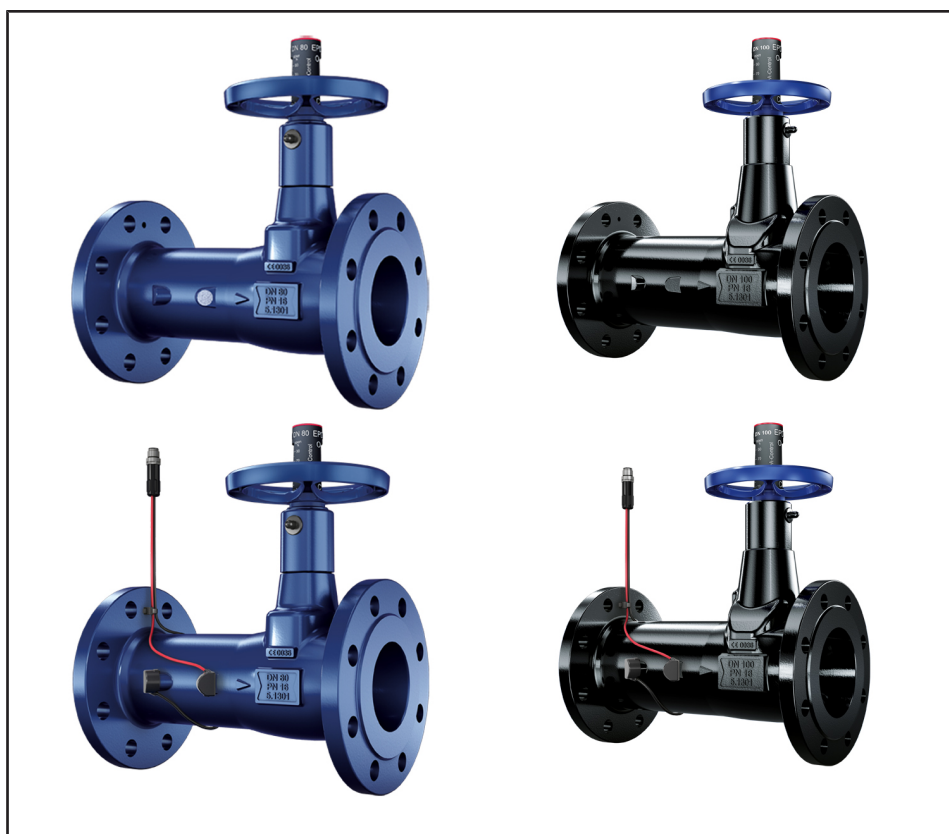


Balancing, Measurement and Shut-off  
Valve

# BOA-Control/ BOA-Control IMS

## Operating Manual



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Operating Manual BOA-Control/ BOA-Control IMS

Original operating manual

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## Glossary

### **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.

### **EKB**

Electrostatic plastic coating

### **EPDM**

Ethylene propylene diene rubber

### **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
	<b>CAUTION</b> This signal word indicates a hazard which, if not avoided, could result in damage to the machine and its functions.
	<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.
	<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.
	<b>Machine damage</b> In conjunction with the signal word CAUTION this symbol indicates a hazard for the machine and its functions.



## 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 26)
- Decontaminate valves which handle fluids posing a health hazard.
- 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. (⇒ Section 6.1, Page 24)

## 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

The valves are delivered with the valve disc in the closed position. BOA-Control IMS valve sizes up to and including DN 50 are packaged in cardboard boxes. The line connection ports of BOA-Control IMS size DN 65 and above are closed with caps. The valves are supplied ready for operation. Original spare parts are only ready for operation following assembly/installation and subsequent shell and leak testing of the valve.

	<div data-bbox="507 712 683 757" style="background-color: #e67e22; color: white; padding: 5px;"> <b>DANGER</b></div> <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>
	<div data-bbox="507 1173 639 1218" style="background-color: #f1c40f; color: black; padding: 5px;"><b>CAUTION</b></div> <p><b>Damage to the sensors</b>            Measuring impossible</p> <ul style="list-style-type: none"> <li>▷ Do not use lifting accessories in the area of the sensors, the cables and the measurement bosses.</li> </ul>
	<div data-bbox="507 1408 639 1453" style="background-color: #f1c40f; color: black; padding: 5px;"><b>CAUTION</b></div> <p><b>Incorrect transport of valve model for drinking water applications, BOA-Control EKB</b>            Damage to the electrostatic plastic coating!</p> <ul style="list-style-type: none"> <li>▷ Do not remove the flange caps for transport.</li> <li>▷ Avoid contact with sharp objects and edges.</li> </ul>

