

BOA-SuperCompact, BOA-Compact,  
BOA-Compact EKB, BOA-W,  
BOA-H, BOA-R, BOA-RVK,  
BOA-S

## Operating Manual



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Operating Manual

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## Glossary

### **ATEX 2014/34/EU**

The acronym ATEX is the French abbreviation for explosive atmospheres: "Atmosphère explosible". The ATEX product directive 2014/34/EU lays down rules to be met by equipment and protective systems intended for use in potentially explosive atmospheres in the European Union (EU).

### **Certificate of decontamination**

A certificate of decontamination is enclosed by the customer when returning the product to the manufacturer to certify that the product has been properly drained to eliminate any environmental and health hazards arising from components in contact with the fluid handled.

### **EPDM**

Ethylene-propylene-diene rubber

### **Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016**

The product regulations Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 lay down rules to be met by equipment and protective systems intended for use in potentially explosive atmospheres in the United Kingdom (except Northern Ireland).

### **Pressure Equipment (Safety) Regulations 2016 (PER)**

The Pressure Equipment (Safety) Regulations 2016 set out the requirements to be met by pressure equipment intended to be placed on the UK market (except Northern Ireland).

### **Pressure Equipment Directive 2014/68/EU (PED)**

The 2014/68/EU Directive sets out the requirements to be met by pressure equipment intended to be placed on the market in the European economic area.

## 1 General

### 1.1 Principles

This operating manual is valid for the type series and variants indicated on the front cover.

The operating manual describes the proper and safe use of this equipment in all phases of operation.

In the event of damage, immediately contact your nearest KSB sales organisation responsible to maintain the right to claim under warranty.

### 1.2 Target group

This operating manual is aimed at the target group of trained and qualified specialist technical personnel.

### 1.3 Other applicable documents

**Table 1:** Overview of other applicable documents

Document	Contents
Type series booklet	Description of the valve
Flow characteristics	Information on Kv values and zeta values
General assembly drawing <sup>1)</sup>	Sectional drawing of the valve
Sub-supplier product literature <sup>2)</sup>	Operating manuals and other product literature for the accessories

Observe the relevant manufacturer's product literature for the accessories.

### 1.4 Symbols

**Table 2:** Symbols used in this manual

Symbol	Description
✓	Conditions which need to be fulfilled before proceeding with the step-by-step instructions
▷	Safety instructions
⇒	Result of an action
⇔	Cross-references
1. 2.	Step-by-step instructions
	Note Recommendations and important information on how to handle the product

### 1.5 Key to safety symbols/markings

**Table 3:** Definition of safety symbols/markings

Symbol	Description
 <b>DANGER</b>	<b>DANGER</b> This signal word indicates a high-risk hazard which, if not avoided, will result in death or serious injury.
 <b>WARNING</b>	<b>WARNING</b> This signal word indicates a medium-risk hazard which, if not avoided, could result in death or serious injury.

<sup>1</sup> If included in agreed scope of supply; otherwise refer to the type series booklet.

<sup>2</sup> If included in agreed scope of supply

Symbol	Description
	<p><b>CAUTION</b> This signal word indicates a hazard which, if not avoided, could result in damage to the machine and its functions.</p>
	<p><b>Explosion protection</b> This symbol identifies information about avoiding explosions in potentially explosive atmospheres in accordance with EU Directive 2014/34/EU (ATEX) and the UK's Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016.</p>
	<p><b>General hazard</b> In conjunction with one of the signal words this symbol indicates a hazard which will or could result in death or serious injury.</p>
	<p><b>Electrical hazard</b> In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.</p>
	<p><b>Machine damage</b> In conjunction with the signal word CAUTION this symbol indicates a hazard for the machine and its functions.</p>



## 2 Safety

All the information contained in this section refers to hazardous situations.

In addition to the present general safety information the action-related safety information given in the other sections must be observed.

### 2.1 General

- This operating manual contains general installation, operating and maintenance instructions that must be observed to ensure safe operation of the system and prevent personal injury and damage to property.
- Comply with all the safety instructions given in the individual sections of this operating manual.
- The operating manual must be read and understood by the responsible specialist personnel/operators prior to installation and commissioning.
- The contents of this operating manual must be available to the specialist personnel at the site at all times.
- Information and markings attached directly to the product must always be complied with and kept in a perfectly legible condition at all times. This applies to, for example:
  - Manufacturer
  - Type designation
  - Nominal pressure
  - Nominal size
  - Flow direction arrow
  - Year of construction
  - Valve body material
- The operator is responsible for ensuring compliance with all local regulations not taken into account.
- The design, manufacture and testing of the valve are subject to a QM system to DIN EN ISO 9001 as well as the current regulations and directives for pressure equipment.
- Bear in mind that valves exposed to creep-rupture conditions have a limited service life and have to meet the applicable regulations stipulated in the technical codes.
- In the case of customised special variants, further restrictions may apply with regard to the operating mode and service life. Refer to the relevant sales documentation for applicable limitations.
- The operator is responsible for any eventualities or incidents which may occur during installation performed by the customer, operation and maintenance.

### 2.2 Intended use

- Only operate valves which are in perfect technical condition.
- Do not operate the valve in partially assembled condition.
- Only use the valve for fluids specified in the product literature. Take the design and material variant into account.
- Only operate the valve within the operating limits described in the other applicable documents.
- The valve's design and rating are based on predominantly static loading in accordance with the codes applied. Consult the manufacturer if the valve is subjected to dynamic loads or any other additional influences.
- Consult the manufacturer about any other modes of operation not described in the product literature.
- Do not use the valve as a foothold.

### 2.2.1 Prevention of foreseeable misuse

- Never exceed the permissible application and operating limits specified in the data sheet or product literature regarding temperature, etc.
- Observe all safety information and instructions in this manual.

### 2.3 Personnel qualification and training

- All personnel involved must be fully qualified to transport, install, operate, maintain and inspect the product this manual refers to and be fully aware of the interaction between the valve and the system.
- The responsibilities, competence and supervision of all personnel involved in transport, installation, operation, maintenance and inspection must be clearly defined by the operator.
- Deficits in knowledge must be rectified by means of training and instruction provided by sufficiently trained specialist personnel. If required, the operator can commission the manufacturer/supplier to train the personnel.
- Training on the valve must always be supervised by specialist technical personnel.

### 2.4 Consequences and risks caused by non-compliance with this manual

- Non-compliance with these operating instructions will lead to forfeiture of warranty cover and of any and all rights to claims for damages.
- Non-compliance can, for example, have the following consequences:
  - Hazards to persons due to electrical, thermal, mechanical and chemical effects and explosions
  - Failure of important product functions
  - Failure of prescribed maintenance and servicing practices
  - Hazard to the environment due to leakage of hazardous substances

### 2.5 Safety awareness

In addition to the safety information contained in this operating manual and the intended use, the following safety regulations shall be complied with:

- Accident prevention, health regulations and safety regulations
- Explosion protection regulations
- Safety regulations for handling hazardous substances
- Applicable standards, directives and laws

### 2.6 Safety information for the operator/user

- Actuator-operated valves are intended for use in areas which cannot be accessed by unauthorised persons. Operation of these valves in areas accessible to unauthorised persons is only permitted if appropriate protective devices are fitted at the site. This must be ensured by the operator.
- Fit protective equipment (e.g. contact guards) supplied by the operator for hot, cold or moving parts, and check that the equipment functions properly. Do not touch rotating parts.
- Do not remove any protective equipment (e.g. contact guards) during operation.
- Provide the personnel with protective equipment and make sure it is used.
- Contain any leakage of hazardous fluids (e.g. explosive, toxic, hot) so as to avoid any danger to persons and the environment. Adhere to all relevant laws.
- Eliminate all electrical hazards. (In this respect refer to the applicable national safety regulations and/or regulations issued by the local energy supply companies.)

### 2.7 Safety information for maintenance, inspection and installation

- Modifications or alterations of the valve require the manufacturer's prior consent.
- Use only original spare parts or parts/components authorised by the manufacturer. The use of other parts/components can invalidate any liability of the manufacturer for resulting damage.
- The operator ensures that maintenance, inspection and installation are performed by authorised, qualified specialist personnel who are thoroughly familiar with the manual.
- Carry out work on the valve during standstill only.
- The valve body must have cooled down to ambient temperature.
- The pressure in the valve body must have been released and the valve must have been drained.
- When taking the valve out of service always adhere to the procedure described in the manual. (⇒ Section 6.3.1, Page 40)
- Decontaminate valves which handle fluids posing a health hazard. (⇒ Section 7.1, Page 41)
- Protect the valve body and body bonnet/cover from any impacts.
- As soon as the work has been completed, re-install and re-activate any safety-relevant devices and protective devices. Before returning the product to service, observe all instructions on commissioning.

### 2.8 Unauthorised modes of operation

- The valve is operated outside the limits stated in the operating manual.
- The valve is not operated in accordance with the intended use.

(⇒ Section 2.2, Page 8)

### 3 Transport/Storage/Disposal

#### 3.1 Checking the condition upon delivery

1. On transfer of goods, check each packaging unit for damage.
2. In the event of in-transit damage, assess the exact damage, document it and notify KSB or the supplying dealer and the insurer about the damage in writing immediately.

#### 3.2 Transport

Transport the valve in the closed position.

	<b>⚠ DANGER</b>
	<p><b>The valve could slip out of the suspension arrangement</b>            Danger to life from falling parts!</p> <ul style="list-style-type: none"> <li>▷ Only transport the valve in the specified position.</li> <li>▷ Never attach lifting accessories to the handwheel.</li> <li>▷ Observe the information on weights, centre of gravity and fastening points.</li> <li>▷ Observe the applicable local accident prevention regulations.</li> <li>▷ Use suitable, permitted lifting accessories, e.g. self-tightening lifting tongs.</li> <li>▷ For valves with actuators observe the relevant actuator operating manual. Transport aids on the actuator are not suitable for suspending the entire valve/ actuator assembly.</li> </ul>

To transport the valve, suspend it from the lifting tackle as illustrated.

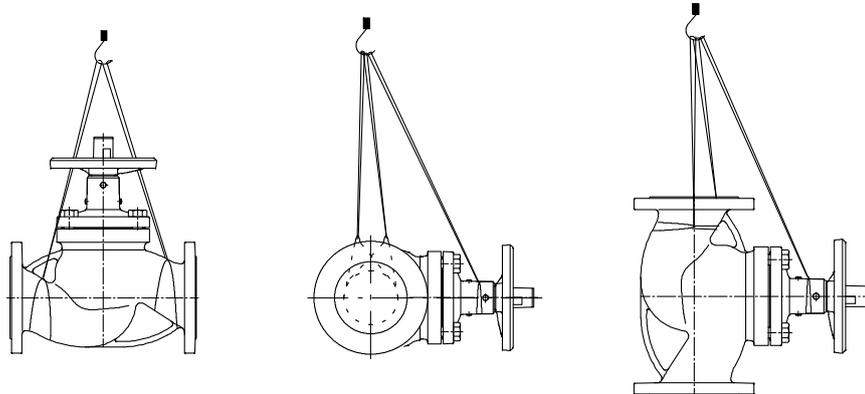


Fig. 1: Transporting the valve

	<b>CAUTION</b>
	<p><b>Incorrect transport of BOA-Compact EKB</b>            Damage to the electrostatic plastic coating!</p> <ul style="list-style-type: none"> <li>▷ Do not remove the flange caps.</li> <li>▷ Avoid contact with sharp objects and edges.</li> <li>▷ Do not use chains as lifting accessories.</li> </ul>

### 3.3 Storage/preservation

If commissioning is to take place some time after delivery, we recommend that the following measures be taken for storing the valve:

	<b>CAUTION</b>
	<p><b>Incorrect storage</b> Damage due to dirt, corrosion, humidity and/or frost!</p> <ul style="list-style-type: none"> <li>▷ Close the valve using little force and store in the closed position.</li> <li>▷ EPDM-encapsulated valve discs: Protect from sunlight or UV light from other sources. Observe the DIN 7716 standard for the storage of elastomers.</li> <li>▷ Store the valve in a frost-proof room where the atmospheric humidity is as constant as possible.</li> <li>▷ Protect the valve from dust during storage, e.g. with suitable caps or foils.</li> <li>▷ Protect the valve from contact with solvents, lubricants, fuels or other chemicals.</li> <li>▷ Store the valve in vibration-free conditions.</li> </ul>

If properly stored indoors, the equipment is protected for a maximum of 12 months.

### 3.4 Return to supplier

1. Drain the valve as described in the manual.
2. Flush and clean the valve, particularly if it has been used for handling noxious, explosive, hot or other hazardous fluids.
3. If the valve has handled fluids whose residues could lead to corrosion damage in the presence of atmospheric humidity or could ignite upon contact with oxygen also neutralise the valve and blow through with anhydrous inert gas to ensure drying.
4. When returning valves used for handling Fluids in Group 1 (⇒ Section 4.2, Page 16) always complete and enclose a certificate of decontamination.  
Indicate any safety measures and decontamination measures taken.

	<b>NOTE</b>
	<p>If required, a blank certificate of decontamination can be downloaded from the following web site: <a href="http://www.ksb.com/certificate_of_decontamination">www.ksb.com/certificate_of_decontamination</a></p>

## 3.5 Disposal

	 <b>WARNING</b>
	<p><b>Fluids handled, consumables and supplies which are hot or pose a health hazard</b> Hazard to persons and the environment!</p> <ul style="list-style-type: none"><li>▷ Collect and properly dispose of flushing fluid and any residues of the fluid handled.</li><li>▷ Wear safety clothing and a protective mask if required.</li><li>▷ Observe all legal regulations on the disposal of fluids posing a health hazard.</li></ul>

1. Dismantle the valve.  
Collect greases and other lubricants during dismantling.
2. Separate and sort the valve materials, e.g. by:
  - Metals
  - Plastics
  - Electronic waste
  - Greases and other lubricants
3. Dispose of materials in accordance with local regulations or in another controlled manner.

## 4 Valve Description

### 4.1 Product information

#### 4.1.1 Product information as per Regulation No. 1907/2006 (REACH)

For information as per chemicals Regulation (EC) No. 1907/2006 (REACH), see <https://www.ksb.com/ksb-en/About-KSB/Corporate-responsibility/reach/>.

#### 4.1.2 Product information as per Pressure Equipment Directive 2014/68/EU (PED)

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.

#### 4.1.3 Product information as per Pressure Equipment Directive 2014/68/EU (PED)

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Group 2.

#### 4.1.4 Product information as per UK Pressure Equipment (Safety) Regulations 2016

The valves satisfy the safety requirements of the UK Pressure Equipment (Safety) Regulations 2016 (PER) for fluids in Groups 1 and 2.

#### 4.1.5 Product information as per Pressure Equipment (Safety) Regulations 2016

The valves satisfy the safety requirements of the Pressure Equipment (Safety) Regulations 2016 (PER) for fluids in Group 2.

