Permissible media

Using the ball valve together with potassium formate-based media can result in leakage over the stem to the outside. The reason is the high level of penetration at low surface tension of media based on potassium formate.

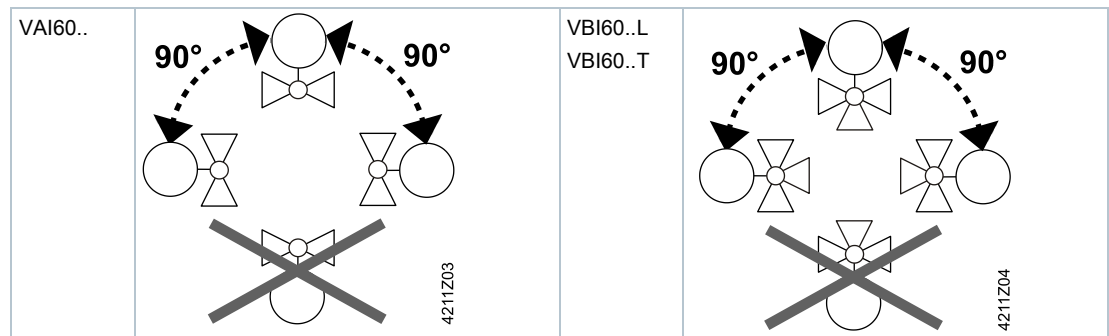
Siemens rejects any and all liability for damages or consequential damages resulting from the use of this media together with our ball valves.

Mounting

It is easy to assemble the ball valve and rotary actuator; it can be done at the construction site. No special tools or settings required.

Ball valve VAI60.. / VBI60.. is supplied together with mounting instructions M4213 (74°319°0883°0).

Mounting position





Pipe connection

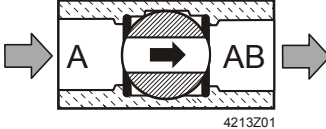


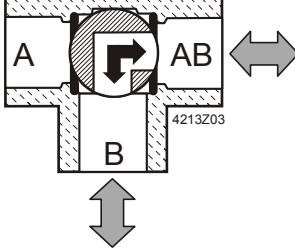
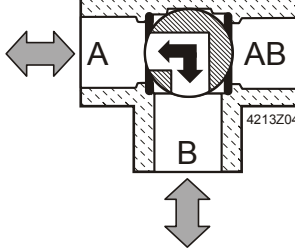
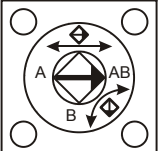
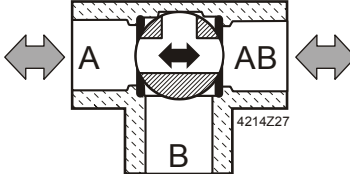
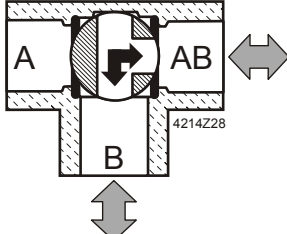
Avoid leakage:

- Install fittings as per ISO 7-1. Ball valves (internal threading) = "Rp"; Piping (external threading) = "R".
- Do not use too much hemp or PTFE tape.
- Do not tighten pipe threading to the very end.
- Place the pliers/wrench on the ball valve union nut that is closer to the pipe to be tightened or loosened.

Flow direction

Make sure that the valve is mounted in the proper flow direction. A symbol is applied to the ball valve body:

| | | | |
|---------|---|---------|---|
| VAI60.. |  | VBI60.. |  |
|---------|---|---------|---|

| Ball valve | Laser marking | Position as delivered | 90 ° turned (clockwise) |
|--|--|---|--|
| VAI60.. 2-port shutoff ball valve | - |  $A - AB = 100 \%$ |  $A - AB = 0 \%$ |
| VBI60..L 3-port changeover ball valve with L shaped |  |  $B - AB (AB - B) = 100 \%$ |  $A - B (B - A) = 100 \%$ |
| VBI60..T 3-port changeover ball valve with T shaped |  |  $A - AB = 100 \%$ $B - AB = 0 \%$ |  $A - AB = 0 \%$ $B - AB = 100 \%$ |

Maintenance

Ball valves VAI60.. and VBI60.. are maintenance free.

