

BOACHEM-ZXA, BOACHEM-ZXAB,
BOACHEM-RXA, BOACHEM-FSA

Operating Manual



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Operating Manual

Original operating manual

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Glossary

Pressure Equipment Directive (PED)

The 2014/68/EU directive, also known as the Pressure Equipment Directive, sets out the requirements to be met by pressure equipment intended to be placed on the market in the European economic area.

Technical literature

Refer to the product catalogue for the technical literature on our products at www.ksb.com.

1 General

1.1 Principles

This operating manual is supplied as an integral part of the type series and variants indicated on the front cover. The manual describes the proper and safe use of this equipment in all phases of operation.

In the event of damage, immediately contact the KSB sales organisation responsible in order 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 ¹⁾	Information on Kv and zeta values
General assembly drawing ²⁾	Sectional drawing of the valve
Sub-supplier product literature ³⁾	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) If any

2) If inclusion in the scope of supply has been agreed; otherwise refer to the type series booklet.

3) If inclusion in the scope of supply has been agreed.










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 Key to safety symbols/markings

Table 3: Definition of safety symbols/markings

Symbol	Description
 DANGER	DANGER This signal word indicates a high-risk hazard which, if not avoided, will result in death or serious injury.
 WARNING	WARNING This signal word indicates a medium-risk hazard which, if not avoided, could result in death or serious injury.
 CAUTION	CAUTION This signal word indicates a hazard which, if not avoided, could result in damage to the machine and its functions.
	Explosion protection This symbol identifies information about avoiding explosions in potentially explosive atmospheres in accordance with EU Directive 2014/34/EU (ATEX).
	General hazard In conjunction with one of the signal words this symbol indicates a hazard which will or could result in death or serious injury.
	Electrical hazard In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.
	Machine damage In conjunction with the signal word CAUTION this symbol indicates a hazard for the machine and its functions.

2.2 General

This manual contains general installation, operating and maintenance instructions that must be observed to ensure safe valve operation and prevent personal injury and damage to property.

The safety information in all sections of this manual must be complied with.

The operating manual must be read and fully understood by the specialist personnel/operators responsible prior to installation and commissioning.

The contents of this operating manual must be available to the specialist personnel at the site at all times.

Instructions and information attached directly to the valve must always be complied with and kept in a perfectly legible condition at all times. This applies to, for example: flow direction arrow, manufacturer, type designation, nominal pressure, nominal size, year of construction and material.

The operator is responsible for ensuring compliance with all local regulations not taken into account in this operating manual.

The design, manufacture and testing of the valves are subject to a QM system to DIN EN ISO 9001 as well as the European Pressure Equipment Directive 2014/68/EU. Compliance with these requirements, however, is based on normal, predominantly static loading.

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. Please refer to the relevant sales literature for this information.

This operating manual does not take into account:

- Any eventualities or incidents which may occur during installation performed by the customer, operation and maintenance.
- Local regulations; the operator must ensure that such regulations are strictly observed by all, including the personnel called in for installation.

2.3 Intended use

- Only operate valves which are in perfect technical condition.
- Do not operate partially assembled valves.
- The valve must only be used for fluids specified in the product literature.
- Only operate the valve within the permissible operating range specified for pressure and temperature.
- 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.

2.3.1 Prevention of foreseeable misuse

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

2.4 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.

Hands-on training at the valve must always be supervised by specialist technical personnel.

2.5 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

2.6 Safety awareness

In addition to the safety information contained in this 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

2.7 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 which can be accessed by unauthorised persons is only permitted if appropriate protective devices are fitted at the site. This must be ensured by the operator.

- The operator shall fit contact guards for hot, cold and moving parts and check that the guards function properly.
- Do not remove any contact guards during operation.
- Provide the personnel with protective equipment and make sure it is used.
- Contain leakages (e.g. at the stem seal) 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.)

2.8 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 authorised by the manufacturer. The use of other parts can invalidate any liability of the manufacturer for resulting damage.
- The operator ensures that maintenance, inspection and installation is 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.
- Decontaminate valves which handle fluids posing a health hazard.
- As soon as the work has been completed, re-install and re-activate any safety-relevant and protective devices. Before returning the product to service, observe all instructions on commissioning.

2.9 Unauthorised modes of operation

Never operate the valve outside the permissible limits (refer to the type series booklet, the operating manual or the marking on the valve).

The warranty relating to the operating reliability and safety of the valve supplied is only valid if the valve is used in accordance with its intended use.

(⇒ Section 2.3, Page 8)



3 Transport/Temporary 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

Always close the valve manually before transporting it. The valve is delivered ready for operation and its line connection ports may still be closed with caps, if applicable. Original spare parts are only ready for operation following assembly/installation and subsequent shell and leak testing of the valve.

	<div style="background-color: #e67e22; color: white; padding: 5px; border: 1px solid black;">  DANGER </div> <p>The valve could slip out of the suspension arrangement Danger to life from falling parts!</p> <ul style="list-style-type: none"> ▷ Only transport the valve in the specified position. ▷ Never suspend the valve from its handwheel. ▷ Pay attention to the weight data and the centre of gravity. ▷ Observe the applicable local accident prevention regulations. ▷ Use suitable, permitted lifting accessories. ▷ Transport devices (if any) on the actuator may not be suitable for being attached to a suspension arrangement in order to transport the valve/actuator assembly. Refer to the actuator operating manual for the permissible loads.
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To transport the valve, suspend it from the lifting tackle as illustrated.

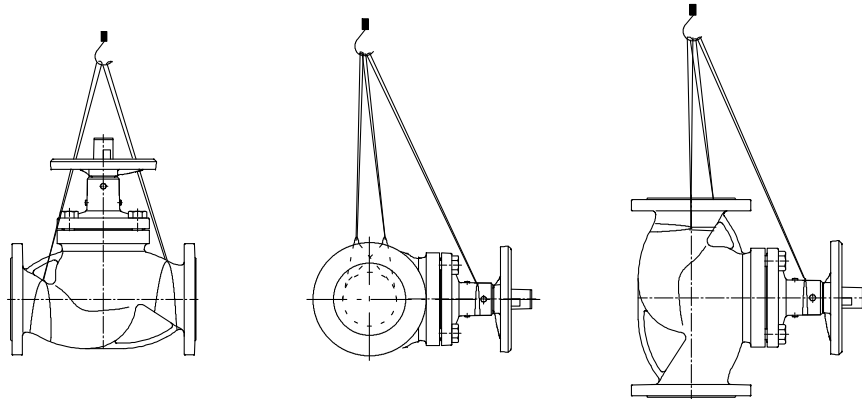




Fig. 1: Transporting the valve

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:

	CAUTION
	<p>Incorrect storage Damage to the valve due to dirt, corrosion, moisture and/or frost!</p> <ul style="list-style-type: none"> ▷ Store the valve in a dust- and vibration-free, frost-proof room where the atmospheric humidity is as constant as possible (use suitable caps or film for protection). ▷ Close the valve using little force and store in the closed position. ▷ Protect the valve from contact with solvents, lubricants, fuels or other chemicals.