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

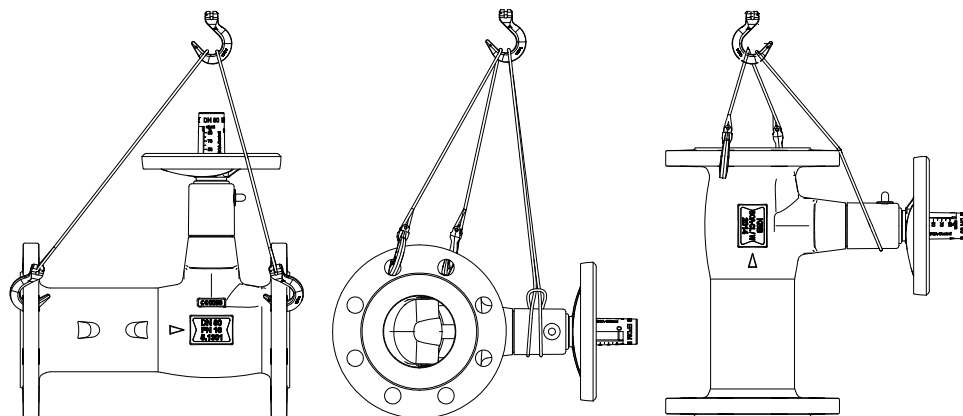



Fig. 1: Transporting the valve

### 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><b>Incorrect storage</b></p> <p>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 always complete and enclose a certificate of decontamination.  
Indicate any safety measures and decontamination measures taken.

	NOTE
	<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

	<div data-bbox="507 232 703 282"> <b>WARNING</b></div> <p data-bbox="496 297 1378 356"><b>Fluids handled, consumables and supplies which are hot and/or pose a health hazard</b></p> <p data-bbox="496 365 956 394">Hazard to persons and the environment!</p> <ul data-bbox="518 405 1414 515" style="list-style-type: none"><li>▸ Collect and properly dispose of flushing fluid and any fluid residues.</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 current regulations or in another controlled manner.

## 4 Valve Description

### 4.1 General description

- Balancing valve with flanged ends

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

### 4.2 Product information

#### 4.2.1 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/>.

#### 4.2.2 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.

#### 4.2.3 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.

### 4.3 Marking

**Table 4:** 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	
Identification number of the notified body	0036
UKCA marking	
Identification number of the approved body	0168
Customer's marking	e.g. plant/system No., etc.
Factory marking	Inspector's stamp mark on the flange following the successful final inspection and testing of the valve

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

Fluids in Group 2



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

Fig. 2: CE marking: BOA-Control/BOA-Control IMS



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

Fig. 3: UKCA marking: BOA-Control/BOA-Control IMS

#### 4.4 Design details

##### Design

Valves to type series booklet 7128.1

- BOA-Control IMS complete with sensors for measuring flow rate and temperature
- BOA-Control is suitable for mobile flow rate measurement and temperature measurement.
- Straight-way globe valve with slanted seat
- Non-rotating stem with protected, external thread
- Non-rising handwheel
- Locking device, travel stop, position indicator, throttling plug and insulating cap with anti-condensation feature as standard
- Compact EPDM-encapsulated throttling plug as soft main seat and back seat
- Maintenance-free stem seal with EPDM profile ring
- Face-to-face length to DIN EN 558/1
- Exterior coating: blue, RAL 5002

##### Measuring computer:

- Measuring flow rate and temperature requires the use of a measuring computer.
- Mobile short-term measurement with battery-powered BOATRONIC MS
- Permanent measurement set-up with BOATRONIC MS-420 (24 V DC power supply)

##### Variants

- Lead-sealable cap (prevents unauthorised actuation) as assembly set
- BOA CVE IMS: control valve with electric actuator (DN 15 - 200)
- BOA-Control EKB and BOA-Control IMS EKB for drinking water
  - Corrosion protection: internal and external electrostatic plastic coating (EKB), anthracite grey

- Nominal sizes DN 15-100 are DIN-DVGW-approved for water in acc. with DIN 3546-1: NW-6150BQ0465. The elastomers and plastic parts in contact with the fluid handled and the (EKB) body coating comply with the KTW recommendations for the use of elastomers in drinking water issued by the German Federal Office of Health.