Disposal

Do not dispose of the device as part of domestic waste.

- Special handling of individual components may be required by law or make ecological sense.
- Adhere to all local and currently applicable laws and regulations.

Warranty

Technical data on specific applications are valid only together with Siemens products listed under "Equipment combinations". Siemens rejects any and all warranties in the event that third-party products are used.

| Functional data | | | |
|--|---|--|--|
| | VAI60.. | VBI60..L | VBI60..T |
| PN class | PN 40 per ISO 7268 | | |
| Operating pressure | Per ISO 7005 within the permissible media temperature as per Section Technical design [→ 2] | | |
| Leakage through-port | Water proof per EN 60534-4 L/1, improved class 5 | - | Water proof per EN 60534-4 L/1, improved class 4 |
| Leakage A (Flow B-AB) Leakage AB (Flow A-B) | - | Water proof per EN 60534-4 L/1, improved class 4 | - |
| Leakage bypass | - | - | < 1 % |
| Permissible media | Chilled water, low temperature hot water, hot water, water with antifreeze. Recommendation: Water treatment per VDI 2035 Note: Page 9 | | |
| Medium temperature | -10...120 °C | | |
| Rangeability Sv | > 500 | | |
| Rotational angle | 90 ° | | |

| Materials | |
|-----------------|---|
| Ball valve body | Dezincification-resistant hot-pressed brass (DZR ¹⁾), CW602N |
| Marble | Dezincification-resistant hot-pressed brass (DZR ¹⁾), CW602N, chrome plated |
| Stem | Dezincification-resistant hot-pressed brass (DZR ¹⁾), CW602N |
| Sealing gland | EPDM-O rings |

| Dimensions / Weight | |
|--------------------------------|----------------|
| See Dimensions [→ 13] | |
| Internally threaded connection | Rp per ISO 7-1 |

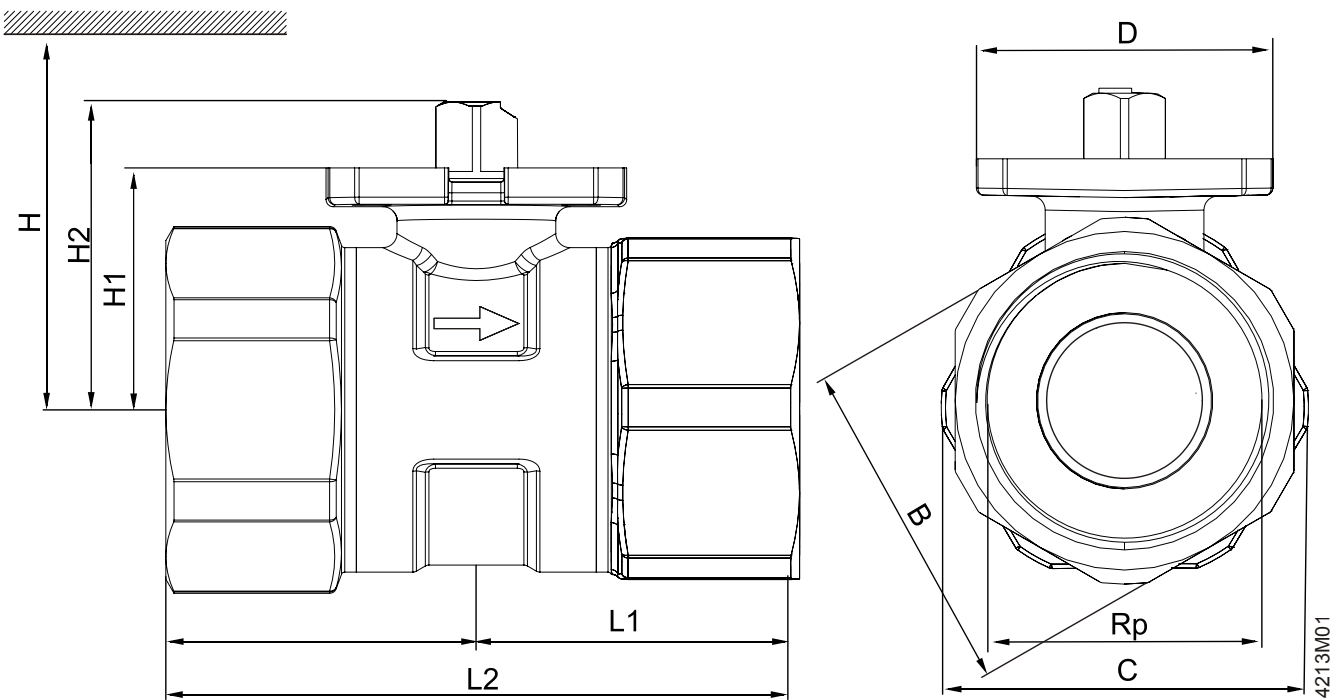
| Standards, directives and approvals | |
|-------------------------------------|--|
| Pressure Equipment Directive | DGR 2014/68/EU |
| Pressure accessories | Range: Article 1, para. 1 Definition: Article 2, para. 5 |
| Fluid group 2 | Without CE certification as per article 3, para. 3 (generally applicable engineering practice) ²⁾ |
| EAC compliance | Eurasian compliance |
| Environmental compatibility | Environmental Declaration E1E4213en ³⁾ contains data on environmental-compatible product design and assessment (RoHS compliance, compositions, packaging, environmental benefits and disposal). |