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



	NOTE
	<p>For actuated valves, also observe the actuator's operating manual.</p>

3.4 Return to supplier

1. Drain the valve as described in the manual.
2. Always flush and clean the valve, particularly if it has been used for handling noxious, explosive, hot or other hazardous fluids.
3. If the fluids handled by the system leave residues which might lead to corrosion damage when coming into contact with atmospheric humidity, or which might ignite when coming into contact with oxygen, the valve must also be neutralised and blown through with anhydrous inert gas for drying purposes.
4. When returning valves used for handling Fluids in Group 1 always complete and enclose a certificate of decontamination.
Always indicate any safety and decontamination measures taken.

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

3.5 Disposal

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

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 current regulations or in another controlled manner.


4 Valve Description

4.1 General description

The sectional drawings below provide examples of the general design/configuration of the valve. For additional and more detailed information, refer to the respective type series booklet.



4.2 Marking

Table 4: General marking

Nominal size	DN ...
Nominal pressure class or max. permissible pressure/temperature	PN ... / ... bar / ... °C
Manufacturer	KSB
Type series/model or order number	BOACHEM...
Year of construction	20..
Material
Flow direction arrow	→
Traceability of the material
CE marking DGR	
Identification number of the notified body	0036
Customer's marking	e.g. plant/system No., etc.

The CE marking on the valve indicates that it is in conformity with the European Pressure Equipment Directive 2014/68/EU.

Fluids in Groups 1 and 2

Class	PN	DN									
		≤25	32	40	50	65	80	100	125	150	≥200
150	10										
	16										
≥300	25										
	≥40										

Fluid groups Group 1 comprises 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 Globe Valves to DIN/EN with Gland Packing

4.3.1 BOACHEM-ZXA



4.3.1.1 Operating data

Table 5: Operating properties

Characteristic	Value
Nominal pressure	PN 10 - 40
Nominal size	DN 15 - 400
Max. permissible pressure [bar]	40
Min. permissible temperature [°C]	≥ -10
Max. permissible temperature [°C]	≤ +400

Selection as per pressure/temperature ratings (⇒ Section 4.3.1.4, Page 14)

4.3.1.2 Fluids handled

- Aggressive liquids
- Steam
- Explosive fluids
- Flammable fluids
- Fluids containing gas
- Gas
- High-temperature hot water
- Highly aggressive fluids
- Condensate
- Corrosive fluids
- Fluids containing mineral oils
- Oil
- Polymerising/crystallising fluids
- Feed water
- Other fluids on request.

4.3.1.3 Design details

Design

Valves to type series booklet 8149.1

- Straight-way pattern
- Throttling plug ≤ DN 100
- On/off disc ≥ DN 125
- Balanced plug: PN 10/16 ≥ DN 200
PN 25/40 ≥ DN 150
- Rotating stem
- Rising handwheel

- Back seat
- Fully confined bonnet gasket
- Stem sealed by gland packing
- 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.
- 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 (zones 2+22) to ATEX 2014/34/EU.

Variants

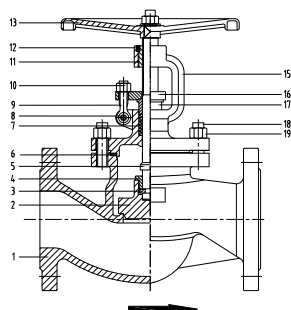
- Throttling plug \geq DN 125
- Balanced plug: PN 10/16 DN 125 to 150
PN 25/40 DN 125
- Stellite seat/disc interface
- Leakage detection hole
- Position indicator
- Limit switch(es)
- Locking device
- Valve disc with PTFE gasket (≤ 200 °C)
- Oil and grease-free
- Serrated gasket (PTFE-coated)
- PTFE packing
- Applications down to -60 °C
- Other flange designs

4.3.1.4 Pressure/temperature ratings

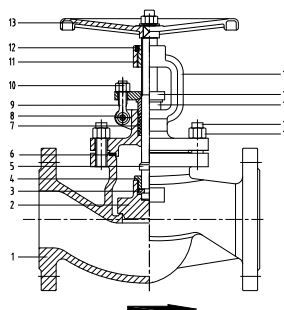
Table 6: Permissible operating pressure [bar] (to EN 1092-1)⁴⁾

Nominal pressure PN	Material	[°C]							
		20	100	150	200	250	300	350	400
10	1.4408	10	10	9	8,4	7,9	7,4	7,1	6,8
16		16	16	14,5	13,4	12,7	11,8	11,4	10,9
25		25	25	22,7	21	19,8	18,5	17,8	17,1
40		40	40	36,3	33,7	31,8	28,5	28,5	27,4

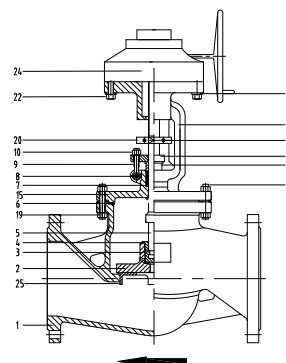
4.3.1.5 Materials



DN 15-100



DN 125-250



DN 300-400

4) The valves are suitable for temperatures down to -10 °C.