### 4.5 Function

**BOA-Control IMS** BOA-Control IMS balancing valves are equipped with a set of sensors for measuring flow rate and temperature. The permanently attached set of sensors can be connected to a measuring computer (BOATRONIC MS or BOATRONIC MS-420) which processes the measured values and displays the specific system flow rates; the required operating data are set by appropriate adjustment of the valve plug position via the handwheel. The balancing valve setting can be secured by the locking device mounted to the body. Prior to the first measurement, the data of the fluid handled must be entered in the measuring computer.

BOA-Control IMS DN 15 to 200 valves have single-piece bodies (100) with flanged ends without separate bonnets. The globe valves are provided with an elastomer stem seal. The functional unit consists of the valve disc (350), the stem (200) and the handwheel (961). The stem (200) passage is sealed by a profile ring (412). The stem seal is maintenance-free and does not require re-tightening. The set of sensors is permanently glued to the measurement bosses on the valve body.

BOA-Control IMS DN 250 to 350 valves consist of the pressure-retaining parts, i.e. body (100) and body bonnet (161), and the functional unit. The functional unit consists of the stem (200), the throttling plug (350), the bellows (442), and the handwheel (961). Body (100) and body bonnet (161) are joined by means of hexagon head bolts (901) and hexagon nuts (920) (for EN-GJL-250) or by means of studs (902) (for DN 350 EN-GJS-400-18-LT) and sealed to atmosphere by the joint ring (411). The stem (200) passage is sealed by means of the bellows (442) in accordance with TA-Luft [German Technical Guidelines on Air Quality Control]. The back-up gland packing (461) is tightened by means of two stuffing box screws (45-6) at the stuffing box ring (454).

The seating faces of the body (100) and/or the throttling plug (350) are made of rust-proof materials as standard. The set of sensors is permanently glued to the measurement bosses on the valve body.

**BOA-Control** BOA-Control balancing valves are equipped with two measurement bosses in preparation for flow rate and temperature measurement. Attaching a set of sensors and connecting them to the appropriate BOATRONIC MS measuring computer enables the user to display the specific system flow rates and to set the required operating data by appropriately adjusting the valve plug position via the handwheel. The balancing valve setting can be secured by the locking device mounted to the body. Prior to the first measurement, the data of the fluid handled must be entered in the measuring computer.

BOA-Control DN 15 to 200 valves have single-piece bodies (100) with flanged ends without separate bonnets. The globe valves are provided with an elastomer stem seal. The functional unit consists of the valve disc (350), the stem (200) and the handwheel (961). The stem (200) passage is sealed by a profile ring (412). The stem seal is maintenance-free and does not require re-tightening. BOA-Control is equipped with two sensor bosses on the valve body in preparation for measuring.

### 4.6 Scope of supply

- BOA-Control or
- BOA-Control IMS incl. mounted sensors
- BOA-Control EKB or
- BOA-Control IMS EKB incl. mounted sensors
- Operating manual per packaging unit





**BOA-Control**  
**BOA-Control EKB**







**BOA-Control IMS**  
**BOA-Control IMS EKB**

## 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.

	<b>CAUTION</b>  <b>Improper installation</b> Damage to the valve! <ul style="list-style-type: none"> <li>▸ Protect the body and body bonnet/cover from any impacts.</li> </ul>
	<b>CAUTION</b>  <b>Outdoor installation</b> Damage due to corrosion! <ul style="list-style-type: none"> <li>▸ Provide weather-proof protection to protect the valve against moisture.</li> </ul>
	<b>CAUTION</b>  <b>Welding in close proximity to soft-seated valves</b> Damage to the seat/disc interface! <ul style="list-style-type: none"> <li>▸ Ensure that the valve is not heated beyond the specified temperature limits. (⇒ Section 6.2, Page 26)</li> </ul>
	<b>NOTE</b>  For greater ease of handling, magnets are fitted in the transducers of the sensor equipment. Direct contact with storage media or other electrical devices sensitive to magnetic fields should be avoided.

### 5.2 Installation position

Non-compliance with the following installation instructions may result in failure of the measuring function!