¹⁾ Dezincification resistant

²⁾ Fittings for a product where PS x DN < 1000, do not require special testing and cannot have CE labeling

³⁾ See Section Product documentation [→ 8]

Dimensions



DN = Nominal size

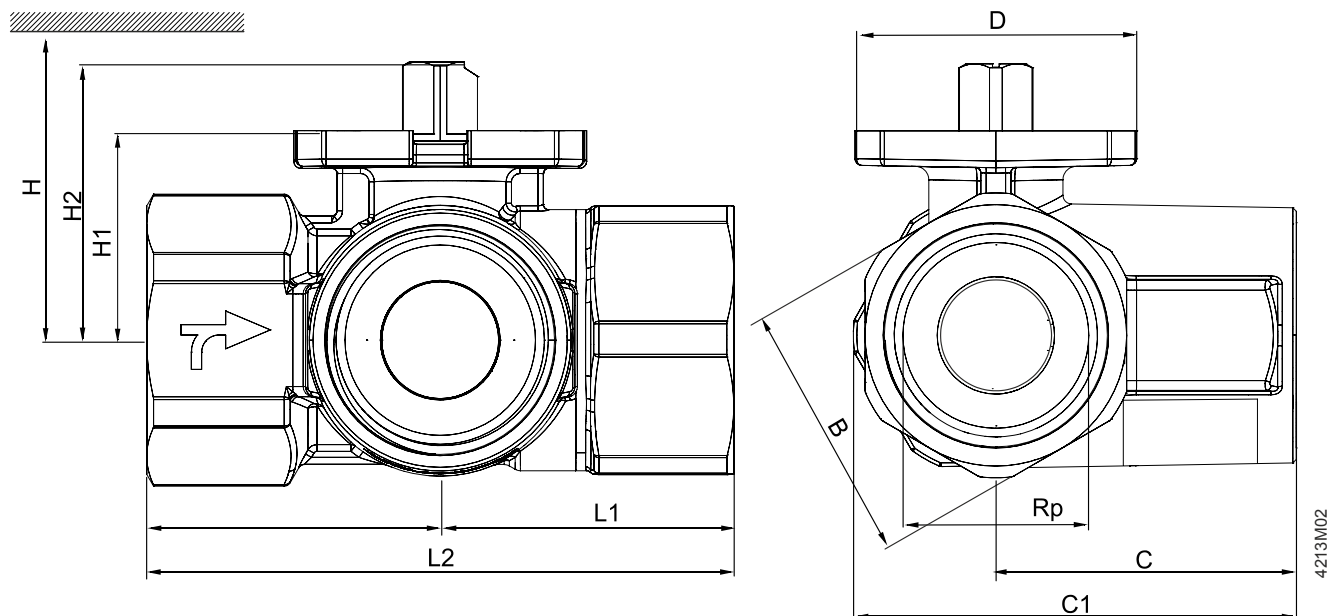
H = Total height of actuator plus minimum mounting distance to wall or ceiling, for mounting, connection, operation, maintenance, etc.