#### 4.1.6 Product information as per Directive 2014/34/EU (ATEX)

The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zone 2+22) to ATEX 2014/34/EU.

#### 4.1.7 Product information as per UK Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016

The valves do not have a potential internal source of ignition and can be used in accordance with the UK's Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zone 2+22).

4.1.8 Overview of product information

Table 4: Overview of product information by type series

Type series	REACH	PED / PER Groups 1 and 2	PED / PER Group 2	ATEX EU <sup>3)</sup> / UK <sup>4)</sup> Group 2
BOA-SuperCompact	✓	✗	✓	✗
BOA-Compact	✓	✗	✓	✗
BOA-Compact EKB	✓	✗	✓	✗
BOA-W	✓	✗	✓	✗
BOA-H	✓	✓	✗	✓
BOA-R	✓	✓	✗	✓
BOA-RVK	✓	✗	✗	✗
BOA-S	✓	✓	✗	✓

Table 5: Symbols key

Symbol	Description
✓	Valid for the type series
✗	Not valid for the type series

<sup>3</sup> EU directive: ATEX 2014/34/EU

<sup>4</sup> UK regulations: Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016

### 4.2 Marking

**Table 6:** General marking

Description	Marking
Nominal size	DN ...
Nominal pressure class	PN ...
Manufacturer	KSB
Type series/Model	BOA-...
Year of construction	20..
Material	.....
Flow direction arrow	→
Traceability of the material	.....
CE marking	<b>CE</b>
Identification number of the notified body	0036
UKCA marking	<b>UK CA</b>
Identification number of the approved body	0168
Marking of 3.1 acceptance test (shell and leak test) on BOA-H, BOA-R and BOA-S	

In accordance with the current regulations and directives for pressure equipment the valves are marked as shown in the following table:

Fluids in Groups 1 and 2

PN	DN									
	≤25	32	40	50	65	80	100	125	150	≥200
10	<del>CE</del>	<b>CE</b>								
16										
25										
≥40										

**Fig. 2:** CE marking: BOA-H, BOA-R and BOA-S

PN	DN									
	≤25	32	40	50	65	80	100	125	150	≥200
10	<del>UK CA</del>	<b>UK CA</b>								
16										
25										
≥40										

**Fig. 3:** UKCA marking: BOA-H, BOA-R and BOA-S

Fluids in Group 2

PN	DN								
	≤32	40	50	65	80	100	125	150	≥200
6									
10									
16									
25									
≥40									

**Fig. 4:** CE marking: BOA-SuperCompact, BOA-Compact, BOA-Compact EKB, BOA-W and BOA-RVK

PN	DN								
	≤32	40	50	65	80	100	125	150	≥200
6									
10									
16									
25									
≥40									

Fig. 5: UKCA marking: BOA-SuperCompact, BOA-Compact, BOA-Compact EKB, BOA-W and BOA-RVK

**Fluid groups** In accordance with the current regulations and directives for pressure equipment, Group 1 comprises all fluids posing physical or health hazards, e.g. fluids defined as

- Explosive
- Extremely flammable
- Highly flammable
- Flammable: The maximum allowable temperature is above flashpoint.
- Very toxic
- Toxic
- Oxidising

Group 2 comprises all other fluids not referred to in Group 1.

### 4.3 Soft-seated Globe Valves to DIN/EN

#### 4.3.1 BOA-SuperCompact

##### 4.3.1.1 General description

- Soft-seated wafer-type globe valve

Valve for shutting off fluids in hot-water heating systems up to 120 °C and air-conditioning systems. Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and grey cast iron.

##### 4.3.1.2 Design details

###### Design

- Straight-way globe valve with slanted seat
- Flange alignment holes for centring, downstream dismantling and dead-end service
- Slanted seat design
- Face-to-face length to EN 558/94 (DN 25-150), EN 558/14 (DN 200)
- Single-piece pressure-retaining body
- Non-rising handwheel
- Position indicator outside the insulating material
- Locking device, travel stop, position indicator, throttling plug and insulating cap with anti-condensation feature as standard
- Suitable for full insulation in acc. with German energy-saving regulations
- Non-rotating stem with protected, external thread
- Maintenance-free stem seal with EPDM profile ring
- Compact EPDM-encapsulated throttling plug as soft main seat and back seat
- Exterior coating: blue, RAL 5002



Fig. 6: BOA-SuperCompact

### Variants

- Lead-sealable cap (prevents unauthorised actuation) as assembly set
- Electric actuators

### 4.3.1.3 Function

**Design** The globe valve comprises a single-piece pressure-retaining body 100 without a separate bonnet, the functional unit (stem 200 and valve disc 350) and the actuating element.

**Function** The valve is actuated by handwheel 961.

**Sealing** Profile ring 412 seals the passage of stem 200 in the body. The stem seal is maintenance-free.

### 4.3.2 BOA-Compact

#### 4.3.2.1 General description

- Soft-seated globe valve with flanged ends

Valve for shutting off fluids in hot-water heating systems up to 120 °C and air-conditioning systems. Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and grey cast iron.

#### 4.3.2.2 Design details

##### Design

- Straight-way globe valve with slanted seat
- Slanted seat design
- Short face-to-face length to DIN EN 558/14
- Single-piece pressure-retaining body
- Non-rising handwheel
- Flanges to DIN EN 1092-2 Type 21
- Position indicator outside the insulating material
- Locking device, travel stop, position indicator, throttling plug and insulating cap with anti-condensation feature as standard
- Suitable for full insulation in acc. with German energy-saving regulations
- Non-rotating stem with protected, external thread
- Maintenance-free stem seal with EPDM profile ring
- Compact EPDM-encapsulated throttling plug as soft main seat and back seat
- Exterior coating: blue, RAL 5002

### Variants

- Lead-sealable cap (prevents unauthorised actuation) as assembly set
- Electric actuators

### 4.3.2.3 Function

**Design** The globe valve comprises a single-piece pressure-retaining body 100 without a separate bonnet, the functional unit (stem 200 and valve disc 350) and the actuating element.

**Function** The valve is actuated by handwheel 961.

**Sealing** Profile ring 412 seals the passage of stem 200 in the body. The stem seal is maintenance-free.



Fig. 7: BOA-Compact

### 4.3.3 BOA-Compact EKB

#### 4.3.3.1 General description

- Soft-seated globe valve with flanged ends

Valve for shutting off fluids in water supply, drinking water and air-conditioning systems as well as in cooling circuits. Suitable for installation in copper pipes as per installation instructions (operating manual). Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and the electrostatic plastic coating.



Fig. 8: BOA-Compact EKB

#### 4.3.3.2 Design details

##### Design

- Straight-way globe valve with slanted seat
- Slanted seat design
- Short face-to-face length to DIN EN 558/14
- Single-piece pressure-retaining body
- Non-rising handwheel
- Flanges to DIN EN 1092-2 Type 21
- Position indicator outside the insulating material
- Non-rotating stem with protected, external thread
- Maintenance-free stem seal with EPDM profile ring
- Compact EPDM-encapsulated throttling plug as soft main seat and back seat
- Corrosion protection: internal and external electrostatic plastic coating (EKB), anthracite grey
- Locking device, travel stop, position indicator and throttling plug as standard

##### Variants

- Lead-sealable cap (prevents unauthorised actuation) as assembly set
- Electric actuators

#### 4.3.3.3 Function

**Design** The globe valve comprises a single-piece pressure-retaining body 100 without a separate bonnet, the functional unit (stem 200 and valve disc 350) and the actuating element.

**Function** The valve is actuated by handwheel 961.

**Sealing** Profile ring 412 seals the passage of stem 200 in the body. The stem seal is maintenance-free.

### 4.3.4 BOA-W

#### 4.3.4.1 General description

- Soft-seated globe valve with flanged ends

Valve for shutting off fluids in hot-water heating systems up to 120 °C and air-conditioning systems. Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and grey cast iron.



Fig. 9: BOA-W

#### 4.3.4.2 Design details

##### Design

- Straight-way globe valve with slanted seat
- Slanted seat design
- Face-to-face length to DIN EN 558/1
- Single-piece pressure-retaining body
- Non-rising handwheel
- Flanges to DIN EN 1092-2 Type 21
- Position indicator outside the insulating material
- Locking device, travel stop, position indicator, throttling plug and insulating cap with anti-condensation feature as standard
- Suitable for full insulation in acc. with German energy-saving regulations
- Non-rotating stem with protected, external thread
- Maintenance-free stem seal with EPDM profile ring
- Compact EPDM-encapsulated throttling plug as soft main seat and back seat
- Exterior coating: blue, RAL 5002

##### Variants

- Lead-sealable cap (prevents unauthorised actuation) as assembly set
- Electric actuators

#### 4.3.4.3 Function

**Design** The globe valve comprises the pressure-retaining parts, i.e. body 100 and body bonnet 161. These parts are connected by hexagon head bolts 901 and sealed to atmosphere by an O-ring 412. It also comprises the functional unit (stem 200 and valve disc 350), and the actuating element.

**Function** The valve is actuated by handwheel 961.

**Sealing** Profile ring 412 seals the passage of stem 200 in the body. The stem seal is maintenance-free.

## 4.4 Bellows-type Globe Valves to DIN/EN

### 4.4.1 BOA-H

#### 4.4.1.1 General description

- Bellows-type globe valve

Valve for shutting of fluids in hot-water heating systems, high-temperature hot water systems, cooling circuits, heat transfer systems, and general steam applications in building services and industry.



Fig. 10: BOA-H

#### 4.4.1.2 Design details

##### Design

- Straight-way or angle pattern with horizontal seat
- Throttling plug  $\leq$  DN 100
- On/off disc  $\geq$  DN 125
- All nominal sizes with position indicator, locking device and travel stop
- Compact bonnet
- Maintenance-free bellows-type stem seal with back-up gland
- Non-rising handwheel
- Flanges to DIN EN 1092-2 Type 21
- Exterior coating: blue, RAL 5002

##### Variants

- V-port plug (seat-guided throttling plug for maximum requirements) for DN 15 to 300
- Valve disc with PTFE ring ( $\leq$  200 °C, throttling plug for DN 15 to 100, on/off disc for DN 125 to 200)
- Lead-sealable cap (prevents unauthorised actuation) as assembly set
- Balanced plug  $\geq$  DN 200
- High-temperature resistant paint (grey aluminium)
- Either one or two limit switch(es) as assembly kit for globe valves of DN 15 to 150 made of EN-GJS-400-18-LT
- Oil-free and grease-free: lubricated exclusively by mineral oil free lubricants approved by the German Federal Office for Materials Testing (Bundesanstalt für Materialforschung und -prüfung, BAM)
- Other flange designs
- Low-temperature steel bolts for temperatures down to -30 °C (EN-GJS-400-18-LT only) up to 0.75 x PN (max.)
- Certification to customer specification

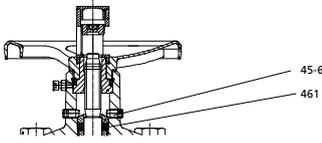
**4.4.1.3 Function**

**Design** The valve consists of the pressure-retaining parts, i.e. body 100 and body bonnet 161. The functional unit consists of valve disc 350, stem 200 and handwheel 961. The joint is sealed to atmosphere by joint ring 411.

**Function** The valve is actuated by handwheel 961.

**Sealing** The bellows-type stem seal is maintenance-free. The valves are metal-seated as standard or fitted with PTFE rings (for variant with PTFE ring on valve disc).

When delivered, the back-up gland packing is not fully tightened. In the event of a bellows failure, stuffing box screws 45-6 must be tightened to prevent fluid leakage (⇒ Section 2.6, Page 9) .



**Fig. 11:** Sectional drawing of BOA-H

## 4.5 Lift Check Valves to DIN/EN

### 4.5.1 BOA-R



Fig. 12: BOA-R

#### 4.5.1.1 General description

- Lift check valve with flanged ends

Valve for preventing backflow of fluids in hot-water heating systems, high-temperature hot water heating systems and heat transfer systems. General steam applications in building services and industry.

#### 4.5.1.2 Design details

##### Design

- Straight-way pattern with horizontal seat
- Spring-loaded check disc
- Flanges to DIN EN 1092-2 Type 21
- Exterior coating: blue, RAL 5002

##### Variants

- Oil-free and grease-free: lubricated exclusively by mineral oil free lubricants approved by the German Federal Office for Materials Testing (Bundesanstalt für Materialforschung und -prüfung, BAM)
- Other flange designs
- High-temperature resistant paint (grey aluminium)
- Low-temperature steel bolts for temperatures down to -30 °C (EN-GJS-400-18-LT only) up to 0.75 x PN (max.)
- Certification to customer specification

#### 4.5.1.3 Function

**Design** The lift check valve consists of the pressure-retaining parts, i.e. body 100 and body cover 161, and the functional unit (check disc 351 and spring 950).

**Function** The fluid flows through the lift check valve in a defined direction. Backflow is prevented by the valve closing automatically by means of spring force. Check disc 351 is guided in and by body cover 161. The flow conditions and spring 950 determine the position of check disc 351.

#### 4.5.2 BOA-RVK

##### 4.5.2.1 General description

- Wafer-type lift check valve

Valve for preventing backflow of fluids in industrial plants and heating systems, liquids and gases, hot-water heating systems, high-temperature hot water heating systems and heat transfer systems. Any limits given in the technical codes must be complied with. Not suitable for fluids liable to attack the materials used.



Fig. 13: BOA-RVK

##### 4.5.2.2 Design details

###### Design

- Wafer-type lift check valve
- Shut-off by spring-loaded plate or valve disc guided by guide pins
- Centring aid is part of the valve body
- Short face-to-face length to EN 558/49
- External coating:  
DN 15 - 100: body made of brass, without coating  
DN 125 - 200: body made of grey cast iron, coated blue (RAL 5002)

##### 4.5.2.3 Function

**Design** The lift check valve consists of single-piece pressure-retaining body 100 and the functional unit (plate 198 and spring 950).

**Function** The fluid flows through the lift check valve in a defined direction. Backflow is prevented by the valve closing automatically by means of spring force. Plate 198 is guided in body 100. The position of plate 198 is determined by the flow conditions and spring 950.

## 4.6 Strainers to DIN/EN

### 4.6.1 BOA-S



Fig. 14: BOA-S

#### 4.6.1.1 General description

- Strainer with flanged ends

Valves for collecting particles in hot-water heating systems, hot-water heating systems and heat transfer systems. General steam applications in building services and industry.

#### 4.6.1.2 Design details

##### Design

- Y-pattern strainer
- Screen made of stainless steel
- Screen accurately guided in cover and body
- Outside confined cover gasket
- Drain plug
- Size DN 150 and above: additional screen cage made of perforated stainless steel sheet
- Flanges to DIN EN 1092-2 Type 21
- Exterior coating: blue, RAL 5002

##### Variants

- Fine screen
- High temperature resistant paint, aluminium grey (EN-GJS-400-18-LT only)
- Other flange designs (EN-GJS-400-18-LT only)
- Certification to customer specification

#### 4.6.1.3 Function

**Design** The strainer consists of the pressure-retaining parts, i.e. body 100, body cover 160 and screen 758.

**Function** Body 100 and body cover 160 are joined by studs 902 and nuts 920, and the joint is sealed to atmosphere by joint ring 411. Screen 758 is clamped in the body neck and catches dirt particles depending on the mesh size.