Table 7: Parts list

Part No.	Description	Material	Material number
1	Body	G X 5 CrNiMo 19-11-2	1.4408
2	Valve disc	ASTM A182 F316	-
3	Retaining ring (PN 10-16 DN 15-150; PN 25-40 DN 15-100)	ASTM A182 F316	-
	Pilot plug (PN 10-16 DN 200-400; PN 25-40 DN 150-400)	ASTM A182 F316	-
4	Valve disc nut	ASTM A276 316	-
5	Stem	ASTM A276 316	-
6	Gasket ⁵⁾	Graphite + stainless steel 316	-
7	Gland packing ⁵⁾	Graphite	-
8	Pin	ASTM A276 304	-
9	Eyebolt	A4-70	-
10	Nut	A4-80	-
11	Threaded bush	D-2	-
12	Bolt/screw	Stainless steel 304	-
13	Handwheel	EN-GJL-200	5.1300
14	Handwheel nut	Stainless steel	-
15	Body bonnet	G X 5 CrNiMo 19-11-2	1.4408
16	Gland follower	ASTM A276 304	-
17	Thrust insert	ASTM A276 316	-
18	Stud	A4-70	-
19	Nut	A4-80	-
20	Stop	ASTM A276 304	-
21	Bolt/screw	Stainless steel 304	-
22	Bolt/screw	A4-70	-
23	Washer	A4-70	-
24	Manual gearbox	Bought-in component	-
25	Disc guiding plate	ASTM A276 316	-

4.3.1.6 Function

The valves consist of the pressure-retaining parts, i.e. body 1 and bonnet 15, and the functional unit.

Body 1 and bonnet 15 are joined by studs 18 and nuts 19, and the joint is sealed to atmosphere by joint ring 6.

The functional unit basically consists of valve disc 2 and stem 5, or stem and throttling plug assembly, and the actuating element, i.e. handwheel 13 or actuator.

The passage of stem 5 in bonnet 15 is sealed by gland packing 7, which is tightened via gland follower 16 by means of two nuts 10.

The seating faces of body 1 and/or valve disc 2 are made of stainless steel materials.

5) Spare part

4.4 Bellows-type Globe Valves to DIN/EN

4.4.1 BOACHEM-ZXAB



4.4.1.1 Operating data

Table 8: Operating properties

Characteristic	Value
Nominal pressure	PN 10 - 40
Nominal size	DN 15 - 400
Max. permissible pressure [bar]	40
Min. permissible temperature [°C]	≥ -10
Max. permissible temperature [°C]	≤ +400

Selection as per pressure/temperature ratings (⇒ Section 4.4.1.4, Page 17)

4.4.1.2 Fluids handled

- Steam
- Explosive fluids
- Flammable fluids
- Fluids containing gas
- Gas
- Fluids posing a health hazard
- Toxic fluids
- High-temperature hot water
- Highly aggressive fluids
- Condensate
- Corrosive fluids
- Valuable fluids
- Volatile fluids
- Fluids containing mineral oils
- Oil
- Feed water
- Thermal oil
- Other fluids on request.

4.4.1.3 Design details

Design

Valves to type series booklet 8146.1

- Straight-way pattern
- Throttling plug ≤ DN 100
- On/off disc ≥ DN 125
- Balanced plug ≥ DN 150

- Non-rotating stem with external thread
- Non-rising handwheel
- Position indicator
- Stem sealed by double-walled bellows and back-up gland packing
- 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.
- 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 (zones 2+22) to ATEX 2014/34/EU.

Variants

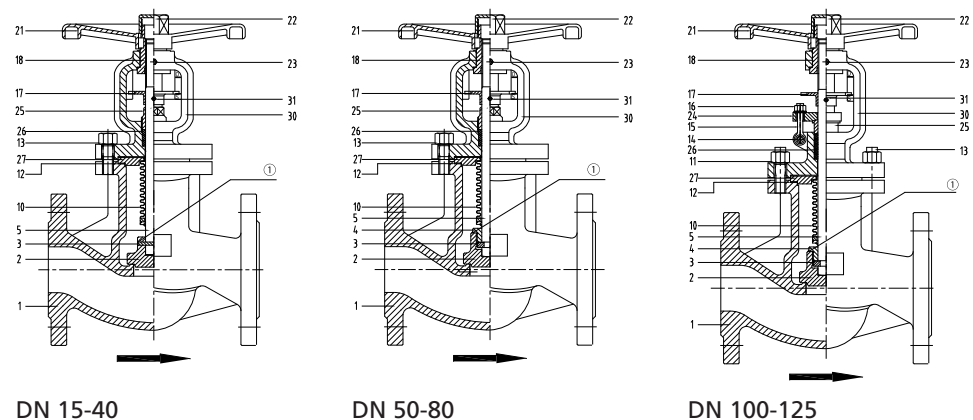
- Throttling plug \geq DN 125
- Balanced plug for DN 125
- Leakage detection hole
- Stellite seat/disc interface
- Valve disc with PTFE gasket (≤ 200 °C)
- Applications down to -60 °C
- Locking device
- Limit switch(es)
- Serrated gasket (PTFE-coated)
- Oil and grease-free
- PTFE packing
- Other flange designs

4.4.1.4 Pressure/temperature ratings

Table 9: Permissible operating pressure [bar] (to EN 1092-1)⁶⁾

Nominal pressure PN	Material	[°C]							
		20	100	150	200	250	300	350	400
10	1.4408	10	10	9	8,4	7,9	7,4	7,1	6,8
16		16	16	14,5	13,4	12,7	11,8	11,4	10,9
25		25	25	22,7	21	19,8	18,5	17,8	17,1
40		40	40	36,3	33,7	31,8	28,5	28,5	27,4

4.4.1.5 Materials



6) The valves are suitable for temperatures down to -10 °C.