H1 = Dimension from the pipe to the center to install actuator (upper edge)

| Type | DN | B | C | D | Rp | L1 | L2 | H1 | H2 |
|-------------|----|------|------------------|----|--------|------|-------|------|------|
| | | [mm] | | | [inch] | [mm] | | | |
| VAI60.15-15 | 15 | 26 | 31 ¹⁾ | 42 | Rp ½ | 30.8 | 61.6 | 27.6 | 37.6 |
| VAI60.20-22 | 20 | 31 | 38 | 42 | Rp ¾ | 33.5 | 67 | 30.5 | 40.5 |
| VAI60.25-22 | 25 | 39 | 42.5 | 42 | Rp 1 | 38.4 | 76.8 | 30.5 | 40.5 |
| VAI60.32-35 | 32 | 48 | 52 | 42 | Rp 1¼ | 44 | 88 | 34.3 | 44.3 |
| VAI60.40-68 | 40 | 55 | 61 | 42 | Rp 1½ | 50.9 | 101.8 | 39.8 | 49.8 |
| VAI60.50-96 | 50 | 67 | 74 | 42 | Rp 2 | 58.1 | 116.2 | 52.8 | 62.8 |

¹⁾ Ball valve body extends above threaded connection

| Type | H | | | | Weight |
|-------------|---------|---------|---------|---------|--------|
| | GSD..9A | GQD..9A | GMA..9E | GLB..9E | |
| | [mm] | | | | [kg] |
| VAI60.15-15 | > 300 | > 300 | > 300 | > 300 | 0.28 |
| VAI60.20-22 | | | | | 0.36 |
| VAI60.25-22 | > 320 | > 320 | > 320 | > 320 | 0.46 |
| VAI60.32-35 | | | | | 0.7 |
| VAI60.40-68 | - | - | > 335 | > 335 | 1.1 |
| VAI60.50-96 | - | - | | | 1.74 |



DN = Nominal size

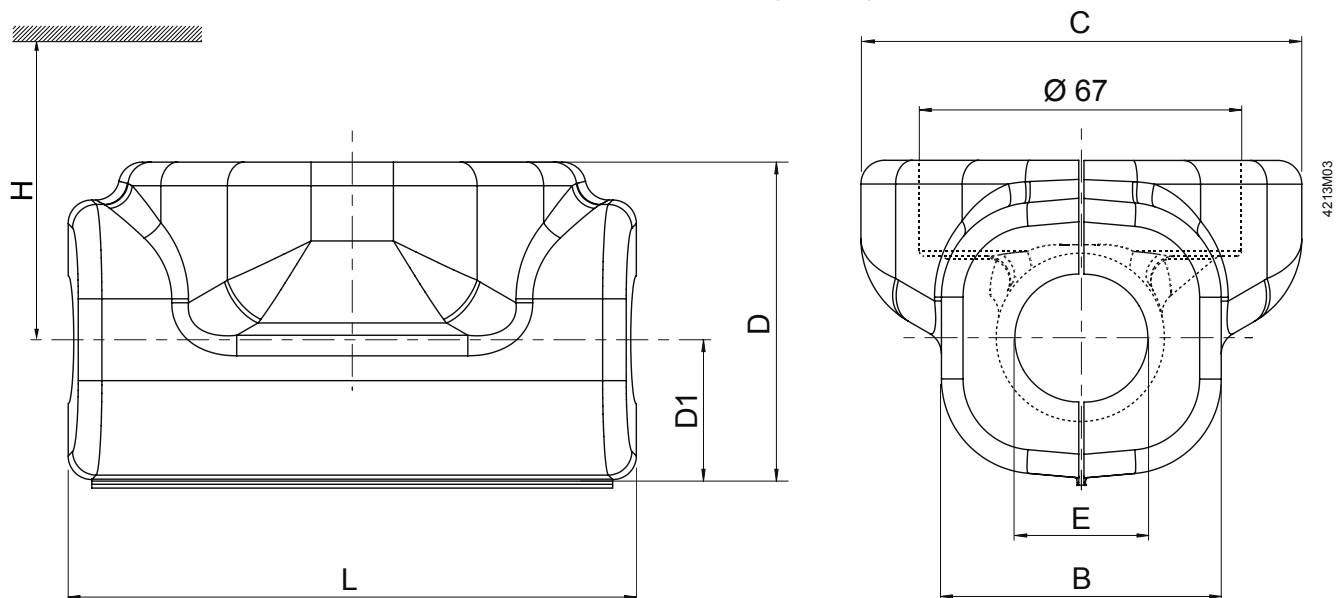
H = Total height of actuator plus minimum mounting distance to wall or ceiling, for mounting, connection, operation, maintenance, etc.