## 4.7 Scope of supply

The following items are included in the scope of supply:

- Valve
- Valve operating manual

## 4.8 Dimensions and weights

For dimensions and weights please refer to the type series booklet.

## 5 Installation at Site

### 5.1 General information/Safety regulations

The consultant, construction company or operator are responsible for positioning and installing the valves. Planning errors and installation errors may impair the reliable function of the valves and pose a substantial safety hazard.

	<p style="background-color: #FFD700; margin: 0;"><b>CAUTION</b></p> <p><b>Improper installation</b> Damage to the valve!</p> <ul style="list-style-type: none"> <li>▷ Protect the body and body bonnet/cover from any impacts.</li> </ul>
	<p style="background-color: #0070C0; color: white; margin: 0;"><b>NOTE</b></p> <p>If the valves are fitted with actuators, ensure that the actuator's operating manual is also observed.</p>

### 5.2 Preparing the valve

	<p style="background-color: #FFD700; margin: 0;"><b>CAUTION</b></p> <p><b>Outdoor installation</b> Damage due to corrosion!</p> <ul style="list-style-type: none"> <li>▷ Provide weather-proof protection to protect the valve against moisture.</li> </ul>
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1. Thoroughly clean, flush and blow through all vessels, piping and connections.
2. Remove the valve's flange covers before installing it in the piping.
3. Check that the inside of the valve is free from any foreign objects. Remove any foreign objects.
4. If required, install a strainer in the piping.

### 5.3 Piping

	<p style="background-color: #FFA500; margin: 0;"><b>⚠ WARNING</b></p> <p><b>Impermissible piping forces</b> Leakage from or rupture of the valve body!</p> <ul style="list-style-type: none"> <li>▷ Connect the pipes to the valve without transmitting any stresses or strains.</li> <li>▷ Take structural measures to prevent any piping forces from being transmitted to the valve.</li> <li>▷ Avoid mechanical loads beyond normal levels, e.g. piping forces, moments and vibrations.</li> </ul>
	<p style="background-color: #FFD700; margin: 0;"><b>CAUTION</b></p> <p><b>Welding in close proximity to soft-seated valves</b> Damage to the seat/disc interface!</p> <ul style="list-style-type: none"> <li>▷ Ensure that the valve is not heated beyond the specified temperature limits. (⇒ Section 6.2, Page 36)</li> </ul>

	<p style="background-color: #FFD700; margin: 0;"><b>CAUTION</b></p> <p><b>Painting of the piping</b>          Valve function impaired!          Loss of important information provided on the valve!</p> <ul style="list-style-type: none"> <li>▷ Protect stem and plastic components prior to applying paint.</li> <li>▷ Protect printed name plates prior to applying paint.</li> </ul>
	<p style="background-color: #0070C0; color: white; margin: 0;"><b>NOTE</b></p> <p>For the valves to reach the documented Kv values, the flow direction must correspond to the flow direction arrow.</p>
	<p style="background-color: #0070C0; color: white; margin: 0;"><b>NOTE</b></p> <p>An alternating direction of flow is permitted unless restrictions apply to specific products.</p>

**5.3.1 Flange connection**

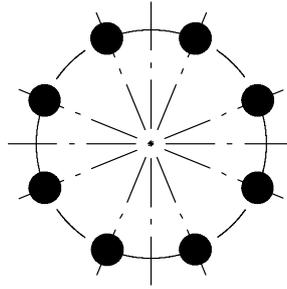
**Fasteners** Only use fasteners (e.g. to DIN EN 1515-4) and flange gaskets (e.g. to DIN EN 1514) made of materials approved for the respective nominal valve size. Always use all flange bolt holes provided when connecting the valve to the pipe.

- ✓ The mating flange faces are clean and undamaged.
- ✓ Bolts/fully threaded studs and nuts are available. (⇒ Section 5.3.2, Page 28)
- ✓ Verify that the piping is correctly aligned and the flanges are parallel.
- ✓ Observe the installation information for the specific type series:
  - BOA-SuperCompact (⇒ Section 5.4.1, Page 30)
  - BOA-H (⇒ Section 5.5.1, Page 30)
  - BOA-R (⇒ Section 5.6.1, Page 31)
  - BOA-RVK (⇒ Section 5.6.2, Page 31)
  - BOA-S (⇒ Section 5.7.1, Page 32)

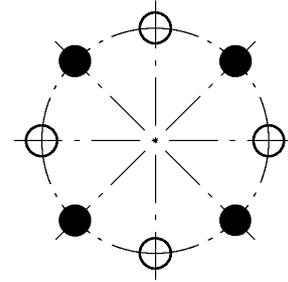
1. Align the valve between the pipe flanges.
2. Use an appropriate tool to evenly tighten the fasteners crosswise.

	<p style="background-color: #0070C0; color: white; margin: 0;"><b>NOTE</b></p> <p><b>Exception: DN 65 PN 16</b>          When using steel flanges to DIN EN 1092-1 in conjunction with cast iron valves with flanges machined to DIN EN 1092-2, ensure that for nominal size DN 65 classed PN 16 the mating flanges are fitted offset by 22.5°.</p>
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Flange connection



DN 65 PN 10/16 (steel/steel):  
DIN EN 1092-1 with DIN EN 1092-1:  
Bolts through 8 holes



DN 65 PN 10/16 (steel/cast iron):  
DIN EN 1092-1 with DIN EN 1092-2:  
Bolt hole circle to DIN EN 1092-1 turned through 22.5°, bolts through 4 holes, 4 holes free

Fig. 15: Flange connections

5.3.2 Bolt lengths for flange connections

The valve is fitted into the piping with a screwed connection consisting of bolts and nuts. For BOA-SuperCompact fully threaded studs and nuts can also be used as fasteners (see type series booklet 7113.1).

For correct valve installation ensure that:

- The bolts and nuts are selected in accordance with DIN EN 1515-4 "Flanges and their joints, Part 4, Selection of bolting".
- The bolts and nuts are selected from the materials list in the standard (for equipment subject to the current regulations and directives for pressure equipment) depending on the pressure and temperature required.

The bolt lengths below are indicated without consideration of any tolerances. They refer to the installation of the valve in the piping between standardised mating flanges made of steel to DIN EN 1092-1.

The quantity, thread size and bolt length for each type series is listed for different nominal pressures. This data can also be obtained via KSB's Flange Selector (reference No. 0570.3).

Table 7: Bolt sizes and bolt lengths to DIN EN 1092-2 PN 6

DN	BOA-SuperCompact <sup>5)</sup> 5.1301 <sup>6)</sup>	BOA-Compact <sup>7)</sup> 5.1301 <sup>6)</sup>	BOA-W 5.1301 <sup>6)</sup>	BOA-H 5.1301 <sup>6)</sup>	BOA-R 5.1301 <sup>6)</sup>	BOA-S 5.1301 <sup>6)</sup>	BOA-RVK
15	-	4x M10 x 35	4x M10 x 35	-	4x M10 x 40	4x M10 x 35	4x M10 x 55
20	4x M10 x 80	4x M10 x 40	4x M10 x 40	-	4x M10 x 45	4x M10 x 40	4x M10 x 60
25	4x M10 x 80	4x M10 x 40	4x M10 x 40	-	4x M10 x 45	4x M10 x 40	4x M10 x 65
32	4x M12 x 90	4x M12 x 45	4x M12 x 45	-	4x M12 x 50	4x M12 x 45	4x M12 x 75
40	4x M12 x 100	4x M12 x 45	4x M12 x 45	-	4x M12 x 50	4x M12 x 45	4x M12 x 75
50	4x M12 x 110	4x M12 x 45	4x M12 x 45	-	4x M12 x 50	4x M12 x 45	4x M12 x 90
65	4x M12 x 120	4x M12 x 45	4x M12 x 45	-	4x M12 x 50	4x M12 x 45	4x M12 x 90
80	4x M16 x 150	4x M16 x 55	4x M16 x 55	-	4x M16 x 60	4x M16 x 50	4x M16 x 100
100	4x M16 x 180	4x M16 x 55	4x M16 x 55	-	4x M16 x 60	4x M16 x 50	4x M16 x 110
125	8x M16 x 200	8x M16 x 60	8x M16 x 60	-	8x M16 x 65	8x M16 x 55	8x M16 x 150
150	8x M16 x 220	8x M16 x 60	8x M16 x 60	-	8x M16 x 65	8x M16 x 55	8x M16 x 160
200	8x M16 x 70	8x M16 x 70	8x M16 x 70	-	8x M16 x 65	8x M16 x 60	8x M16 x 200

<sup>5)</sup> Refer to type series booklet 7113.1 for further connection options

<sup>6)</sup> EN-GJL-250 (JL1040)

<sup>7)</sup> Also for BOA-Compact EKB and BOA-Control IMS

**Table 8: Bolt sizes and bolt lengths to DIN EN 1092-2 PN 10**

DN	BOA-SuperCompact <sup>9)</sup> 5.1301 <sup>6)</sup>	BOA-Compact EKB 5.1301 <sup>6)</sup>	BOA-W 5.1301 <sup>6)</sup>	BOA-H 5.1301 <sup>6)</sup> / 5.3103 <sup>8)</sup>	BOA-R 5.1301 <sup>6)</sup>	BOA-S 5.1301 <sup>6)</sup> /5.3103 <sup>8)</sup>	BOA-RVK
15	-	4x M12 x 45	-	-	-	-	4x M12 x 65
20	4x M12 x 90	4x M12 x 50	-	-	-	-	4x M12 x 70
25	4x M12 x 90	4x M12 x 50	-	-	-	-	4x M12 x 75
32	4x M16 x 100	4x M16 x 55	-	-	-	-	4x M16 x 85
40	4x M16 x 110	4x M16 x 55	-	-	-	-	4x M16 x 90
50	4x M16 x 120	4x M16 x 55	-	-	-	-	4x M16 x 100
65	4x M16 x 140	4x M16 x 55	-	-	-	-	4x M16 x 100
80	8x M16 x 160	8x M16 x 60	-	-	-	-	8x M16 x 110
100	8x M16 x 180	8x M16 x 65	-	-	-	-	8x M16 x 120
125	8x M16 x 200	8x M16 x 65	-	-	-	-	8x M16 x 160
150	8x M20 x 240	8x M20 x 70	-	-	-	-	8x M20 x 175
200	8x M20 x 80	8x M20 x 75	-	-	-	-	8x M20 x 220

**Table 9: Bolt sizes and bolt lengths to DIN EN 1092-2 PN 16**

DN	BOA-SuperCompact <sup>9)</sup> 5.1301 <sup>6)</sup>	BOA-Compact <sup>7)</sup> 5.1301 <sup>6)</sup>	BOA-W 5.1301 <sup>6)</sup>	BOA-H 5.1301 <sup>6)</sup> /5.3103 <sup>8)</sup>	BOA-R	BOA-S 5.1301 <sup>6)</sup> /5.3103 <sup>8)</sup>	BOA-RVK
15	-	4x M12 x 45	4x M12 x 45	4x M12 x 45	4x M12 x 45	4x M12 x 45	4x M12 x 65
20	4x M12 x 90	4x M12 x 50	4x M12 x 50	4x M12 x 50	4x M12 x 50	4x M12 x 50	4x M12 x 70
25	4x M12 x 90	4x M12 x 50	4x M12 x 50	4x M12 x 50	4x M12 x 50	4x M12 x 50	4x M12 x 75
32	4x M16 x 100	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 85
40	4x M16 x 110	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 90
50	4x M16 x 120	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 100
65	4x M16 x 140	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 55	4x M16 x 100
80	8x M16 x 160	8x M16 x 60	8x M16 x 60	8x M16 x 60	8x M16 x 60	8x M16 x 65	8x M16 x 110
100	8x M16 x 180	8x M16 x 65	8x M16 x 65	8x M16 x 65	8x M16 x 65	8x M16 x 65	8x M16 x 120
125	8x M16 x 200	8x M16 x 65	8x M16 x 65	8x M16 x 65	8x M16 x 65	8x M16 x 70	8x M16 x 160
150	8x M20 x 240	8x M20 x 70	8x M20 x 70	8x M20 x 70	8x M20 x 70	8x M20 x 75	8x M20 x 175
200	12x M20 x 80	12x M20 x 75	12x M20 x 75	12x M20 x 75	12x M20 x 75	12x M20 x 75	12x M20 x 220
250	-	-	-	12x M24 x 85	12x M24 x 85	12x M24 x 85	-
300	-	-	-	12x M24 x 85	12x M24 x 85	12x M24 x 90	-
350	-	-	-	16x M24 x 95	-	-	-

**Table 10: Bolt sizes and bolt lengths to DIN EN 1092-2 PN 25**

DN	BOA-SuperCompact <sup>9)</sup> 5.1301 <sup>6)</sup>	BOA-Compact <sup>7)</sup> 5.1301 <sup>6)</sup>	BOA-W 5.1301 <sup>6)</sup>	BOA-H 5.3103 <sup>8)</sup>	BOA-R	BOA-S 5.3103 <sup>8)</sup>	BOA-RVK
15	-	-	-	4x M12 x 50	-	4x M12 x 50	-
20	-	-	-	4x M12 x 50	-	4x M12 x 50	-
25	-	-	-	4x M12 x 50	-	4x M12 x 50	-
32	-	-	-	4x M16 x 55	-	4x M16 x 55	-
40	-	-	-	4x M16 x 55	-	4x M16 x 55	-
50	-	-	-	4x M16 x 60	-	4x M16 x 60	-
65	-	-	-	8x M16 x 65	-	8x M16 x 65	-
80	-	-	-	8x M16 x 70	-	8x M16 x 70	-
100	-	-	-	8x M20 x 75	-	8x M20 x 75	-
125	-	-	-	8x M24 x 80	-	8x M24 x 80	-
150	-	-	-	8x M24 x 85	-	8x M24 x 85	-
200	-	-	-	-	-	12x M24 x 90	-

0570.8/36-EN

<sup>8</sup> EN-GJS-400-18-LT (JS1025)

### 5.4 Installing soft-seated globe valves to DIN/EN

#### 5.4.1 Installing BOA-Compact EKB

	<b>CAUTION</b>
	<p><b>Installation in copper pipes</b>            Damage to the electrostatic plastic coating!</p> <ul style="list-style-type: none"> <li>▷ Fit fabric-reinforced rubber gaskets (sealing elements to DIN EN 1514) between the valve flanges and the pipe flanges.</li> <li>▷ Fit insulating bushes with centring collar made of polyamide between bolts and bolt holes.</li> </ul>

	<b>NOTE</b>
	<p>For handling hot fluids, insulate the valve in accordance with the German energy-saving regulations. Insulating BOA-Compact EKB valves will extend the service life of the valve's plastic coating.</p>

### 5.5 Installing bellows-type globe valves to DIN/EN

#### 5.5.1 Installing BOA-H

	<b>CAUTION</b>
	<p><b>Installation of the valve with the stem pointing downwards</b>            Dirt collecting between the folds of the bellows!            Damage to the bellows!            Valve blockage!</p> <ul style="list-style-type: none"> <li>▷ Install the valve with the stem pointing upwards or to the side.</li> </ul>

	<b>WARNING</b>
	<p><b>Installation of the valve with the stem pointing downwards in steam applications</b>            Damage to the valve through steam hammer!</p> <ul style="list-style-type: none"> <li>▷ Install the valve with the stem pointing upwards or to the side.</li> <li>▷ Observe the permissible installation position.</li> </ul>

1. To avoid warping of the valve during or following installation, open the valve by approximately two handwheel turns in anti-clockwise direction.