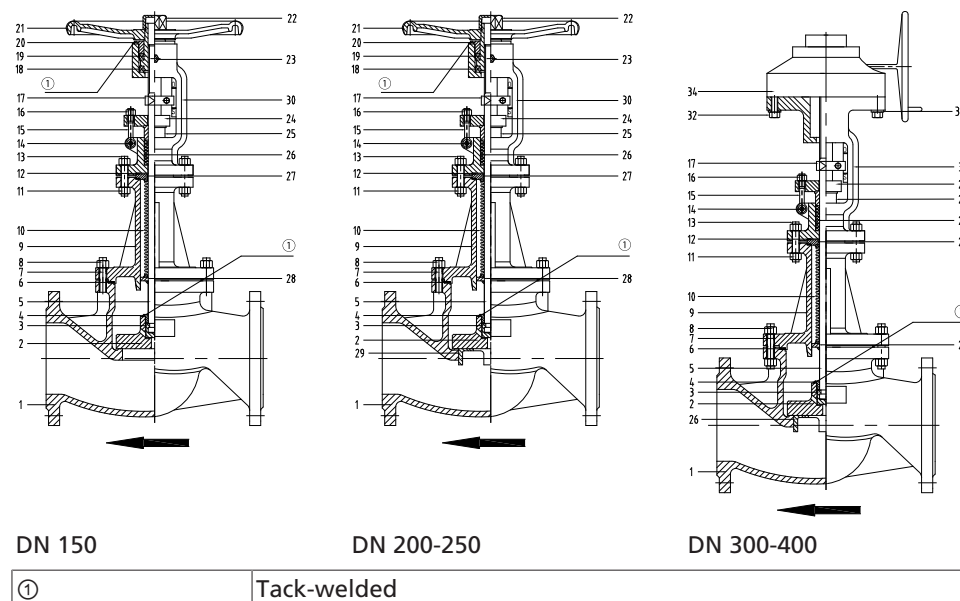


Table 10: Parts list

Part No.	Description	Material	Material number
1	Body	G X 5 CrNiMo 19-11-2	1.4408
2	Valve disc	ASTM A182 F316	-
3	Retaining pin (DN 15-40)	ASTM A182 F316	-
	Retaining ring (DN 50-125)	ASTM A182 F316	-
	Pilot plug (DN 150-400)	ASTM A182 F316	-
4	Valve disc nut	ASTM A276 316	-
5	Stem ⁷⁾⁸⁾	ASTM A182 F316	-
6	Gasket ⁷⁾	Graphite + stainless steel 316	-
7	Stud	A4-70	-
8	Nut	A4-80	-
9	Body bonnet	G X 5 CrNiMo 19-11-2	1.4408
10	Bellows ⁷⁾⁸⁾	Stainless steel 316L	-
11	Nut	A4-80	-
12	Gasket ⁷⁾	Graphite + stainless steel 316	-
13	Stud	A4-70	-
14	Pin	ASTM A276 304	-
15	Eyebolt	A4-70	-
16	Nut	A4-80	-
17	Position indicator	ASTM A276 304	-
18	Bearing	Bought-in component	-
19	Threaded bush	D-2	-
20	Retaining nut	ASTM A276 304	-
21	Handwheel	EN-GJL-200	5.1300
22	Handwheel nut	Stainless steel	-
23	Lubricating nipple	Bought-in component	-
24	Gland follower	ASTM A276 304	-
25	Thrust insert	ASTM A276 316	-
26	Gland packing ⁷⁾	Graphite	-
27	End fitting ⁸⁾	ASTM A276 316	-

7) Spare part
8) Bellows assembly

Part No.	Description	Material	Material number
28	Stem guiding plate ⁷⁾⁸⁾	ASTM A276 316	-
29	Disc guiding plate	ASTM A276 316	-
30	Yoke	G X 5 CrNiMo 19-11-2	1.4408
31	Retaining pin	ASTM A276 304	-
32	Bolt/screw	A4-70	-
33	Washer	A4-70	-
34	Manual gearbox	Bought-in component	-

4.4.1.6 Function

The valves consist of the pressure-retaining parts, i.e. body 1 and bonnet 9, and the functional unit.

Body 1 and bonnet 9 or yoke 30 are joined by studs 13/7 and nuts 11/8, and the joint is sealed to atmosphere by joint ring 12/6.

The functional unit basically consists of valve disc 2 and stem 5, bellows 10 and the actuating element, i.e. handwheel 21 or actuator.

The passage of stem 5 in bonnet 9 or yoke 30 is sealed by means of bellows 10 in accordance with TA-Luft [German Technical Guidelines on Air Quality Control]. Back-up gland packing 26 is tightened via gland follower 24 by means of two nuts 16.

The bellows-type stem seal is maintenance-free.

The seating faces of body 1 and/or valve disc 2 are made of stainless steel materials.

4.5 Lift Check Valves to DIN/EN

4.5.1 BOACHEM-RXA



4.5.1.1 Operating data

Table 11: Operating properties

Characteristic	Value
Nominal pressure	PN 10 - 40
Nominal size	DN 15 - 400
Max. permissible pressure [bar]	40
Min. permissible temperature [°C]	≥ -10
Max. permissible temperature [°C]	≤ +400

Selection as per pressure/temperature ratings (⇒ Section 4.5.1.4, Page 20)

4.5.1.2 Fluids handled

- Aggressive liquids
- Steam
- Explosive fluids
- Solids-laden fluids
- Flammable fluids
- Fluids containing gas
- Gas

- Fluids posing a health hazard
- Toxic fluids
- High-temperature hot water
- Highly aggressive fluids
- Condensate
- Corrosive fluids
- Valuable fluids
- Volatile fluids
- Fluids containing mineral oils
- Oil
- Polymerising/crystallising fluids
- Feed water
- Thermal oil
- Other fluids on request.

4.5.1.3 Design details

Design

Valves to type series booklet 8147.1

- Straight-way pattern
- Spring-loaded check disc
- Fully confined cover gasket
- 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.
- 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 (zones 2+22) to ATEX 2014/34/EU.

Variants

- Oil and grease-free
- Stellite seat/disc interface
- Serrated gasket (PTFE-coated)
- Valve disc with PTFE gasket ($\leq 200\text{ °C}$)
- Applications down to -60 °C
- Other flange designs

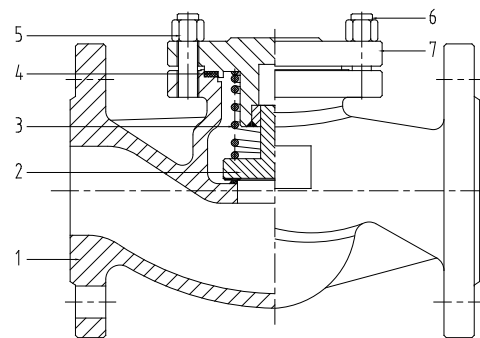
4.5.1.4 Pressure/temperature ratings

Table 12: Permissible operating pressure [bar] (to EN 1092-1)⁹⁾

Nominal pressure PN	Material	[°C]							
		20	100	150	200	250	300	350	400
10	1.4408	10	10	9	8,4	7,9	7,4	7,1	6,8
16		16	16	14,5	13,4	12,7	11,8	11,4	10,9
25		25	25	22,7	21	19,8	18,5	17,8	17,1
40		40	40	36,3	33,7	31,8	29,7	28,5	27,4

9) The valves are suitable for temperatures down to -10 °C .