H1 = Dimension from the pipe to the center to install actuator (upper edge)

| Type | DN | B | C | C1 | D | Rp | L1 | L2 | H1 | H2 |
|--------------|----|------|------|-------|----|--------|------|-------|------|------|
| | | [mm] | | | | [inch] | [mm] | | | |
| VBI60.15-5L | 15 | 26 | 34 | 49.5 | 42 | Rp ½ | 33.3 | 66.6 | 27.6 | 37.6 |
| VBI60.20-9L | 20 | 39 | 39.8 | 61.05 | 42 | Rp ¾ | 40.2 | 80.4 | 30.5 | 40.5 |
| VBI60.25-9L | 25 | 39 | 44.8 | 66.5 | 42 | Rp 1 | 42.7 | 85.4 | 30.5 | 40.5 |
| VBI60.32-13L | 32 | 48 | 52.6 | 78.6 | 42 | Rp 1¼ | 49.6 | 99.2 | 34.3 | 44.3 |
| VBI60.40-25L | 40 | 55 | 57.1 | 87.6 | 42 | Rp 1½ | 54.8 | 109.6 | 39.8 | 49.8 |
| VBI60.50-37L | 50 | 67 | 68.9 | 105.9 | 42 | Rp 2 | 65.7 | 131.4 | 52.8 | 62.8 |
| VBI60.15-12T | 15 | 26 | 34 | 49.5 | 42 | Rp ½ | 33.3 | 66.6 | 27.6 | 37.6 |
| VBI60.20-16T | 20 | 39 | 39.8 | 61.05 | 42 | Rp ¾ | 40.2 | 80.4 | 30.5 | 40.5 |
| VBI60.25-16T | 25 | 39 | 44.8 | 66.5 | 42 | Rp 1 | 42.7 | 85.4 | 30.5 | 40.5 |
| VBI60.32-25T | 32 | 48 | 52.6 | 78.6 | 42 | Rp 1¼ | 49.6 | 99.2 | 34.3 | 44.3 |
| VBI60.40-49T | 40 | 55 | 57.1 | 87.6 | 42 | Rp 1½ | 54.8 | 109.6 | 39.8 | 49.8 |
| VBI60.50-73T | 50 | 67 | 68.9 | 105.9 | 42 | Rp 2 | 65.7 | 131.4 | 52.8 | 62.8 |

| Type | H | | | | Weight |
|--------------|---------|---------|---------|---------|--------|
| | GSD..9A | GQD..9A | GMA..9E | GLB..9E | |
| | [mm] | | | | [kg] |
| VBI60.15-5L | > 300 | > 300 | > 300 | > 300 | 0.32 |
| VBI60.20-9L | | | | | 0.73 |
| VBI60.25-9L | > 320 | > 320 | > 320 | > 320 | 0.62 |
| VBI60.32-13L | - | - | | | 0.97 |
| VBI60.40-25L | - | - | | | 1.43 |
| VBI60.50-37L | - | - | > 335 | > 335 | 2.36 |
| VBI60.15-12T | > 300 | > 300 | > 300 | > 300 | 0.31 |
| VBI60.20-16T | | | | | 0.74 |
| VBI60.25-16T | > 320 | > 320 | > 320 | > 320 | 0.63 |
| VBI60.32-25T | - | - | | | 0.69 |
| VBI60.40-49T | - | - | | | 1.38 |
| VBI60.50-73T | - | - | > 335 | > 335 | 2.26 |

Insulation shells for 2-port shutoff ball valves (VAI60..)