If the following differential pressures are exceeded from DN 200 upwards, a balanced plug design is required.

**Table 11:** Differential pressures in bar

	DN	150	200	250	300/350
PN 16	Δp bar	-	12	9	6
PN 25		21 <sup>9)</sup>			

The balanced plug only takes effect if the pressure to be sealed lies above the valve disc. For this reason, the flow through valves with balanced plugs must be in the direction of the flow direction arrow on the valve body. An alternating direction of flow is not permitted.

<sup>9</sup> No balanced plug available.

## 5.6 Installing lift check valves to DIN/EN

### 5.6.1 Installing BOA-R

A minimum pressure is required for opening. If this minimum pressure is not reached, the fitted spring can be removed.

**Table 12:** Minimum opening pressures in mbar

DN	15-50	65-150	200-350
With spring	250	200	150
Without spring	25	16	22

	<b>NOTE</b>
	<p>The flow through lift check valves must be in the direction of the flow direction arrow on the valve body. When equipped with a spring (950), the valves can be used in vertical pipes with upward or downward flow. Valves without spring can only be installed in a horizontal position, i.e. in horizontal pipes and with the body cover (161) pointing upwards.</p>

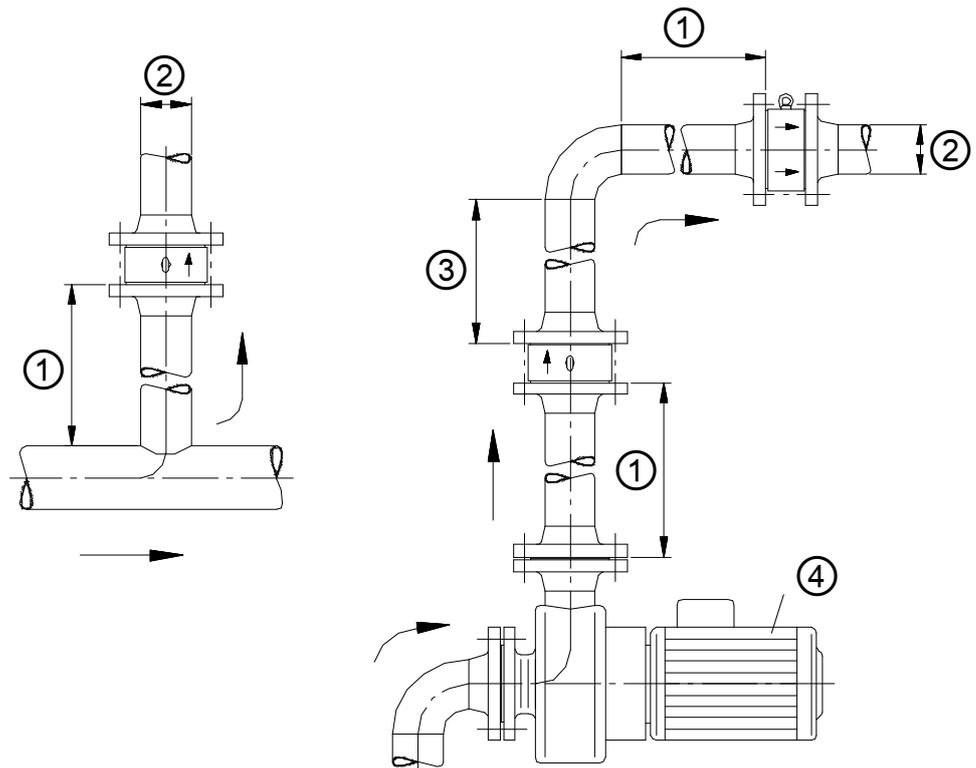
### 5.6.2 Installing BOA-RVK

A minimum pressure is required for opening. If this minimum pressure is not reached, the fitted spring can be removed.

**Table 13:** Opening pressures (p<sub>o</sub>) as a function of flow direction in mbar

DN	↔	↓	↑	↑ Without spring
15	20	16	24	4
20	20	16	24	4
25	20	16	24	4
32	20	16	24	4
40	20	15,5	24,5	4,5
50	20	15	25	5
65	20	14,5	25,5	5,5
80	20	13,5	26,5	6,5
100	20	13,5	26,5	6,5
125	20	-	32	12
150	20	-	34	14
200	20	-	35	15

	<b>NOTE</b>
	<p>The flow through lift check valves must be in the direction of the flow direction arrow on the valve body. Valves without spring can only be installed in a vertical pipe with upward flow.</p>



**Fig. 16:** Minimum upstream stabilisation distances

①	5x DN	②	DN
③	2x DN	④	Pump

Provide the following straight minimum upstream stabilisation distances free from any source of potential interference, irrespective of the installation position:

- At least 5x DN between the valve and single sources of interference such as 90° bends, branches or open shut-off valves.
- At least 5x DN between the valve and turbulence-producing elements such as pumps or control valves
- At least 2x DN downstream of the valve

### 5.7 Installing strainers to DIN/EN

#### 5.7.1 Installing BOA-S

**Installation position of BOA-S**

Install the strainer in such a way that the fluid flows through the screen from the inside towards the outside (cage effect of the screen).

To enable complete cleaning install the strainer with the screen facing downwards.

	<b>NOTE</b>
	For installation in vertical pipes, make sure that the flow direction is downward.

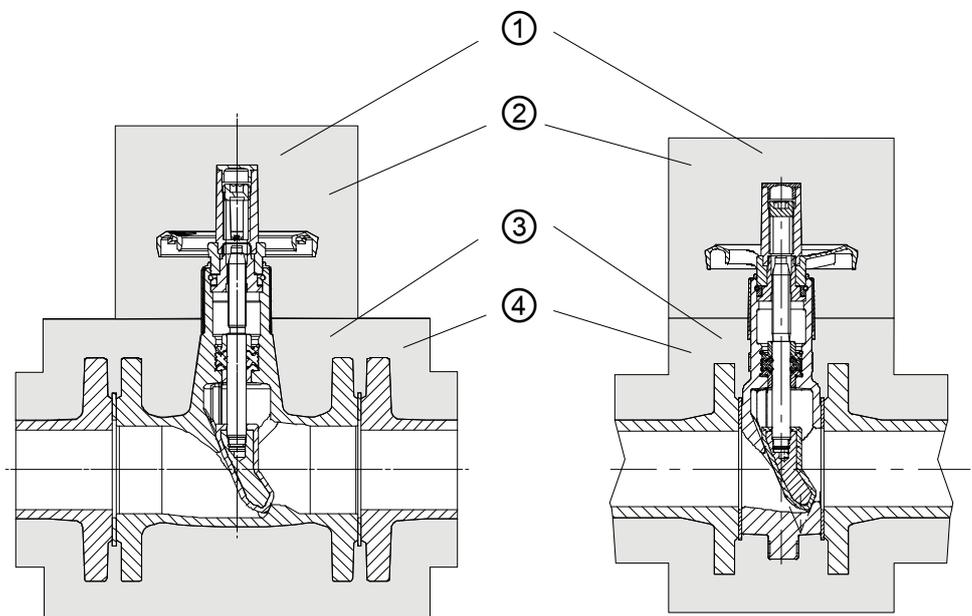
Shut-off valves must be installed in the pipeline on both sides of the strainer so that the screen can be replaced or cleaned without having to drain the entire system.

Install the strainer in such a way that sufficient clearance is available to remove the screen.

### 5.8 Insulation

If the valve is used for handling hot fluids, insulate it in accordance with the German energy-saving regulations.

	<p><b>⚠ WARNING</b></p> <p><b>Cold/hot piping and/or valve</b>          Risk of thermal injury!</p> <ul style="list-style-type: none"> <li>▸ Insulate the valve.</li> <li>▸ Fit warning signs.</li> </ul>
	<p><b>CAUTION</b></p> <p><b>Condensation forming in air-conditioning systems, cooling systems and refrigerating systems</b>          Ice forming!          Actuating element blockage!          Damage due to corrosion!</p> <ul style="list-style-type: none"> <li>▸ Insulate the valve to prevent diffusion.</li> </ul>



**Fig. 17: Proper diffusion-tight insulation (schematic)**

<p>① Proper diffusion-tight insulation of the complete valve including handwheel</p>	<p>② Removable cap</p>
<p>③ Proper diffusion-tight insulation of the valve</p>	<p>④ Insulation material</p>

## 6 Commissioning/Start-up/Shutdown

### 6.1 Commissioning

	<b>CAUTION</b>
	<p><b>Welding beads, scale and other impurities in the piping</b>            Damage to the valve!</p> <ul style="list-style-type: none"> <li>▷ Remove any impurities from the piping, e.g. by flushing the pipe with the valve in fully open position.</li> <li>▷ If necessary, install a strainer.</li> </ul>

#### 6.1.1 Prerequisites for commissioning/start-up

	<b>! DANGER</b>
	<p><b>Surge pressure/water hammer potentially occurring at high temperatures</b>            Danger to life caused by burns or scalds!</p> <ul style="list-style-type: none"> <li>▷ Do not exceed the valve's maximum permissible pressure.</li> <li>▷ Use valves made of nodular cast iron or steel.</li> <li>▷ The operator shall provide general safety measures for the system.</li> </ul>

Before commissioning/start-up of the valve ensure that the following requirements are met:

- The valve has been connected to the piping at both ends.
- The shut-off function of the installed valve has been checked by opening and closing it several times.
- The piping has been flushed.
- The material, pressure data and temperature data of the valve are compatible with the operating conditions of the piping. (⇒ Section 6.2, Page 36)
- The material's chemical resistance and stability under load have been checked.

#### 6.1.2 Actuation

Viewed from above, the valve is opened by turning the handwheel in counter-clockwise direction, and closed by turning the handwheel in clockwise direction. Direction symbols are marked on the top of the handwheel.

Globe valves are normally used in either "fully open" or "fully closed" position. For control duties, valves should be fitted with throttling plugs, unless throttling plugs are installed as standard.<sup>10)</sup>

	<b>CAUTION</b>
	<p><b>Excessively long idle periods</b>            Damage to the valve!</p> <ul style="list-style-type: none"> <li>▷ Check the function by opening and closing the valve at least once or twice a year.</li> </ul>

<sup>10</sup> BOA-SuperCompact, BOA-Compact, BOA-Compact EKB, BOA-H DN 15-100

	<b>CAUTION</b>
	<p><b>Vibration</b> Excessive wear and/or damage to the valve!</p> <ul style="list-style-type: none"> <li>▷ Change the system parameters.</li> <li>▷ Use throttling plugs or V-port plugs in throttling applications to minimise vibration.</li> </ul>
	<b>CAUTION</b>
	<p><b>Use of levers</b> Damage to the valve as a result of excessive forces!</p> <ul style="list-style-type: none"> <li>▷ Only actuate handwheel-operated valves by hand.</li> <li>▷ Levers may only be used in exceptional cases and in compliance with the following tables.</li> <li>▷ Do not use levers in the area of the position indicator.</li> </ul>

#### Permissible torque limits for levers

The valves mentioned below can be used with suitable levers up to the following torque limits:

**Table 14:** Permissible torque limits for BOA-SuperCompact, BOA-Compact, BOA-Compact EKB, BOA-W

DN	$M_t$ [Nm]	Width across flats
150	120	36
200	140	65

**Table 15:** Permissible torque limits for BOA-H

DN	$M_t$ [Nm]	Width across flats
150	140	36 <sup>11)</sup>
200	200	46
250	200	46
300	200	46
350	200	46

Torque wrenches with hexagon socket shall preferably be used, which are placed over the hexagon stem nut (925) after the handwheel has been removed.

<sup>11</sup> EN-GJL-400-18-LT: WAF 17 (conical square)

### 6.1.3 Setting the travel stop

The globe valves are always supplied set for maximum valve travel. The setting can be adjusted as required using an Allen key. To do so, remove the plug from the position indicator and adjust the screw plug. The requisite Allen key sizes are listed in the table below.

**Table 16:** Widths across flats of travel stop

Type series	Nominal size											
	15	20	25	32	40	50	65	80	100	125	150	200 - 350
BOA-Compact	7	7	7	8	8	8	10	10	12	17	17	-
BOA-SuperCompact	-	5	5	7	7	8	10	10	12	17	17	-
BOA-W	5	5	7	8	8	8	10	10	12	17	17	-
BOA-Control	5	5	7	8	8	8	10	10	12	17	17	-
BOA-Control IMS	5	5	7	8	8	8	10	10	12	17	17	-
BOA-H 5.1301	8	8	8	8	8	10	10	12	12	17	17	Slotted
BOA-H 5.3103	4	4	4	4	4	4	4	4	4	5	5	Slotted

## 6.2 Operating limits

### 6.2.1 Pressure/temperature ratings BOA-SuperCompact

**Table 17:** Test pressure and operating pressure

PN	DN	Shell test	Leak test (seat)	Permissible operating pressure <sup>12)</sup>
		With water		
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate A to DIN EN 12266-1	
		[bar]	[bar]	
16	20/25-200	24	17,6	16

### 6.2.2 Pressure/temperature ratings BOA-Compact

**Table 18:** Test pressure and operating pressure

PN	DN	Shell test	Leak test (seat)	Permissible operating pressure <sup>13)</sup>
		With water		
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate A to DIN EN 12266-1	
		[bar]	[bar]	
6	15 - 200	9	6,6	6
16	15 - 200	24	17,6	16

### 6.2.3 Pressure/temperature ratings BOA-Compact EKB

**Table 19:** Test pressure and operating pressure

PN	DN	Shell test	Leak test (seat)	Permissible operating pressure <sup>14)</sup>
		With water		
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate A to DIN EN 12266-1	
		[bar]	[bar]	
16	15 - 200	24	17,6	16 or 10 to DIN 3546-1

<sup>12)</sup> Static load

<sup>13)</sup> Static load

<sup>14)</sup> Static load

## 6.2.4 Pressure/temperature ratings BOA-W

Table 20: Test pressure and operating pressure

PN	DN	Shell test	Leak test (seat)	Permissible operating pressure <sup>15)</sup>		
		With water		-10 to +120 °C		
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate A to DIN EN 12266-1			
[bar]	[bar]	[bar]				
6	15 - 200	9	6,6	6		
16	15 - 200	24	17,6	16		

## 6.2.5 Pressure/temperature ratings BOA-H

Table 21: Test pressure and operating pressure

PN	Material	Shell test	Leak test (seat)	Permissible operating pressure [bar] <sup>16)17)</sup>							
		With water		[°C]							
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate A to DIN EN 12266-1								
[bar]	[bar]	-10 to +120	150	180	200	230	250	300	350		
16	EN-GJL-250	24	17,6	16	14,4	13,4	12,8	11,8	11,2	9,6	-
	EN-GJS-400-18-LT	24	17,6	16	15,5	-	14,7	-	13,9	12,8	11,2
25	EN-GJS-400-18-LT	37,5	27,5	25	24,3	-	23	-	21,8	20	17,5

## 6.2.6 Pressure/temperature ratings BOA-R

Table 22: Test pressure and operating pressure

PN	Material	Shell test	Leak test (seat)	Permissible operating pressure [bar] <sup>18)19)</sup>							
		With water to DIN EN 12266-1		[°C]							
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate A to DIN EN 12266-1								
[bar]	[bar]	-10 to +120	150	180	200	230	250	300	350		
6	EN-GJL-250	9	6,6	6	5,4	5	4,8	4,4	4,2	3,6	-
16	EN-GJL-250	24	17,6	16	14,4	13,4	12,8	11,8	11,2	9,6	-
16	EN-GJS-400-18-LT	24	17,6	16	15,5	-	14,7	-	13,9	12,8	11,2

<sup>15</sup> Static load

<sup>16</sup> Intermediate temperatures can be derived by linear interpolation.