4.5.1.5 Materials



BOACHEM-RXA

Table 13: Parts list

Part No.	Description	Material	Material number
1	Body	G X 5 CrNiMo 19-11-2	1.4408
2	Check disc	ASTM A182 F316	-
3	Spring	Stainless steel 316	-
4	Gasket ¹⁰⁾	Graphite + stainless steel 316	-
5	Nut	A4-80	-
6	Stud	A4-70	-
7	Cover	G X 5 CrNiMo 19-11-2	1.4408

4.5.1.6 Function

Lift check valves are non-return valves which close automatically if fluid flow reverses. The valves consist of the pressure-retaining parts, i.e. body 1 and cover 7, and the functional unit.

Body 1 and cover 7 are joined by studs 6 and nuts 5, and the joint is sealed to atmosphere by joint ring 4.

Check disc 2 is guided in cover 7. The position of check disc 2 is determined both by the flow conditions and by spring 3 if fitted.

4.6 Strainers to DIN/EN

4.6.1 BOACHEM-FSA



4.6.1.1 Operating data

Table 14: Operating properties

Characteristic	Value
Nominal pressure	PN 10 - 40
Nominal size	DN 15 - 400
Max. permissible pressure [bar]	40
Min. permissible temperature [°C]	≥ -10
Max. permissible temperature [°C]	≤ +400

10) Spare part

Selection as per pressure/temperature ratings (⇒ Section 4.6.1.4, Page 22)

4.6.1.2 Fluids handled

- Aggressive liquids
- Steam
- Explosive fluids
- Fluids containing gas
- Gas
- Fluids posing a health hazard
- Toxic fluids
- High-temperature hot water
- Highly aggressive fluids
- Condensate
- Corrosive fluids
- Oil
- Feed water
- Thermal oil
- Other fluids on request.

4.6.1.3 Design details

Design

Valves to type series booklet 8146.1

- Y-pattern strainer
- Screen made of stainless steel
- Fully confined cover gasket
- Materials free from non-ferrous metals
- 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.
- 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 (zones 2+22) to ATEX 2014/34/EU.

Variants

- Oil and grease-free
- Serrated gasket (PTFE-coated)
- Applications down to -60 °C
- Fine screen
- Other flange designs

4.6.1.4 Pressure/temperature ratings

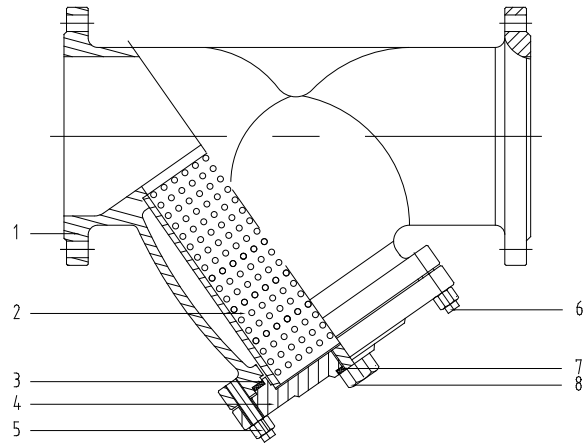
Table 15: Permissible operating pressure [bar] (to EN 1092-1)¹¹⁾

Nominal pressure PN	Material	[°C]							
		20	100	150	200	250	300	350	400
10	1.4408	10	10	9	8,4	7,9	7,4	7,1	6,8
16		16	16	14,5	13,4	12,7	11,8	11,4	10,9
25		25	25	22,7	21	19,8	18,5	17,8	17,1

11) The valves are suitable for temperatures down to -10 °C.

Nominal pressure PN	Material	[°C]							
		20	100	150	200	250	300	350	400
40	1.4408	40	40	36,3	33,7	31,8	29,7	28,5	27,4

4.6.1.5 Materials



BOACHEM-FSA

Table 16: Parts list

Part No.	Description	Material	Material number
1	Body	G X 5 CrNiMo 19-11-2	1.4408
2	Screen ¹²⁾	Stainless steel 316	-
3	Gasket ¹²⁾	Graphite + stainless steel 316	-
4	Cover	G X 5 CrNiMo 19-11-2	1.4408
5	Nut	A4-80	-
6	Stud	A4-70	-
7	Washer	SS316	-
8	Screw plug	Stainless steel 316	-

4.6.1.6 Function

The valve consists of the pressure-retaining parts, i.e. body 1, body cover 4 and screen 2. Actuating elements are not required and therefore not supplied.

Body 1 and body cover 4 are joined by studs 6 and nuts 5, and the joint is sealed to atmosphere by joint ring 3. Screen 2 is clamped in the body neck and catches dirt particles depending on the mesh size. The screen requires regular cleaning.

4.7 Scope of supply

- Valve
- Operating manual for each packaging unit

4.8 Dimensions and weights

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










12) Spare part









5 Installation at Site

5.1 General information/Safety regulations

The operator ensures that maintenance, inspection and installation is performed by authorised, qualified specialist personnel who are thoroughly familiar with the manual.

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.




	<div data-bbox="507 510 683 555"> DANGER</div> <div data-bbox="496 573 1326 712"> <p>Dead-end valve High-pressure hazard! Risk of burns!</p> <ul style="list-style-type: none"> ▷ Protect the valve against unauthorised and/or unintentional opening. </div>
	<div data-bbox="507 750 703 795"> WARNING</div> <div data-bbox="496 813 823 958"> <p>Cold/hot piping and/or valve Risk of thermal injury!</p> <ul style="list-style-type: none"> ▷ Insulate the valve. ▷ Attach warning signs. </div>
	<div data-bbox="507 996 703 1041"> WARNING</div> <div data-bbox="496 1059 1414 1249"> <p>Exposed rotating parts Risk of injury!</p> <ul style="list-style-type: none"> ▷ Do not touch rotating parts. ▷ When the equipment is in operation, perform any work with utmost caution. ▷ Take suitable precautions, e.g. provide safety covers. </div>
	<div data-bbox="507 1288 703 1332"> WARNING</div> <div data-bbox="496 1350 1414 1552"> <p>Impermissible loads resulting from operating conditions and/or valve-mounted components, e.g. actuators Leakage from or rupture of the valve body!</p> <ul style="list-style-type: none"> ▷ Provide adequate support. ▷ Additional loads, e.g. traffic, wind or earthquakes are not taken into account for standard variants; these require a separate design. </div>
	<div data-bbox="507 1590 639 1624">CAUTION</div> <div data-bbox="496 1650 1445 1830"> <p>Condensation water forming in air-conditioning, cooling and refrigerating systems Ice forming! Blockage of actuating element! Damage due to corrosion!</p> <ul style="list-style-type: none"> ▷ Insulate the valve to prevent diffusion. </div>