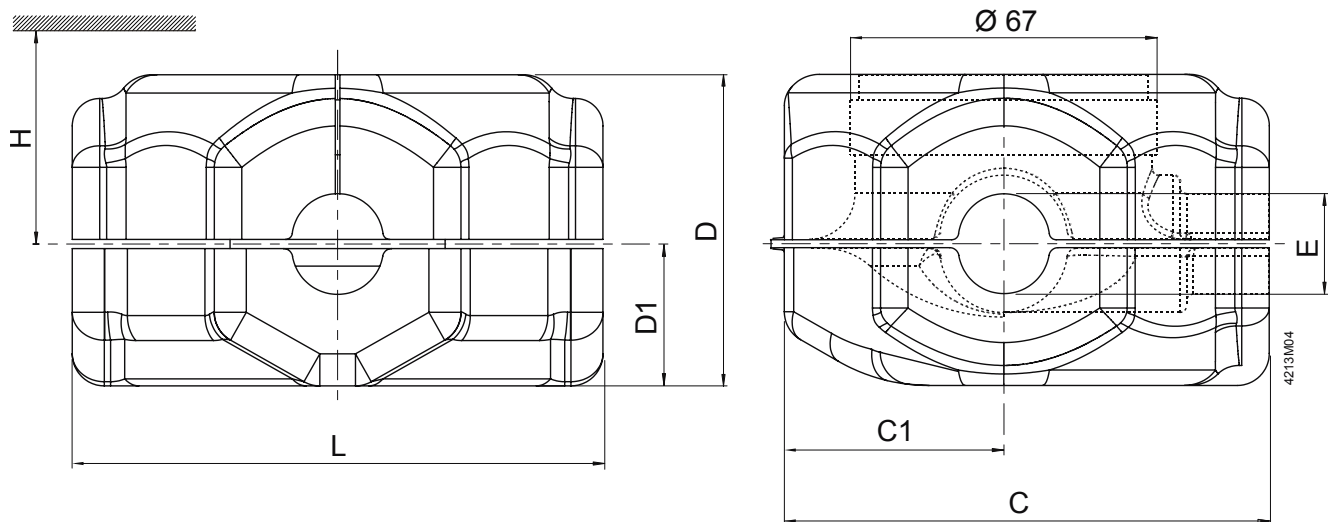
DN = Nominal size

H = Total height of actuator plus minimum mounting distance to wall or ceiling, for mounting, connection, operation, maintenance, etc.

| Type | | DN | B | C | D | D1 | E | L |
|------------------|----------------|------|-----|-----|-----|----|----|-----|
| Insulation shell | For ball valve | [mm] | | | | | | |
| ALI15VAI60/61 | VAI60.15-15 | 15 | 56 | 95 | 65 | 27 | 21 | 100 |
| ALI20VAI60 | VAI60.20-22 | 20 | 56 | 95 | 66 | 32 | 27 | 105 |
| ALI25VAI60/61 | VAI60.25-22 | 25 | 56 | 95 | 80 | 37 | 34 | 108 |
| ALI32VAI60/61 | VAI60.32-35 | 32 | 86 | 100 | 95 | 47 | 43 | 130 |
| ALI40VAI60/61 | VAI60.40-68 | 40 | 95 | 102 | 98 | 50 | 48 | 140 |
| ALI50VAI60/61 | VAI60.50-96 | 50 | 105 | 96 | 110 | 56 | 61 | 160 |

| Type | | H | | | | Weight |
|------------------|----------------|---------|---------|---------|---------|--------|
| | | GSD..9A | GQD..9A | GMA..9E | GLB..9E | |
| Insulation shell | For ball valve | [mm] | | | | [g] |
| ALI15VAI60/61 | VAI60.15-15 | > 300 | > 300 | > 300 | > 300 | 15 |
| ALI20VAI60 | VAI60.20-22 | | | | | 16 |
| ALI25VAI60/61 | VAI60.25-22 | > 320 | > 320 | > 320 | > 320 | 20 |
| ALI32VAI60/61 | VAI60.32-35 | - | - | | | 28 |
| ALI40VAI60/61 | VAI60.40-68 | - | - | | | 32 |
| ALI50VAI60/61 | VAI60.50-96 | - | - | > 335 | > 335 | 36 |

Insulation shells for 3-port changeover ball valves (VBI60..)