<sup>17</sup> Static load

<sup>18</sup> Intermediate temperatures can be derived by linear interpolation.

<sup>19</sup> Static load

## 6.2.7 Pressure/temperature ratings BOA-RVK

Table 23: Test pressure and operating pressure

PN	DN	Shell test	Leak test (seat)	Permissible operating pressure [bar] <sup>20)21)</sup>						
		With water		[°C]						
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate B to DIN EN 12266-1	-20 <sup>22)</sup>	50	80	100	120	200	250
		[bar]	[bar]							
6	15-100	9	6,6	6	6	4	2	-	-	-
6	125-200	9	6,6	-	6	6	6	-	-	-
6/10/16	15-100	24	17,6	16	16	16	16	16	14	13
6/10/16	125-200	24	17,6	-	16	16	16	16	12,8	11,2

## 6.2.8 Pressure/temperature ratings BOA-S

Table 24: Test pressure and operating pressure

PN	Material	Shell and leak test	Permissible operating pressure [bar] <sup>23)24)</sup>							
		With water	[°C]							
		Tests P10 and P11 to DIN EN 12266-1	-10 to +120	150	180	200	230	250	300	350
		[bar]								
6	EN-GJL-250	9	6	5,4	5	4,8	4,4	4,2	3,6	-
16		24	16	14,4	13,4	12,8	11,8	11,2	9,6	-
16	EN-GJS-400-18-LT	24	16	15,5	-	14,7	-	13,9	12,8	11,2
25		37,5	25	24,3	-	23	-	21,8	20	17,5

<sup>20</sup> Intermediate temperatures can be derived by linear interpolation.

<sup>21</sup> Static load

<sup>22</sup> EN-GJL-250 (5.1301) for temperatures down to -10 °C only

<sup>23</sup> Intermediate temperatures can be derived by linear interpolation.

<sup>24</sup> Static load

6.2.9 Limitations for use in marine applications

Classification society	Type series	DN	Body material	Class I	Class II	Class III	
DNV-GL	BOA-SuperCompact BOA-Compact BOA-Compact EKB BOA-W BOA-Control	15 - 200	EN-GJL-250	✗	✗	✓	
	BOA-H BOA-R BOA-S	15 - 300	EN-GJL-250	✗	✗	✓ <sup>25)</sup>	
		15 - 80	EN-GJS-400-18-LT	Individual acceptance test	✓ Individual acceptance test <sup>26)</sup>	✓ Individual acceptance test <sup>26)</sup>	
		100 - 350	EN-GJS-400-18-LT	Individual acceptance test <sup>27)</sup>	Individual acceptance test <sup>27)</sup>	Individual acceptance test <sup>27)</sup>	
	BOA-CVE C/CS/W/IMS/EKB/ IMS EKB BOA-Control BOA-H	15 - 200	EN-GJL-250	✗	✗	Individual acceptance test <sup>25)</sup>	
		15 - 80	EN-GJS-400-18-LT	Individual acceptance test	Individual acceptance test	Individual acceptance test	
		100 - 150	EN-GJS-400-18-LT	Individual acceptance test <sup>27)</sup>	Individual acceptance test <sup>27)</sup>	Individual acceptance test <sup>27)</sup>	
	BV	BOA-SuperCompact BOA-Compact BOA-Compact EKB BOA-W BOA-Control	15 - 200	EN-GJL-250	✗	✓ <sup>28)</sup>	✓ <sup>28)</sup>
		BOA-H BOA-R BOA-S	15 - 300	EN-GJL-250	✗	✓ <sup>29)</sup> ✗ <sup>30)</sup>	✓ <sup>29)</sup>
			15 - 80	EN-GJS-400-18-LT	Individual acceptance test	✓	✓
100 - 350			EN-GJS-400-18-LT	Individual acceptance test <sup>27)</sup>	Individual acceptance test <sup>27)</sup>	Individual acceptance test <sup>27)</sup>	
BOA-CVE C/CS/W/IMS/EKB/ IMS EKB BOA-Control BOA-H		15 - 200	EN-GJL-250	✗	✓ <sup>29)</sup> ✗ <sup>30)</sup>	✓ <sup>28)</sup>	
		15 - 80	EN-GJS-400-18-LT	Individual acceptance test	✓	✓	
		100 - 150	EN-GJS-400-18-LT	Individual acceptance test <sup>27)</sup>	Individual acceptance test <sup>27)</sup>	Individual acceptance test <sup>27)</sup>	
ABS		BOA-SuperCompact BOA-Compact BOA-Compact EKB BOA-W BOA-Control BOA-H BOA-R BOA-S BOA-CVE C/CS/W/IMS/EKB/ IMS EKB BOA-Control BOA-H	150 - 350	EN-GJL-250 EN-GJS-400-18-LT	Individual acceptance test	Individual acceptance test	Individual acceptance test

<sup>25)</sup> To be stamped "120°C acc. DNV-GL"

<sup>26)</sup> For T < 0 °C

<sup>27)</sup> 3.1 material certificate required

<sup>28)</sup> To be stamped "PN13 acc. BV"

<sup>29)</sup> To be stamped "220 °C, PN13 acc. BV"

<sup>30)</sup> For thermal oil, fuel oil

**Table 25: Symbols key**

Symbol	Description
x	Application not permitted
✓	Application permitted
✓ <small>Foot note</small>	Application permitted provided the product is stamped with additional customer marking in acc. with the classification society's specifications. E.g.: 220 °C / PN13 acc. BV
Individual acceptance test	The tests are witnessed by a qualified representative of the classification society issuing the certificate.

### 6.3 Shutdown

#### 6.3.1 Measures to be taken for shutdown

During prolonged shutdown periods, ensure that the following conditions are met:

1. Drain fluids which change their physical condition due to changes in concentration, polymerisation, crystallisation, solidification, etc. from the piping.
2. If required, flush the piping with the valves fully opened.

#### 6.4 Returning to service

For returning the equipment to service, observe the sections on commissioning/start-up and the operating limits (⇒ Section 6.2, Page 36) .

In addition, carry out all servicing/maintenance operations before returning the valve to service. (⇒ Section 7, Page 41)

## 7 Servicing/Maintenance

### 7.1 Safety regulations

	<b>⚠ WARNING</b>
	<p><b>Fluids handled, consumables and supplies which are hot and/or pose a health hazard</b></p> <p>Risk of injury!</p> <ul style="list-style-type: none"> <li>▸ Observe all relevant laws.</li> <li>▸ When draining the fluid take appropriate measures to protect persons and the environment.</li> <li>▸ Decontaminate valves used in fluids posing a health hazard.</li> </ul>

	<b>⚠ DANGER</b>
	<p><b>Removing/dismantling actuators</b></p> <p>Risk of injury!</p> <ul style="list-style-type: none"> <li>▸ Observe the actuator's operating manual.</li> </ul>

	<b>CAUTION</b>
	<p><b>Improper reassembly</b></p> <p>Damage to the valve!</p> <ul style="list-style-type: none"> <li>▸ Reassemble the valve in accordance with the general rules of sound engineering practice.</li> <li>▸ Use original spare parts only.</li> </ul>

A regular maintenance schedule will help avoid expensive repairs and contribute to trouble-free, reliable operation of the valve with a minimum of servicing/maintenance expenditure and work.

	<b>NOTE</b>
	<p>Before removing the valve from the piping, ensure that the pipe has been taken out of service and released for repair/maintenance work.</p>

	<b>NOTE</b>
	<p>All maintenance work, service work and installation work can be carried out by KSB Service or authorised workshops. For contact details refer to the enclosed "Addresses" booklet or visit "<a href="http://www.ksb.com/contact">www.ksb.com/contact</a>" on the Internet.</p>

Never use force when dismantling and reassembling the valve.

### 7.2 Servicing/Inspection

#### 7.2.1 Maintenance

The valve has been designed to be largely maintenance-free. The materials of the sliding parts have been selected for minimum wear.

All elastomers are organic substances and as such subject to natural ageing. Continuous operation at high operating temperatures may reduce their service lives.

	<b>NOTE</b>
	<p>The operator/user is responsible for fixing appropriate inspection intervals and servicing intervals as required by the service conditions of the valve.</p>

### 7.2.2 Supervision of operation

The service life can be extended by taking the following measures:

- Checking the function by actuating the valve at least twice a year
- Regularly lubricating the moving parts such as stem 200, stuffing box screws and stem nut 925 using standardised lubricants to DIN 51825
- Re-tightening or replacing the bonnet/cover sealing element 411/412 in good time (⇒ Section 7.2.3.1, Page 42)

### 7.2.3 Inspection work

#### 7.2.3.1 Checking the bolted joint between body and bonnet/cover

It is possible and permitted to replace the bonnets or bonnet gaskets of BOA-H valves, and to clean the screen and replace the cover gaskets of BOA-S strainers.

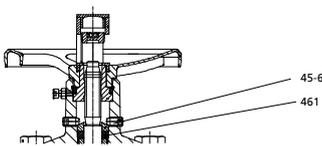
After maintenance work or repair work has been completed, all bolting in the bonnet/cover area must be re-tightened so as to restore full functionality of the valve. (⇒ Section 7.2.4.1, Page 43) .

	<p><b>! WARNING</b></p>
	<p><b>Failure to test overhauled valves</b> Hazard to persons and the environment!</p> <p>▷ After reassembly and prior to commissioning/start-up, the valves must be subjected to shell testing and leak testing to DIN EN 12266-1.</p>
	<p><b>NOTE</b></p>
	<p>On asbestos-free joint rings do not use any additional sealing agents. If anti-adhesive coatings are used, only use sealing agents recommended by the sealing element manufacturer.</p>

#### 7.2.3.2 Checking the back-up gland packing

When delivered, the back-up gland packing is not fully tightened.

	<p><b>! DANGER</b></p>
	<p><b>Bellows failure</b> Leakage of hot and/or toxic fluids! Risk of burns!</p> <p>▷ Tighten the stuffing box screws (45-6) until no leakage can be seen.</p>



**Fig. 18:** Sectional drawing of BOA-H

**Table 26:** Stuffing box screws to DIN 913

DN	Thread	Hexagon socket
15-100	M 10	SW 5
125-150	M 12	SW 6
200-350	M 16	SW 8

The valve must be replaced as quickly as possible to ensure proper functioning.

#### 7.2.3.3 Cleaning the screen

BOA-S strainers are either installed in horizontal pipes with the screen facing down or in vertical downpipes.

For cleaning the screen of BOA-S strainers observe the following sequence:

- ✓ The system is unpressurised.
  1. Remove drain plug.
  2. Undo the cover bolting.
  3. Remove and clean the screen.
  4. Place a new cover gasket on the cover.
  5. Place the screen on the cover.
  6. Guide the cover with screen and joint ring into the body. To ensure an optimum (i.e. high) Kv value, make sure when replacing the screen that the screen is not installed with the weld seam pointing towards the strainer's outlet port.
  7. Tighten the cover bolting. (⇒ Section 7.2.4.1, Page 43)
  8. Fit and tighten the drain plug. (⇒ Section 7.2.4.1, Page 43)

	<b>NOTE</b>
	After re-establishing the pressure enclosure, check the system tightness.

### 7.2.4 Tightening torques

#### 7.2.4.1 Tightening torques for the bonnet/cover bolting

Use a torque wrench to tighten bolted/screwed connections 902/920 or 901 between the bonnet/cover and the body.

**Table 27:** Bolt/stud tightening torques, BOA-H [Nm]

PN	Material	DN														
		15	20	25	32	40	50	65	80	100	125	150	200	250	300	350
16	5.1301 <sup>31)</sup>	20	20	20	30	30	30	80	80	150	150	150	150	260	260	-
16	5.3103 <sup>32)</sup>	20	20	20	35	35	35	90	90	170	170	170	170	290	290	290
25	5.3103 <sup>32)</sup>	20	20	20	35	35	35	90	90	170	170	170	-	-	-	-

**Table 28:** Bolt/stud tightening torques, BOA-R [Nm]

PN	Material	DN														
		15	20	25	32	40	50	65	80	100	125	150	200	250	300	
16	5.1301 <sup>31)</sup>	20	20	20	30	30	30	80	80	150	150	150	150	260	260	
16	5.1301 <sup>31)</sup>	20	20	20	30	30	30	80	80	150	150	150	150	260	260	
25	5.3103 <sup>32)</sup>	20	20	20	35	35	35	90	90	170	170	170	170	290	290	

**Table 29:** Bolt/stud tightening torques, BOA-S [Nm]

PN	Material	DN														
		15	20	25	32	40	50	65	80	100	125	150	200	250	300	
6	5.1301 <sup>31)</sup>	10	10	20	20	20	20	30	30	30	30	30	80	-	-	
16	5.1301 <sup>31)</sup>	20	20	20	20	30	30	80	80	80	80	80	80	150	150	
16	5.3103 <sup>32)</sup>	20	20	20	20	35	35	90	90	170	170	170	170	290	290	
25	5.3103 <sup>32)</sup>	20	20	20	20	35	35	90	90	90	90	90	90	-	-	

0570.8/36-EN

<sup>31</sup> EN-GJL-250 (JL1040)

<sup>32</sup> EN-GJS-400-18-LT (JS1025)

**Table 30:** Bolt/stud tightening torques by thread size [Nm]

Thread size	Body material / bolt/stud material	
	EN-GJL-250 5.6/8.8	EN-GJS-400-18-LT CE35E/1.7709
M8	10	-
M10	20	20
M12	30	35
M16	80	90
M20	150	170
M24	260	290

## 8 Trouble-shooting

	<p><b>⚠ WARNING</b></p>
	<p><b>Improper remedial work on the valve</b></p> <p>Risk of injury!</p> <ul style="list-style-type: none"> <li>▷ For any work performed in order to remedy faults on the valve observe the relevant information given in this operating manual and/or the product literature provided by the accessories manufacturers.</li> </ul>

If problems occur that are not described in the following table, consultation with the KSB service is required.