	CAUTION Improper installation Damage to the valve! <ul style="list-style-type: none"> ▷ Remove the caps prior to installation. ▷ Clean the mating flange faces. ▷ Protect the body and bonnet/cover from any impacts.
	CAUTION Outdoor installation Damage due to corrosion! <ul style="list-style-type: none"> ▷ Protect the valve appropriately against moisture.
	CAUTION Painting of pipes Impairment of the valve's function and loss of information! <ul style="list-style-type: none"> ▷ Protect stem and plastic components prior to applying paint. ▷ Protect printed name plates prior to applying paint.
	CAUTION Impermissible load Damage to the actuating element! <ul style="list-style-type: none"> ▷ Do not use the valve as a foothold.
	NOTE 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 valve size. Always use all flange bolt holes provided when connecting the valve to the piping. Refer to the type series booklet for details on flange connections.
	NOTE For the valves to reach the documented Kv values, the flow direction must correspond to the flow direction arrow.
	NOTE The mating flange faces must be clean and undamaged and the gaskets on the mating flanges must be properly centred.
	NOTE Use an appropriate tool to evenly tighten the bolts crosswise, applying the permissible torques.

5.2 Valves with actuator

Install valves with transmission gear and/or actuators with the stem in the vertical position. If this requirement cannot be met, adequately support the actuator on site or consult KSB.

Mounted actuators are factory-set and ready for operation. Changes to these settings, e.g. changes to the set switching points of the limit positions, may impair the valve's function and result in damage to the actuator, valve or the system.

	<div style="background-color: #f4a460; padding: 5px;">⚠ DANGER</div> <p>Unqualified personnel performing work on valves with actuator Danger of death from electric shock!</p> <ul style="list-style-type: none"> ▷ Ensure that the connection to the power supply and the process control system is performed by a trained electrician. ▷ Observe regulations IEC 60364 and, for explosion-proof models, EN 60079.
	<div style="background-color: #f4a460; padding: 5px;">⚠ DANGER</div> <p>Work on valves with energy storage, e.g. spring mechanisms or compressed air storage Danger to life resulting from incorrect assembly</p> <ul style="list-style-type: none"> ▷ Ensure that work on the actuator is performed by qualified specialist personnel. ▷ Mount/remove the actuator in accordance with the operating manual.
	<div style="background-color: #0070c0; color: white; padding: 5px;">NOTE</div> <p>If the valves are fitted with actuators, ensure that the actuator's operating manual is also observed.</p>

On valves with electric, pneumatic or hydraulic actuators, the actuator strokes/forces must be limited.

Electric actuators Electric actuators are ready for operation and wired as follows:


- Valve "CLOSED": torque-dependent
- Valve "OPEN": travel-dependent

The wiring diagrams are located in the terminal boxes.

Pneumatic/hydraulic actuators For pneumatic or hydraulic actuators, the control pressures specified in the order confirmation must be observed. Non-observance may damage the actuator.

If required, consult the manufacturer for closing and opening torques or actuating forces.

5.3 Insulation


	<div style="background-color: #0070c0; color: white; padding: 5px;">NOTE</div> <p>Any insulation fitted on the valve must not impair the valve's function. The sealing areas at the cover/bonnet joint and at the stem passage (gland packing) must be directly accessible and visible.</p>
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5.4 Globe Valves to DIN/EN with Gland Packing

5.4.1 BOACHEM-ZXA

This valve can be installed in any position. The best installation position is with the stem pointing vertically upwards.

The valves must be installed in such a manner that the fluid enters the valve beneath valve disc 2 and flows out above the valve disc.

	<div style="background-color: #0070c0; color: white; padding: 5px;">NOTE</div> <p>An alternating direction of flow is permissible.</p>
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NOTE

If the valves are to be used for throttling applications, a throttling plug must be used. Observe the instructions in the respective type series booklet regarding flow approaching throttling plugs.

5.4.2 Special designs

Globe valves with separate throttling plugs must always be installed in such a manner that the pressure to be sealed off lies beneath the plug to ensure a reliable throttling effect.

Valves with single-piece stem and throttling plug assemblies are required for higher differential pressures. They must be installed in such a manner that the pressure to be sealed off lies above the plug.



NOTE

If you have questions concerning optimum valve selection or permissible differential pressures for globe valves with throttling plugs, please contact KSB.

Drainage, vent or manual start-up pipes are generally fitted with valve combinations consisting of a:

- shut-off valve (pressure beneath the valve disc)
- throttling valve with single-piece stem and throttling plug assembly (pressure above the plug)

Shut-off valves with balanced plugs must be installed in such a manner that the pressure to be sealed off lies above the plug.

If the shut-off valves are used as dead-end valves, double shut-off valve combinations should be used for safety reasons.

5.5 Bellows-type Globe Valves to DIN/EN

5.5.1 BOACHEM-ZXAB

To prevent dirt deposits between the folds of the bellows, do not install with the stem pointing downwards.

The valves must be installed in such a manner that the fluid enters the valve beneath valve disc 2 and flows out above the valve disc.



NOTE

An alternating direction of flow is permissible.




NOTE

If the valves are to be used for throttling applications, a throttling plug must be used. Observe the instructions in the respective type series booklet regarding flow approaching throttling plugs.

5.5.2 Special designs

Globe valves with separate throttling plugs must always be installed in such a manner that the pressure to be sealed off lies beneath the plug to ensure a reliable throttling effect.

Valves with single-piece stem and throttling plug assemblies are required for higher differential pressures. They must be installed in such a manner that the pressure to be sealed off lies above the plug.

	NOTE
	If you have questions concerning optimum valve selection or permissible differential pressures for globe valves with throttling plugs, please contact KSB.

Drainage, vent or manual start-up pipes are generally fitted with valve combinations consisting of a:

- shut-off valve (pressure beneath the valve disc)
- throttling valve with single-piece stem and throttling plug assembly (pressure above the plug)

Shut-off valves with balanced plugs must be installed in such a manner that the pressure to be sealed off lies above the plug.