DN = Nominal size

H = Total height of actuator plus minimum mounting distance to wall or ceiling, for mounting, connection, operation, maintenance, etc.

| Type | | DN | C | C1 | D | D1 | E | L |
|------------------|----------------|------|-----|----|-----|----|----|-----|
| Insulation shell | For ball valve | [mm] | | | | | | |
| ALI15VBI60/61 | VBI60.15.. | 15 | 100 | 50 | 70 | 34 | 21 | 100 |
| ALI20VBI60 | VBI60.20.. | 20 | 115 | 55 | 80 | 40 | 27 | 120 |
| ALI25VBI60/61 | VBI60.25.. | 25 | 115 | 55 | 80 | 40 | 34 | 120 |
| ALI32VBI60/61 | VBI60.32.. | 32 | 125 | 55 | 95 | 45 | 43 | 150 |
| ALI40VBI60/61 | VBI60.40.. | 40 | 125 | 55 | 95 | 45 | 48 | 150 |
| ALI50VBI60/61 | VBI60.50.. | 50 | 145 | 60 | 110 | 54 | 61 | 170 |

| Type | | H | | | | Weight |
|------------------|----------------|---------|---------|---------|---------|--------|
| | | GSD..9A | GQD..9A | GMA..9E | GLB..9E | |
| Insulation shell | For ball valve | [mm] | | | | [g] |
| ALI15VBI60/61 | VBI60.15.. | > 300 | > 300 | > 300 | > 300 | 21 |
| ALI20VBI60 | VBI60.20.. | | | | | 30 |
| ALI25VBI60/61 | VBI60.25.. | > 320 | > 320 | > 320 | > 320 | 30 |
| ALI32VBI60/61 | VBI60.32.. | | | | | 41 |
| ALI40VBI60/61 | VBI60.40.. | - | - | > 335 | > 335 | 43 |
| ALI50VBI60/61 | VBI60.50.. | - | - | | | 51 |

Filter

| | Type | DN | b | c | G | L | H | K _{vs} | Weight |
|--|-------|----|----|----|--------------------|-----|----|-----------------|--------|
| | | | mm | mm | Inch ¹⁾ | mm | mm | | kg |
| | ALX15 | 15 | 12 | 38 | G ½ | 54 | 27 | 3.5 | 0.178 |
| | ALX20 | 20 | 15 | 43 | G ¾ | 67 | 34 | 5.8 | 0.290 |
| | ALX25 | 25 | 16 | 53 | G 1 | 79 | 41 | 9.1 | 0.410 |
| | ALX32 | 31 | 17 | 64 | G 1¼ | 98 | 51 | 19 | 0.680 |
| | ALX40 | 40 | 18 | 70 | G 1½ | 106 | 57 | 24 | 0.874 |
| | ALX50 | 50 | 20 | 85 | G 2 | 122 | 69 | 36 | 1.428 |

Revision numbers

| Type | Valid from rev. no. | Type | Valid from rev. no. | Type | Valid from rev. no. |
|-------------------------------|------------------------|-----------------------------------|------------------------|-----------------------------------|------------------------|
| Shutoff ball valve VAI60.. | | Changeover ball valve VBI60..L | | Changeover ball valve VBI60..T | |
| 2-port | | 3-port | | 3-port | |
| VAI60.15-15 | ..A | VBI60.15-5L | ..A | VBI60.15-12T | ..A |
| VAI60.20-22 | ..A | VBI60.20-9L | ..A | VBI60.20-16T | ..A |
| VAI60.25-22 | ..A | VBI60.25-9L | ..A | VBI60.25-16T | ..A |
| VAI60.32-35 | ..A | VBI60.32-13L | ..A | VBI60.32-25T | ..A |
| VAI60.40-68 | ..A | VBI60.40-25L | ..A | VBI60.40-49T | ..A |
| VAI60.50-96 | ..A | VBI60.50-37L | ..A | VBI60.50-73T | ..A |