**Table 31:** Trouble-shooting

Problem	Possible cause	Remedy
Leakage at the seat/disc interface of BOA-SuperCompact, BOA-Compact or BOA-Compact EKB		Rework not possible. Replace valve.
Leakage at the seat/disc interface of BOA-H, BOA-R and BOA-W		<ol style="list-style-type: none"> <li>1. Remove bonnet/cover bolting 902/920/901.</li> <li>2. Rework the seating faces of valve disc and body using a suitable re-seating tool.</li> <li>3. Continue re-seating until the seating faces exhibit a consistently smooth and even ring.</li> </ol>
Leakage at the seat/disc interface of BOA-H with PTFE valve disc		<ol style="list-style-type: none"> <li>1. Remove bonnet/cover bolting 902/920/901.</li> <li>2. Replace the seal ring at valve disc 350 of BOA-H.</li> </ol>
Leakage at the bonnet/body joint or cover/body joint of BOA-H, BOA-R and BOA-S	Unevenly tightened bonnet/cover bolts/studs	<ol style="list-style-type: none"> <li>1. Undo bonnet/cover bolting 902/920 or 901.</li> <li>2. Replace joint ring 411.</li> <li>3. Re-tighten bonnet/cover bolting 902/920 or 901 as specified in the manual. (⇒ Section 7.2.4.1, Page 43)</li> </ol>
	Defective bonnet/cover gasket	<ol style="list-style-type: none"> <li>1. Remove bonnet/cover bolting 902/920/901.</li> <li>2. Clean the sealing surfaces.</li> <li>3. Replace joint ring 411.</li> </ol> <p>The tightening torques (⇒ Section 7.2.4.1, Page 43) must be observed.</p>
	Reduced bolt preload at thermal load ( $\geq 300$ °C)	<ol style="list-style-type: none"> <li>1. Re-tighten bonnet/cover bolting 902/920 or 901 as specified in the manual. (⇒ Section 7.2.4.1, Page 43)</li> </ol>

## 9 Related Documents

### 9.1 General assembly drawing with list of components for BOA-SuperCompact

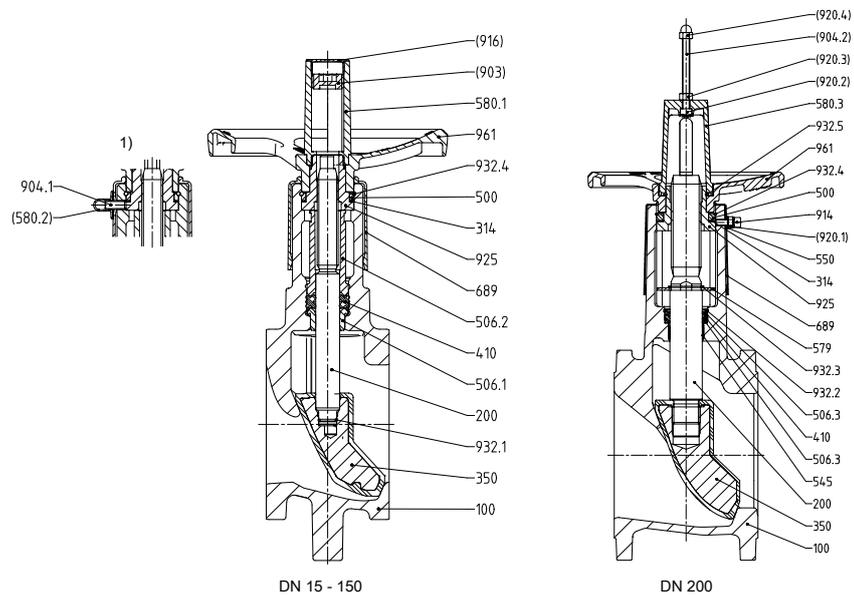


Fig. 19: Sectional drawings; 1) shown offset by 90°

Table 32: Parts list

Part No.	Description	Material	Note
100	Body	EN-GJL-250 (5.1301)	-
200	Stem	Stainless steel, min. 13 % chrome (Cr)	-
314	Thrust bearing	Steel/PTFE	DN 50 - 200
350	Valve disc	EN-GJL-250 (5.1301)	-
410	Profile seal	Elastomer EPDM	-
500	Ring	Steel, electro-galvanised and thick-film passivated	DN 32 - 200
506.1	Retaining ring	Plastic	DN 15 - 150
506.2		Plastic	DN 15 - 150
506.3		Stainless steel	DN 200
545	Bearing bush	Steel/PTFE	DN 200
550	Disc	Steel, electro-galvanised	DN 200
579	Stop	Steel, electro-galvanised and thick-film passivated	DN 200
<b>580.1<sup>33)</sup></b>	<b>Cap assembly incl. travel stop, comprising:</b>		
	580.1	Cap	DN 15 - 150
	903	Screw plug	
	916	Plug	
<b>580.3<sup>33)</sup></b>	<b>Cap assembly incl. travel stop, comprising:</b>		
	580.3	Cap	DN 200
	904.2	Grub screw	
	920.2	Square nut	
	920.3	Hexagon nut	
	920.4	Cap nut	Plastic
689	Insulation	Plastic	-
<b>904.1<sup>33)</sup></b>	<b>Locking device assembly, comprising:</b>		

<sup>33)</sup> Spare part

Part No.	Description	Material	Note
904.1	Grub screw	Galvanised steel	DN 15 - 150
580.2	Cap	Plastic	
<b>914<sup>33)</sup></b>	<b>Locking device assembly, comprising:</b>		
914	Hexagon socket head cap screw	Stainless steel	DN 200
920.1	Hexagon nut	Galvanised steel	
925	Stem nut	Steel, electro-galvanised and thick-film passivated	-
932.1	Circlip	Stainless spring steel	DN 15 - 150
932.2			DN 200
932.3			DN 200
932.4			-
932.5			DN 200
961	Handwheel	Plastic, glass-fibre reinforced, impact-resistant	DN 15 - 50
		Die-cast aluminium	DN 65 - 150
		EN-GJL-200 (5.1300)	DN 200

9.2 General assembly drawing with list of components for BOA-Compact

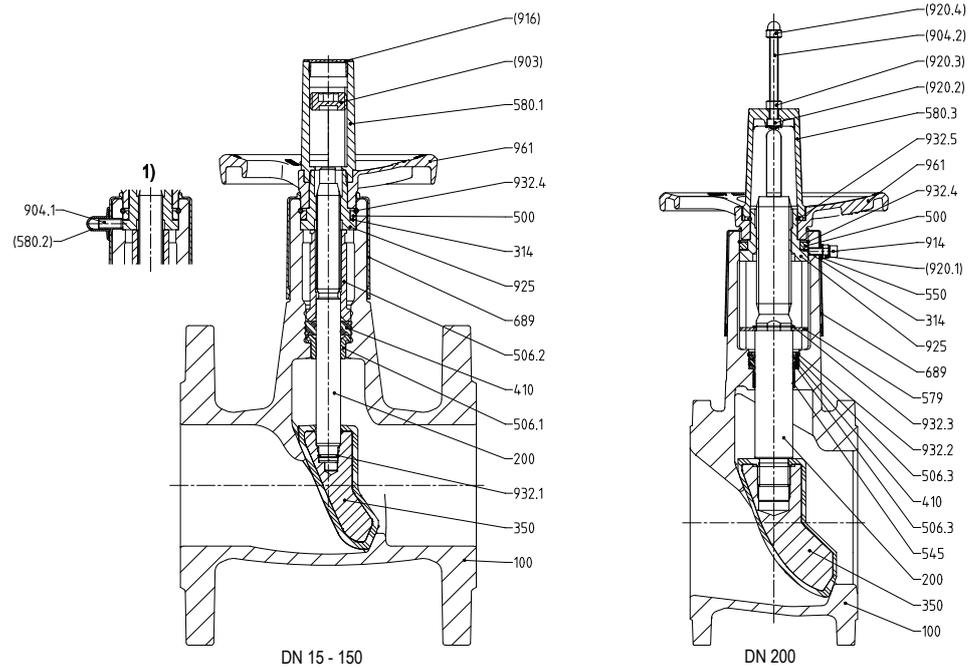


Fig. 20: Sectional drawings; 1) shown offset by 90°

Table 33: Parts list

Part No.	Description	Material	Note
100	Body	EN-GJL-250 (5.1301)	-
200	Stem	Stainless steel, min. 13 % chrome (Cr)	-
314	Thrust bearing	Steel/PTFE	DN 50 - 200
350	Valve disc	EN-GJL-250 (5.1301) / EPDM	-
410	Profile seal	Elastomer EPDM	-
500	Ring	Steel, electro-galvanised and thick-film passivated	DN 32 - 200
506.1	Retaining ring	Plastic	DN 15 - 150
506.2		Plastic	DN 15 - 150
506.3		Stainless steel	DN 200
545	Bearing bush	Steel/PTFE	DN 200
550	Disc	Steel, electro-galvanised	DN 200
579	Stop	Steel, electro-galvanised and thick-film passivated	DN 200
<b>580.1<sup>34)</sup></b>	<b>Cap assembly incl. travel stop, comprising:</b>		
	580.1	Cap	DN 15 - 150
	903	Screw plug	
	916	Plug	
<b>580.3<sup>34)</sup></b>	<b>Cap assembly incl. travel stop, comprising:</b>		
	580.3	Cap	DN 200
	904.2	Grub screw	
	920.2	Square nut	
	920.3	Hexagon nut	
	920.4	Cap nut	
689	Insulation	Plastic	-
<b>904.1<sup>34)</sup></b>	<b>Locking device assembly, comprising:</b>		
	904.1	Grub screw	DN 15 - 150
	580.2	Cap	

<sup>34)</sup> Spare part

Part No.	Description	Material	Note
<b>914<sup>34)</sup></b>	<b>Locking device assembly, comprising:</b>		
914	Hexagon socket head cap screw	Stainless steel	DN 200
920.1	Hexagon nut	Galvanised steel	
925	Stem nut	Steel, electro-galvanised and thick-film passivated	-
932.1	Circlip	Stainless spring steel	DN 15 - 150
932.2		Stainless spring steel	DN 200
932.3		Stainless spring steel	DN 200
932.4		Stainless spring steel	-
932.5		Stainless spring steel	DN 200
961	Handwheel	Plastic, glass-fibre reinforced, impact-resistant	DN 15 - 50
		Die-cast aluminium	DN 65 - 150
		EN-GJL-200 (5.1300)	DN 200

9.3 General assembly drawing with list of components for BOA-Compact EKB

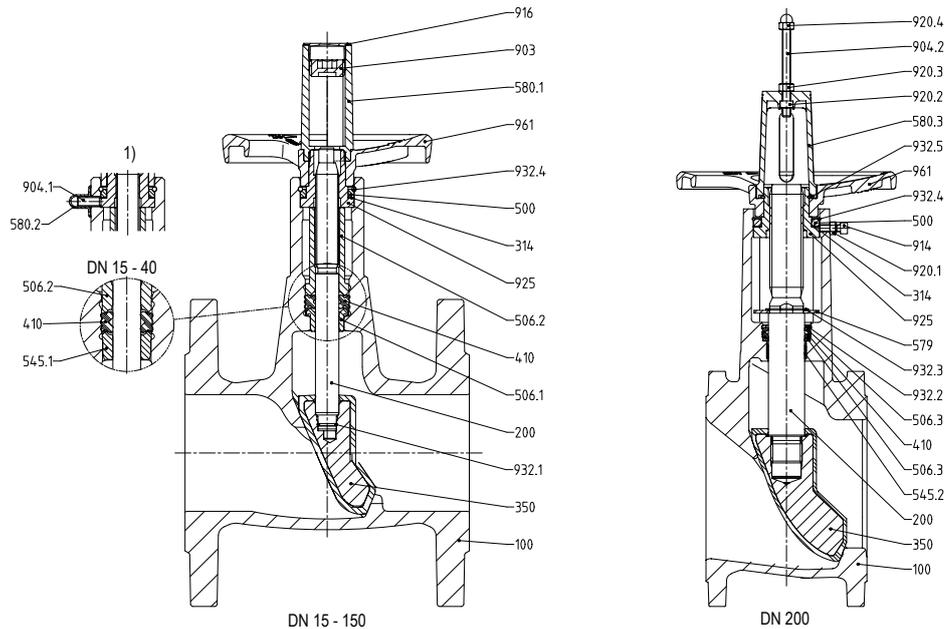


Fig. 21: Sectional drawings; 1) shown offset by 90°

Table 34: Parts list

Part No.	Description	Material	Note
100	Body	EN-GJL-250 (5.1301) / EKB (with internal and external electrostatic coating), as per KTW recommendation	-
200	Stem	Stainless steel, min. 13 % chrome (Cr)	-
314	Thrust bearing	Steel/PTFE	DN 50 - 200
350	Valve disc	EN-GJL-250 (5.1301) / EPDM, as per KTW recommendation	-
410	Profile seal	Elastomer EPDM, as per KTW recommendation	-
500	Ring	Steel, electro-galvanised and thick-film passivated	DN 32 - 200
506.1	Retaining ring	Plastic, as per KTW recommendation	DN 50 - 150
506.2		Plastic	DN 15 - 150
506.3		Stainless steel	DN 200
545.1	Bearing bush	Brass (CW614N)	DN 15 - 40
545.2		Plastic	DN 200
579	Stop	Steel, electro-galvanised and thick-film passivated	DN 200
<b>580.1<sup>35)</sup></b>	<b>Cap assembly incl. travel stop, comprising:</b>		
	580.1	Cap	DN 15 - 150
	903	Screw plug	
	916	Plug	
<b>580.3<sup>35)</sup></b>	<b>Cap assembly incl. travel stop, comprising:</b>		
	580.3	Cap	DN 200
	904.2	Grub screw	
	920.2	Square nut	
	920.3	Hexagon nut	
	920.4	Cap nut	
<b>904.1<sup>35)</sup></b>	<b>Locking device assembly, comprising:</b>		