If the shut-off valves are used as dead-end valves, double shut-off valve combinations should be used for safety reasons.

5.6 Lift Check Valves to DIN/EN

5.6.1 BOACHEM-RXA






The valves must be installed in such a manner that the fluid enters the valve beneath valve disc 2 and flows out above the valve disc.

When equipped with a spring 3, they can be used both in pipes with upward flow and pipes with downward flow. KSB does not recommend installing them in vertical pipes.

Valves without a spring can only be installed in a vertical position, i.e. in horizontal pipes and with the cover pointing upwards.

5.7 Strainers to DIN/EN

5.7.1 BOACHEM-FSA

	NOTE
	Install the strainers in such a way that the fluid flows through the screen from the inside towards the outside (cage effect of the screen). In vertical pipes, flow must always be downwards.
	NOTE
	In both horizontal and vertical pipes, installation with the screen facing downwards has proved most effective. This facilitates cleaning.
	NOTE
	To ensure an optimum (i.e. high) Kv value, make sure when replacing the screen that the new screen is not installed with the weld seam pointing towards the strainer's outlet port.
	NOTE
	Shut-off valves should 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.
	NOTE
	For strainers with a magnetic insert, we recommend removing the entire cover to clean the magnet.

**NOTE**

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

6 Commissioning/Start-up/Shutdown


6.1 Commissioning/Start-up

6.1.1 Prerequisites for commissioning/start-up



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


- The material, pressure and temperature data on the valve complies with the operating conditions of the piping. (⇒ Section 4, Page 12) .
- The material's chemical resistance and stability under load have been checked.

The nominal pressure classes only apply at room temperature. For values for higher temperatures, refer to the pressure/temperature ratings tables. (⇒ Section 4, Page 12) . Using the valve in conditions deviating from those specified will lead to overload which the valves cannot withstand.

	<div style="background-color: #FFD700; padding: 5px;">CAUTION</div> <p>Welding beads, scale and other impurities in the piping Damage to the valve!</p> <ul style="list-style-type: none"> ▷ Remove any impurities from the piping. ▷ If necessary, install a strainer.
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1. Thoroughly clean, flush and blow through all vessels, pipelines and connections (especially of new installations).
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.


	<div style="background-color: #FF4500; padding: 5px;"> DANGER</div> <p>Surge pressure/water hammer potentially occurring at high temperatures Danger to life caused by burns or scalds!</p> <ul style="list-style-type: none"> ▷ The max. permissible valve pressure must not be exceeded (⇒ Section 4, Page 12) . ▷ Use valves made of nodular cast iron or steel. ▷ Operator shall provide general safety measures for the system.
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	<div style="background-color: #FFD700; padding: 5px;">CAUTION</div> <p>Aggressive flushing and pickling agents Damage to the valve!</p> <ul style="list-style-type: none"> ▷ Match the cleaning operation mode and duration of flushing and pickling to the body and seal materials used. ▷ Responsibility for the compatibility of the pickling media used and the pickling procedure itself lies with the pickling company.
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Functional check


1. Check the shut-off function of the installed valve prior to commissioning/start-up by opening and closing it several times.
2. Check gland packing 7 for leakage when it is subjected to full operating pressure and temperature for the first time.
3. If gland follower 16 has loosened, evenly re-tighten nuts 10.
4. Check the joint between the body and the bonnet/cover established by bolting 18 and joint ring 6 for tightness after the valve has been subjected to load conditions or heated up for the first time.


5. To avoid stress or distortion, open the valve by approx. two full counter-clockwise handwheel turns.
6. If bonnet/cover bolting 18 has loosened, evenly re-tighten it crosswise.

	<p>NOTE</p> <p>Re-tightening the bonnet/cover bolting is particularly important for valves operated at temperatures exceeding 200 °C.</p>
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Valves with actuator On valves with electric, pneumatic or hydraulic actuators, the actuator strokes/forces must be limited.

	<p>⚠ DANGER</p> <p>Unqualified personnel performing work on valves with actuator Danger of death from electric shock!</p> <ul style="list-style-type: none"> ▷ Ensure that the connection to the power supply and the process control system is performed by a trained electrician. ▷ Observe regulations IEC 60364 and, for explosion-proof models, EN 60079.
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	<p>⚠ WARNING</p> <p>Incorrect connection to the mains Damage to the mains network, short circuit!</p> <ul style="list-style-type: none"> ▷ Observe the technical specifications of the local energy supply companies.
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	<p>NOTE</p> <p>If the valves are fitted with actuators, ensure that the actuator's operating manual is also observed.</p>
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1. Check the available mains voltage against the data on the name plate of the actuator.
2. Select an appropriate start-up method.

Electric actuators are ready for operation and wired as follows:


- Valve "CLOSED": torque-dependent
- Valve "OPEN": travel-dependent


The wiring diagrams are located in the terminal boxes.




For pneumatic or hydraulic actuators, the control pressures specified in the order confirmation must be observed. Non-observance may damage the actuator.

If required, consult the manufacturer for closing and opening torques or actuating forces.

6.1.2 Valve actuation

	<p>NOTE</p> <p>Viewed from above, the valve is closed by turning the handwheel in clockwise direction, and opened by turning the handwheel in counter-clockwise direction. Direction symbols are found on the top of the handwheel.</p>
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	<p>NOTE</p> <p>Globe valves are normally used in either "fully open" or "fully closed" position. For control functions, valves should be fitted with throttling plugs, unless throttling plugs are installed as standard.</p>
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	<div data-bbox="507 188 639 224">CAUTION</div> <div data-bbox="496 248 834 282">Excessively long idle periods</div> <div data-bbox="496 284 742 315">Damage to the valve!</div> <div data-bbox="517 324 1401 383"> <ul style="list-style-type: none"> ▸ Check the function by opening and closing the valve at least once or twice a year. </div>
	<div data-bbox="507 416 639 452">CAUTION</div> <div data-bbox="496 477 603 510">Vibration</div> <div data-bbox="496 512 987 546">Excessive wear and/or damage to the valve!</div> <div data-bbox="517 555 1369 654"> <ul style="list-style-type: none"> ▸ Change the system parameters. ▸ Use throttling plugs or V-port plugs in throttling applications to minimise vibration. </div>
	<div data-bbox="507 692 639 728">CAUTION</div> <div data-bbox="496 752 649 786">Use of levers</div> <div data-bbox="496 788 1070 822">Damage to the valve as a result of excessive forces!</div> <div data-bbox="517 828 1109 862"> <ul style="list-style-type: none"> ▸ Only actuate handwheel-operated valves by hand. </div>

6.2 Shutdown

6.2.1 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.