<sup>35)</sup> Spare part

Part No.	Description	Material	Note
904.1	Grub screw	Galvanised steel	DN 15 - 150
580.2	Cap	Plastic	
<b>914<sup>35)</sup></b>	<b>Locking device assembly, comprising:</b>		
914	Hexagon socket head cap screw	Stainless steel	DN 200
920.1	Hexagon nut	Galvanised steel	
925	Stem nut	Steel, electro-galvanised and thick-film passivated	-
932.1	Circlip	Stainless spring steel	DN 15 - 150
932.2		Stainless spring steel	DN 200
932.3		Stainless spring steel	DN 200
932.4		Stainless spring steel	-
932.5		Stainless spring steel	DN 200
961	Handwheel	Plastic, glass-fibre reinforced, impact-resistant	DN 15 - 50
		Die-cast aluminium	DN 65 - 150
		EN-GJL-200 (5.1300)	DN 200

9.4 General assembly drawing with list of components for BOA-W

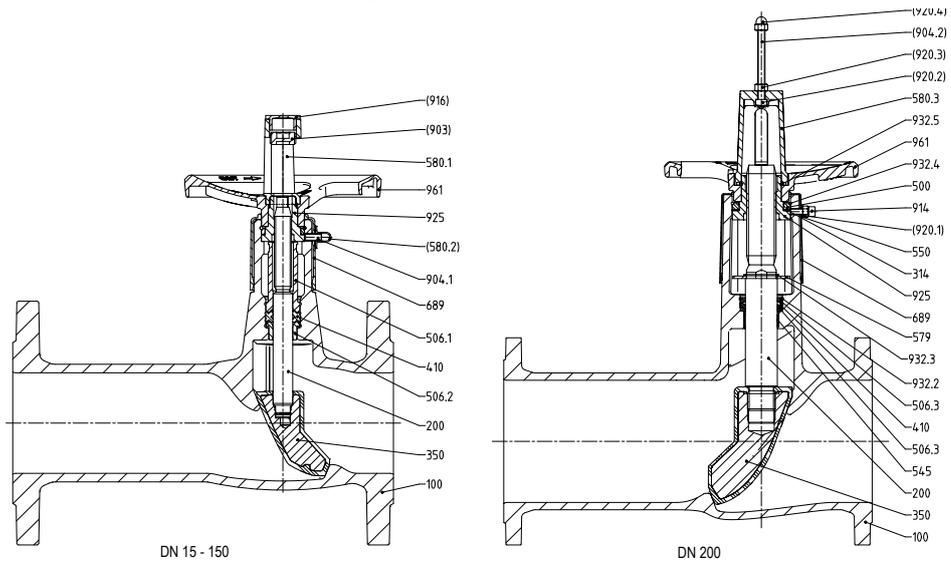


Fig. 22: Sectional drawings

Table 35: Parts list

Part No.	Description	Material	Note
100	Body	EN-GJL-250 (5.1301)	-
200	Stem	Stainless steel, min. 13 % chrome (Cr)	-
314	Thrust bearing	Steel/PTFE	DN 50 - 200
350	Valve disc	EN-GJL-250 (5.1301)	-
410	Profile seal	Elastomer EPDM	-
500	Ring	Steel, electro-galvanised and thick-film passivated	DN 32 - 200
506.1	Retaining ring	Plastic	DN 15 - 150
506.2		Plastic	DN 15 - 150
506.3		Stainless steel	DN 200
545	Bearing bush	Steel/PTFE	DN 200
550	Disc	Steel, electro-galvanised	DN 200
579	Stop	Steel, electro-galvanised and thick-film passivated	DN 200
<b>580.1<sup>36)</sup></b>	<b>Cap assembly incl. travel stop, comprising:</b>		
580.1	Cap	Plastic, glass-fibre reinforced, impact-resistant	DN 15 - 150
903	Screw plug	Steel, electro-galvanised, blue chromated	
916	Plug	Plastic	
<b>580.3<sup>36)</sup></b>	<b>Cap assembly incl. travel stop, comprising:</b>		
580.3	Cap	Plastic, glass-fibre reinforced, impact-resistant	DN 200
904.2	Grub screw	Galvanised steel	
920.2	Square nut	Galvanised steel	
920.3	Hexagon nut	Galvanised steel	
920.4	Cap nut	Plastic	
689	Insulation	Plastic	-
<b>904.1<sup>36)</sup></b>	<b>Locking device assembly, comprising:</b>		
904.1	Grub screw	Galvanised steel	DN 15 - 150
580.2	Cap	Plastic	
<b>914<sup>36)</sup></b>	<b>Locking device assembly, comprising:</b>		
914	Hexagon socket head cap screw	Stainless steel	DN 200

<sup>36)</sup> Spare part

Part No.	Description	Material	Note
920.1	Hexagon nut	Galvanised steel	DN 200
925	Stem nut	Steel, electro-galvanised and thick-film passivated	-
932.1	Circlip	Stainless spring steel	DN 15 - 150
932.2			DN 200
932.3			DN 200
932.4			-
932.5			DN 200
961	Handwheel	Plastic, glass-fibre reinforced, impact-resistant	DN 15 - 50
		Die-cast aluminium	DN 65 - 150
		EN-GJL-200 (5.1300)	DN 200

9.5 General assembly drawing with list of components for BOA-H

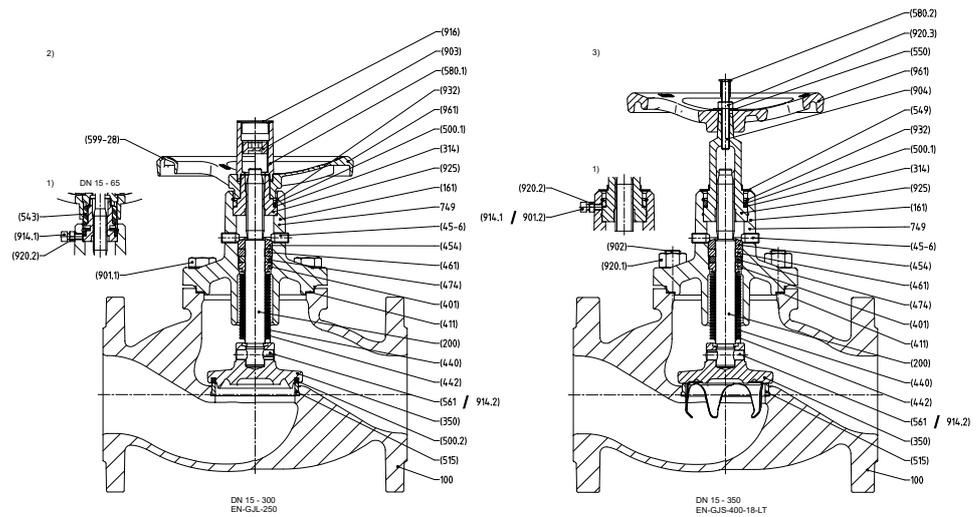


Fig. 23: Sectional drawings; 1) shown rotated by 90°; 2) variant with PTFE ring on valve disc; 3) variant with V-port plug

Table 36: Parts list

Part No.	Description	Material	Variant	Note
<b>100<sup>37)</sup> Body assembly, complete</b>				
100	Body	EN-GJL-250 (5.1301)	EN-GJL-250	-
		EN-GJS-400-18-LT (5.3103)	EN-GJS-400-18-LT	-
411 <sup>37)</sup>	Joint ring	CrNi steel/graphite 1 F	-	-
515	Seat ring	1.4104+A+SH	-	DN 15 - 25
		1.4301	-	DN 32 - 350
901.1	Hexagon head bolt	8.8	EN-GJL-250	-
902	Stud	C35E+QT	EN-GJS-400-18-LT	-
920.1	Hexagon nut	C35E+N	EN-GJS-400-18-LT	-
<b>749<sup>37)</sup> Bonnet assembly, complete</b>				
161	Body bonnet	EN-GJL-250 (5.1301)	EN-GJL-250	-
		EN-GJS-400-18-LT (5.3103)	EN-GJS-400-18-LT	-
350	Throttling plug	1.4104+QT650	Basic design	DN 15 - 40
	V-port plug	1.4104+QT650	Variant with V-port plug	DN 15 - 40
<b>350<sup>37)</sup> Valve disc assembly, complete with grooved pin</b>				
350	Throttling plug / On/off disc	1.4021+QT800	Basic design	DN 50 - 150
	On/off disc	1.0402 / 1.4370	Basic design	DN 200 - 350
	Balanced plug	1.4021+QT800	Variant with balanced plug	DN 200 - 350
	Throttling plug / On/off disc / PTFE	1.4021+QT800	Variant with PTFE valve disc	DN 50 - 150

<sup>37)</sup> Spare part

Part No.		Description	Material	Variant	Note
	350	On/off disc / PTFE	1.0402 / 1.4370	Variant with PTFE valve disc	DN 200
		V-port plug	1.4021+QT800 / 1.4301	Variant with V-port plug	DN 50 - 150
			1.0402 / 1.4370 / 1.4310	Variant with V-port plug	DN 200 - 350
	500.2 <sup>37)</sup>	Ring	PTFE	Variant with PTFE valve disc	DN 15 - 200
	561	Grooved pin	45 H+A2A	-	DN 50 - 300
	411 <sup>37)</sup>	Joint ring	CrNi steel/graphite 1 F	-	-
	<b>440</b>	<b>Bellows assembly</b>			
	200	Stem	Stainless steel, min. 13 % chrome (Cr)	-	-
	401	Weld ring	1.4021+QT800	-	-
	442	Bellows	1.4541	-	-
	45-6	Stuffing box screw	45 H	-	-
	454	Stuffing box ring	46S20+C	-	-
	461	Gland packing	GH1,4-IA	-	-
	474	Thrust ring	1.4104	-	-
	549	Collar bush	DC01-B	EN-GJS-400-18-LT	DN 15 - 150
	550	Disc	ST A2A	EN-GJS-400-18-LT	DN 15 - 150
	580.1	Cap	1.4027	EN-GJL-250	DN 200 - 300
	580.2	Protective cap	TPE	EN-GJS-400-18-LT	-
	<b>599-28<sup>37)</sup></b>	<b>Handwheel spare parts kit assembly, material variant: EN-GJL-250</b>			
	543 <sup>37)</sup>	Spacer bush	-	EN-GJL-250	DN 15 - 65
	<b>580.1<sup>37)</sup></b>	<b>Cap assembly incl. travel stop, material variant: EN-GJL-250</b>			
	580.1	Cap	PA 66-GF 35	EN-GJL-250	DN 15 - 150
	903	Screw plug	ST+GAL ZN	EN-GJL-250	DN 15 - 150
	916	Plug	PE-LD	EN-GJL-250	DN 15 - 150
	961 <sup>37)</sup>	Handwheel	AC-46200F-D	EN-GJL-250	DN 15 - 150
	900.1	Screw	1.4021+QT 800	EN-GJL-250	DN 200 - 300
	904	Grub screw	45 H+A2A	EN-GJS-400-18-LT	-
	<b>914.1</b>	<b>Locking device assembly, material variant: EN-GJL-250</b>			
	914.1	Hexagon socket head cap screw	8.8+A2A	EN-GJL-250	DN 50 - 300
	920.2	Hexagon nut	8 +A2A	EN-GJL-250	-
	914.2	Hexagon socket head cap screw	8.8+A2A	EN-GJL-250	DN 15 - 40
	<b>914.1</b>	<b>Locking device assembly, material variant: EN-GJS-400-18-LT</b>			
	901.2	Hexagon head bolt	8.8	EN-GJS-400-18-LT	DN 125 - 350
	914.1	Hexagon socket head cap screw	8.8+A2A	EN-GJS-400-18-LT	DN 15 - 100
	920.2	Hexagon nut	8 +A2A	EN-GJS-400-18-LT	-
	916	Plug	PE-LD	EN-GJL-250	DN 200 - 300
	920.2	Hexagon nut	8+A2A	EN-GJS-400-18-LT	-
	<b>925</b>	<b>Stem nut assembly</b>			
	314	Thrust bearing	Steel/PTFE	-	-
	500.1	Ring	ST+GAL ZN	-	-
	925	Stem nut	46S20+C	-	-
	932	Circlip	1.4310	-	-

Part No.	Description	Material	Variant	Note
961 <sup>37)</sup>	Handwheel	EN-GJL-250	-	DN 200 - 350
961 <sup>37)</sup>	Handwheel	EN-GJL-200	EN-GJS-400-18-LT	DN 15 - 350

## 9.6 General assembly drawing with list of components for BOA-R

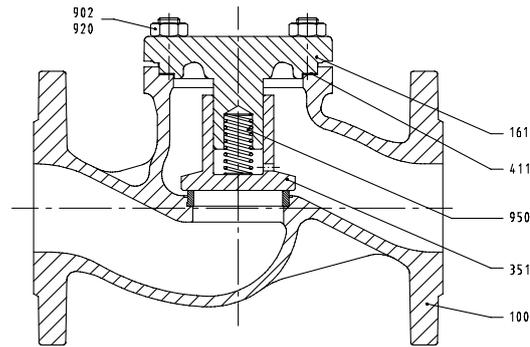


Fig. 24: BOA-R

Table 37: Parts list

Part No.	Description	PN	DN	Material	Material number
100	Body <sup>38)</sup> <sup>39)</sup> <sup>40)</sup>	6/16	15 - 300	EN-GJL-250	5.1301
		16	15 - 300	EN-GJS-400-18-LT	5.3103
161	Body cover <sup>39)</sup>	6/16	15 - 300	EN-GJL-250	5.1301
		16	15 - 300	EN-GJS-400-18-LT	5.3103
351	Check disc <sup>39)</sup>	6	15 - 150	X 20 CR 13	1.4021
		16	15 - 150		
		6	200	Steel, sealing surface C22/	1.0402/1.4370
		16	200 - 350	X 15 CrNi 18 8 Guide pin X 20 Cr 13	1.4021
411	Joint ring <sup>39)</sup>	-	-	CrNi steel/graphite	-
515	Seat ring	-	-	Stainless steel	-
902	Stud <sup>39)</sup>	-	-	C 35 E	-
920	Hexagon nut <sup>39)</sup>	-	-	C 35	-
950	Spring <sup>39)</sup>	-	-	X 12 CrNi 17 7	1.4310

<sup>38</sup> Body marked "BOA-H"

<sup>39</sup> Spare part

<sup>40</sup> Spare part

9.7 General assembly drawing with list of components for BOA-RVK

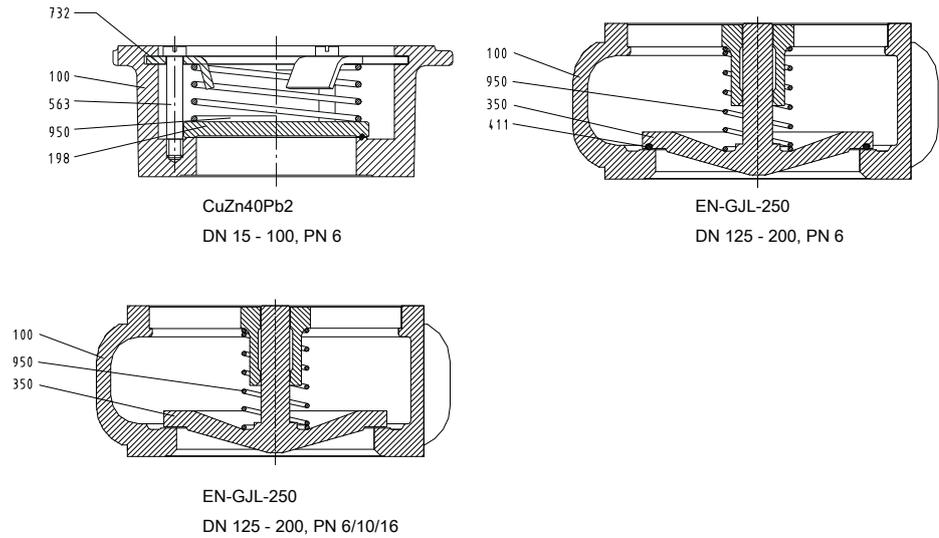


Fig. 25: Sectional drawings

Table 38: Parts list of DN 15 - 100 PN 6/10/16

Part No.	Description	PN	DN	Material	Note
100	Body	6/10/16	15 - 100	CuZn40Pb2	2.0402
		6/10/16	125 - 200	EN-GJL-250	5.1301
198	Plate	6	15 - 100	PPO-GFK plastics	-
		6/10/16	15 - 100	Stainless steel	1.4301
350	Valve disc	6	125 - 200	EN-GJL-250 with O-ring	5.1301
		6/10/16	125 - 200	EN-GJL-250	5.1301
411	Joint ring	6	125 - 200	EPDM	-
563	Guide pin	-	15 - 100	A2	-
732	Holder	-	15 - 100	Stainless steel	1.4301
950	Spring	-	15 - 200	Stainless steel	1.4571

## 9.8 General assembly drawing with list of components for BOA-S

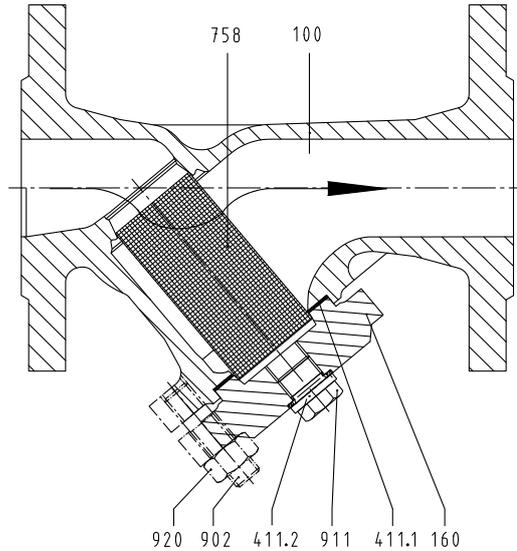


Fig. 26: BOA-S

Table 39: Parts list

Part No.	Description	PN	Material	Note
100	Body	6, 16	EN-GJL-250 (5.1301)	-
		16, 25	EN-GJS-400-18-LT (5.3103)	-
160 <sup>41)</sup>	Cover	6,16	EN-GJL-250 (5.1301)	-
		16, 25	EN-GJS-400-18-LT (5.3103)	-
411.1 <sup>42)</sup>	Joint ring	6, 16	CrNi steel/graphite	-
		16, 25	CrNi steel/graphite	-
411.2	Joint ring	6, 16, 25	A4	-
758 <sup>42)</sup>	Screen	6, 16, 25	X 5 CrNi 18 10 (1.4301)	-
191	Screen cage	6, 16, 25	X 5 CrNi 18 10 (1.4301)	≥ DN 150
902	Stud	6, 16	5.6	gal ZN
		16, 25	A2-70	gal ZN
911	Drain plug	6, 16	A4 or A2	-
		16, 25	C 35 E	gal ZN
920	Hexagon nut	6, 16	5.6	gal ZN
		16, 25	A2-70	gal ZN

<sup>41</sup> Spare part (complete with screw plug)

<sup>42</sup> Spare part

## 10 EU Declaration of Conformity

### 10.1 EU Declaration of Conformity for BOA-H, BOA-R

Herewith we,

**KSB SE & Co. KGaA**  
**Johann-Klein-Straße 9**  
**67227 Frankenthal (Germany)**

declare that **the product:**

<b>BOA-H</b>	EN-GJL-250	PN 16	DN 15-300
<b>BOA-H</b>	EN-GJS-400-18-LT	PN 16	DN 15-350 <sup>43)</sup>
<b>BOA-H</b>	EN-GJS-400-18-LT	PN 25	DN 15-150 <sup>44)</sup>
<b>BOA-R</b>	EN-GJL-250	PN 6	DN 15-200
<b>BOA-R</b>	EN-GJL-250	PN 16	DN 15-300
<b>BOA-R</b>	EN-GJS-400-18-LT	PN 16	DN 15-350 <sup>43)</sup>

satisfies the safety requirements laid down in the European Pressure Equipment Directive 2014/68/EU.

**Applied harmonised European standards:**

Globe valves/Lift check valves: EN 19, EN 12516, EN 12266-1, EN 13789, EN 1092-2  
 Lift check valves: EN 12334

**Other standards/codes:**

DIN 3840 Paras. 1.3 and 4.3  
<sup>43)</sup> and <sup>44)</sup> to AD 2000 code

**Suitable for:**

Fluids in Groups 1 and 2

**Conformity assessment procedure:**

Module H

**Name and address of the notified body responsible for approval and surveillance:**

TÜV SÜD Industrie Service GmbH  
 Westendstraße 199  
 80686 München (Germany)

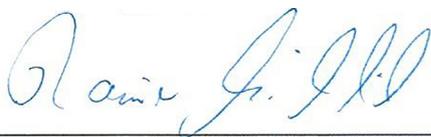
**Identification number of the notified body:**

0036

Valves ≤ DN 25 comply with the European Pressure Equipment Directive 2014/68/EU, Article 4, Section 3. They must bear neither the CE marking nor the identification number of a notified body.

The EU Declaration of Conformity was issued in/on:

Frankenthal, 8 February 2022



Rainer Michalik  
 Head of Integrated Management Systems



Dieter Hanewald  
 Product Management and Product Development II  
 Frankenthal

<sup>43</sup> DN 15-200 to AD 2000 code

<sup>44</sup> To AD 2000 code

**10.2 EU Declaration of Conformity for BOA-SuperCompact, BOA-Compact, BOA-Compact EKB, BOA-W**

Herewith we,

KSB SE & Co. KGaA  
Johann-Klein-Straße 9  
67227 Frankenthal (Germany)

declare that the product:

<b>BOA-SuperCompact</b>	PN 6/10/16	DN 20-200
<b>BOA-Compact</b>	PN 6, 16	DN 15-200
<b>BOA-Compact EKB</b>	PN 10/16	DN 15-200
<b>BOA-W</b>	PN 6, 16	DN 15-200

satisfies the safety requirements laid down in the European Pressure Equipment Directive 2014/68/EU.

**Applied harmonised European standards:**

Globe valves EN 19, EN 12516, EN 12266-1, EN 13789, EN 1092-2

**Other standards/codes:**

DIN 3840 Paras. 1.3 and 4.3

**Suitable for:**

Fluids in Group 2

**Conformity assessment procedure:**

Module H

**Name and address of the notified body responsible for approval and surveillance:**

TÜV SÜD Industrie Service GmbH  
Westendstraße 199  
80686 München (Germany)

**Identification number of the notified body:**

0036

Valves  $\leq$  DN 50 (PN 16),  $\leq$  DN 100 (PN 10) and  $\leq$  DN 150 (PN 6) comply with the European Pressure Equipment Directive 2014/68/EU, Article 4, Section 3. They must bear neither the CE marking nor the identification number of a notified body.

Frankenthal, 8 February 2022



Rainer Michalik  
Head of Integrated Management Systems



Dieter Hanewald  
Product Management and Product Development II  
Frankenthal



**10.4 EU Declaration of Conformity for BOA-S EN-GJL-250**

Herewith we,

**KSB SE & Co. KGaA**  
**Johann-Klein-Straße 9**  
**67227 Frankenthal (Germany)**

declare that **the product:**

<b>BOA-S</b>	EN-GJL-250	PN 6	DN 15-200
<b>BOA-S</b>	EN-GJL-250	PN 16	DN 15-400

satisfies the safety requirements laid down in the European Pressure Equipment Directive 2014/68/EU.

**Applied harmonised European standards:**

EN 1561, EN 12266-1, EN 558-1, EN 1092-2

**Other standards/codes:**

DIN 3840

**Suitable for:**

Fluids in Groups 1 and 2

**Conformity assessment procedure:**

Module H

**Name and address of the notified body responsible for approval and surveillance:**

Bureau Veritas Services SAS  
8, cours du Triangle  
92800 Puteaux  
FRANCE

**Identification number of the notified body:**

0062

Valves  $\leq$  DN 25 comply with the European Pressure Equipment Directive 2014/68/EU, Article 4, Section 3. They must bear neither the CE marking nor the identification number of a notified body.

The EU Declaration of Conformity was issued in/on:

Frankenthal, 1 January 2021



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Rainer Michalik  
Head of Integrated Management Systems



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Dieter Hanewald  
Product Management and Product Development II  
Frankenthal

**10.5 EU Declaration of Conformity for BOA-S EN-GJS-400-18-LT**

Herewith we,

**KSB SE & Co. KGaA**  
**Johann-Klein-Straße 9**  
**67227 Frankenthal (Germany)**

declare that **the product:**

**BOA-S**                      EN-GJS-400-18-LT                      PN 16                      DN 15-300

**BOA-S**                      EN-GJS-400-18-LT                      PN 25                      DN 15-200

satisfies the safety requirements laid down in the European Pressure Equipment Directive 2014/68/EU.

**Applied harmonised European standards:**

EN 1563, EN 12266-1, EN 558-1, EN 1092-2

**Other standards/codes:**

DIN 3840

**Suitable for:**

Fluids in Groups 1 and 2

**Conformity assessment procedure:**

Module H

**Name and address of the notified body responsible for approval and surveillance:**

Bureau Veritas Services SAS  
8, cours du Triangle  
92800 Puteaux  
FRANCE

**Identification number of the notified body:**

0062

Valves  $\leq$  DN 25 comply with the European Pressure Equipment Directive 2014/68/EU, Article 4, Section 3. They must bear neither the CE marking nor the identification number of a notified body.

The EU Declaration of Conformity was issued in/on:

Frankenthal, 1 January 2021



Rainer Michalik  
Head of Integrated Management Systems



Dieter Hanewald  
Product Management and Product Development II  
Frankenthal

## 11 UK Declaration of Conformity

### 11.1 UK Declaration of Conformity for BOA-H, BOA-R

Herewith we,

**KSB SE & Co. KGaA**  
**Johann-Klein-Straße 9**  
**67227 Frankenthal (Germany)**

declare that **the product:**

<b>BOA-H</b>	EN-GJL-250	PN 16	DN 15-300
<b>BOA-H</b>	EN-GJS-400-18-LT	PN 16	DN 15-350 <sup>45)</sup>
<b>BOA-H</b>	EN-GJS-400-18-LT	PN 25	DN 15-150 <sup>46)</sup>
<b>BOA-R</b>	EN-GJL-250	PN 6	DN 15-200
<b>BOA-R</b>	EN-GJL-250	PN 16	DN 15-300
<b>BOA-R</b>	EN-GJS-400-18-LT	PN 16	DN 15-350 <sup>45)</sup>

satisfies the safety requirements of the Pressure Equipment (Safety) Regulations 2016.

**Applied harmonised European standards:**

Globe valves/Lift check valves: EN 19, EN 12516, EN 12266-1, EN 13789, EN 1092-2  
 Lift check valves: EN 12334

**Other standards/codes:**

DIN 3840 Paras. 1.3 and 4.3  
<sup>45)</sup> and <sup>46)</sup> to AD 2000 code

**Suitable for:**

Fluids in Groups 1 and 2

**Conformity assessment procedure:**

Module H

**Name and address of the UK-approved body:**

TÜV SÜD BABT Unlimited  
 Octagon House  
 Concorde Way, Segensworth North  
 Fareham, Hampshire  
 PO15 5RL (United Kingdom)

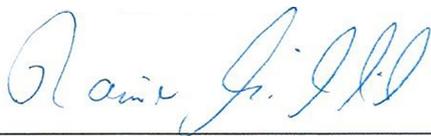
**Identification number of the UK-approved body:**

0168

Valves ≤ DN 25 comply with the Pressure Equipment (Safety) Regulations 2016, PART 1, para. 8 . They must bear neither the UKCA marking nor the identification number of a UK-approved body.

The UK Declaration of Conformity was issued in/on:

Frankenthal, 8 February 2022




Rainer Michalik  
 Head of Integrated Management Systems

Dieter Hanewald  
 Product Management and Product Development II  
 Frankenthal

<sup>45</sup> DN 15-200 to AD 2000 code

<sup>46</sup> To AD 2000 code

**11.2 UK Declaration of Conformity for BOA-SuperCompact, BOA-Compact, BOA-Compact EKB, BOA-W**

Herewith we,

**KSB SE & Co. KGaA**  
**Johann-Klein-Straße 9**  
**67227 Frankenthal (Germany)**

declare that **the product:**

<b>BOA-SuperCompact</b>	PN 6/10/16	DN 20-200
<b>BOA-Compact</b>	PN 6, 16	DN 15-200
<b>BOA-Compact EKB</b>	PN 10/16	DN 15-200
<b>BOA-W</b>	PN 6, 16	DN 15-200

satisfies the safety requirements of the Pressure Equipment (Safety) Regulations 2016.

**Applied harmonised European standards:**

Globe valves EN 19, EN 12516, EN 12266-1, EN 13789, EN 1092-2

**Other standards/codes:**

DIN 3840 Paras. 1.3 and 4.3

**Suitable for:**

Fluids in Group 2

**Conformity assessment procedure:**

Module H

**Name and address of the UK-approved body:**

TÜV SÜD BABT Unlimited  
Octagon House  
Concorde Way, Segensworth North  
Fareham, Hampshire  
PO15 5RL (United Kingdom)

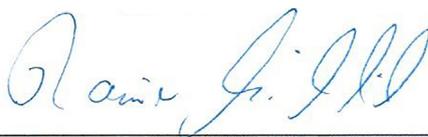
**Identification number of the UK-approved body:**

0168

Valves  $\leq$  DN 50 (PN 16),  $\leq$  DN 100 (PN 10) and  $\leq$  DN 150 (PN 6) comply with the Pressure Equipment (Safety) Regulations 2016, PART 1, para. 8. They must bear neither the UKCA marking nor the identification number of the UK-approved body.

The UK Declaration of Conformity was issued in/on:

Frankenthal, 8 February 2022



Rainer Michalik  
Head of Integrated Management Systems



Dieter Hanewald  
Product Management and Product Development II  
Frankenthal



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