7 Servicing/Maintenance

7.1 Safety regulations

The operator ensures that maintenance, inspection and installation is performed by authorised, qualified specialist personnel who are thoroughly familiar with the manual.



	<div data-bbox="507 412 683 456"> DANGER</div> <p>Valve under pressure Risk of injury! Leakage of hot and/or toxic fluids! Risk of burns!</p> <ul style="list-style-type: none"> ▷ The valve and its surrounding system must be depressurised prior to any maintenance and installation work. ▷ If the bellows are defective and fluid escapes, ensure the valve is depressurised. ▷ Ensure the valve is depressurised before removing any drain, opening or vent plugs. ▷ Allow the valve to cool down so that the temperature is below the fluid's vaporisation temperature in all areas in contact with the fluid in order to effectively prevent any risk of scalding. ▷ Never vent the valve by removing the bonnet/cover bolting or gland packing. ▷ Use appropriate spare parts and tools, even in emergencies.
	<div data-bbox="507 999 703 1043"> WARNING</div> <p>Fluids, consumables and supplies which are hot and/or pose a health hazard Risk of injury!</p> <ul style="list-style-type: none"> ▷ Observe all relevant laws. ▷ When draining the fluid take appropriate measures to protect persons and the environment. ▷ Decontaminate valves used for handling fluids posing a health hazard.
	<div data-bbox="507 1312 587 1357">NOTE</div> <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>
	<div data-bbox="507 1469 587 1514">NOTE</div> <p>All maintenance work, service work and installation work can be carried out by KSB Service or authorised workshops. For contact details please refer to the enclosed "Addresses" booklet or visit "www.ksb.com/contact" on the Internet.</p>

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

Never use force when dismantling and reassembling the valve.

7.2 Maintenance

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



	NOTE
	The user is responsible for defining appropriate intervals for checks and maintenance, depending on the application of the valve.
	NOTE
	If several valves are serviced at the same time, take appropriate measures to prevent the dismantled parts from getting mixed up.

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

- Checking the function by opening and closing the valve at least once or twice a year
- Lubricating the moving parts such as stem 5 and gland bolts (not for oxygen valves) using appropriate lubricants (e.g. lubricants suitable for high temperatures)
- Adding or replacing packing rings in gland packing 7 in good time
- Re-tightening or replacing bonnet/cover gasket 6 in good time

Testing overhauled valves After reassembly and prior to commissioning/start-up, the valves must be subjected to shell and leak testing to DIN EN 12266-1.

8 Trouble-shooting

	 WARNING
	<p>Improper remedial work on the valve</p> <p>Risk of injury!</p> <p>► 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.</p>

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

Table 17: Trouble-shooting

Problem	Possible cause	Remedy
Leakage at the seat	<ul style="list-style-type: none"> Contaminated fluid or solids in the fluid Erosion, corrosion or abrasion Excessive loads from pipeline forces or thermal stresses 	<ol style="list-style-type: none"> Dismantle bonnet/cover bolting 18. Rework the seating faces of valve disc and body using a suitable re-seating tool. Continue re-seating until the seating faces exhibit a consistently smooth and even ring.
Leakage at the gland packing	Unevenly tightened gland packing	<ol style="list-style-type: none"> Re-tighten hexagon nuts 10 as specified in the manual.
	Defective gland packing	<ol style="list-style-type: none"> Undo hexagon nuts 10. Lift gland follower 16. Clean the gland packing chamber. Insert split packing rings in such a manner that the cut ends of the rings are offset by between 120° and 180°.
Leakage at the bonnet/cover gasket	Unevenly tightened bonnet/cover bolts	<ol style="list-style-type: none"> Re-tighten bonnet/cover bolting 18 as specified in the manual.
	Defective bonnet/cover gasket	<ol style="list-style-type: none"> Dismantle bonnet/cover bolting 18. Clean the sealing surfaces. Replace joint ring 6.

9 EU Declaration of Conformity

9.1 EU Declaration of Conformity for BOACHEM

Hereby we,

KSB Valves (Changzhou) Co., Ltd.
No. 68 Huanbao Four Road,
Environment Protection Industrial Park,
Xinbei District, Changzhou City, Jiangsu Province
P. R. China

declare that **the product:**

Globe valves

BOACHEM-ZXAB	PN 10 - 40	DN 15 - 400
BOACHEM-ZXA	PN 10 - 40	DN 15 - 400

Lift check valves

BOACHEM-RXA	PN 10 - 40	DN 15 - 400
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Strainers

BOACHEM-FSA	PN 10 - 40	DN 15 - 400
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satisfies the safety requirements laid down in the Pressure Equipment Directive 2014/68/EU.

Codes applied:

AD 2000 code of the German Pressure Vessel Society

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

The EU Declaration of Conformity was issued in/on:

Changzhou, 30 March 2017



Jason Ji

Head of Quality Management

9.2 EU Declaration of Conformity ATEX BOACHEM

Hereby we,

KSB Valves (Changzhou) Co., Ltd.
No. 68 Huanbao Four Road,
Environment Protection Industrial Park,
Xinbei District, Changzhou City, Jiangsu Province
P. R. China

declare that **the below product without electric or pneumatic actuator::**

Globe valves

BOACHEM-ZXAB	PN 10 - 40	DN 15 - 400
BOACHEM-ZXA	PN 10 - 40	DN 15 - 400

Lift check valves

BOACHEM-RXA	PN 10 - 40	DN 15 - 400
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Strainers

BOACHEM-FSA	PN 10 - 40	DN 15 - 400
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does not have its own potential source of ignition and is thus not covered by Article 1 of Directive 2014/34/EU (ATEX). Components such as electric or pneumatic actuators as well as limit switches are, as a rule, covered by the scope of the Directive described in Article 1, 2014/34/EU, and shall be subject to a conformity assessment procedure. Evidence of conformity must be furnished (for ex. EC declaration of conformity).

Applied harmonised European standards:

EN 13463-1, EN 13463-5, EN 1127-1, Directive 97/23/EC

The EU Declaration of Conformity was issued in/on:

Changzhou, 30 March 2017



Jason Ji

Head of Quality Management

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