	<b>CAUTION</b>  <b>Flow in opposite direction of flow direction arrow</b> Measuring impossible! <ul style="list-style-type: none"> <li>▸ To enable measurement, the flow direction through BOA-Control/BOA-Control IMS valves must correspond to the flow direction arrow.</li> </ul>
---	---

For the shut-off function, an alternating direction of flow is permitted for BOA-Control/BOA-Control IMS valves up to DN 200.

Valves from DN 250 can only be used for shut-off duties up to the differential pressures indicated below, even when handwheel levers are used!

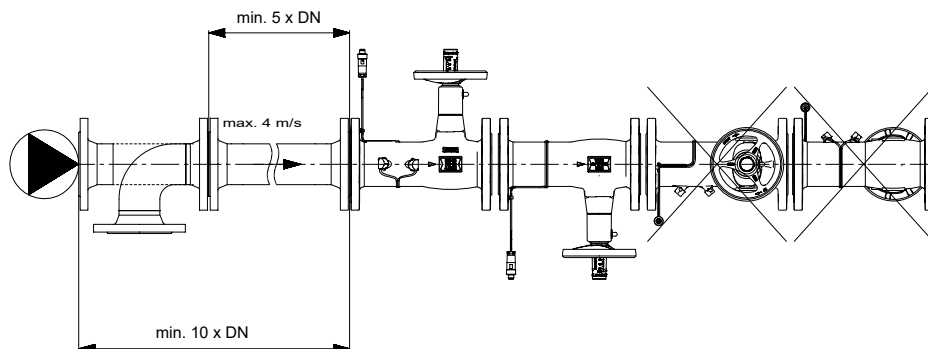
**Table 5:** Permissible differential pressures

PN	DN	Δp in bar
16	250	9
	300/350	6

0570.88/18-EN

### Installation position and upstream/downstream stabilisation distances

Welding work on the pipeline in the proximity of the sensors is not allowed.  
Minimum upstream stabilisation distance: 5 x DN. For more information see BOA-Control/BOA-Control IMS type series booklet.



**Fig. 4:** Installation position and upstream/downstream stabilisation distances

1)	Sensor in front, handwheel on top.	2)	Sensor in back, handwheel below.	3)	Sensor below, handwheel in front; arrangement is not allowed.	4)	Sensor on top, handwheel in back; arrangement is not allowed.
----	------------------------------------	----	----------------------------------	----	---	----	---

**Vertical installation:** For installation in vertical piping, no restrictions apply with regard to the installation position of the valves.

**Horizontal installation:** Installation with the valve stem in a horizontal position is not allowed, to prevent air pockets or deposits in the measuring plane.

Avoid installing valves of DN 250 to DN 350 with the stem pointing downwards to prevent dirt deposits between the folds of the bellows which might cause valve failure.

For optimum measuring accuracy, the following straight minimum upstream stabilisation distances free from any sources of potential interference must be provided, irrespective of the installation position:

- At least 5 x DN between BOA-Control/BOA-Control IMS and single sources of interference such as single 90° pipe bends or open shut-off valves
- At least 10 x DN between BOA-Control/BOA-Control IMS and turbulence-producing elements such as pumps, control valves or combinations of pipe bends.

Installation in the return line is recommended. Avoid installing valves at the highest points in the system.

Avoid any sources of potential interference in the upstream stabilisation area (such as, for example, immersion sensors or non-standardised sealing elements).

Assess any sources of interference in accordance with EN ISO 5167-1, Section 7.3 (previously DIN 1952, Section 6).


A downstream stabilisation distance is not required!



#### NOTE


The length of the cables connecting the sensors to BOATRONIC is fixed and must **not** be changed.


### 5.3 Preparing the valve


	<b>CAUTION</b>
	<b>Outdoor installation</b> Damage due to corrosion! ▷ Provide weather-proof protection to protect the valve against moisture.

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.


### 5.4 Piping

	<b>! WARNING</b>
	<b>Impermissible piping forces</b> Leakage from or rupture of the valve body! ▷ Connect the pipes to the valve without transmitting any stresses or strains. ▷ Take structural measures to prevent any piping forces from being transmitted to the valve. ▷ Avoid mechanical loads beyond normal levels, e.g. piping forces, moments and vibrations.

	<b>CAUTION</b>
	<b>Welding work in the area of the pipe flanges</b> Thermal damage to valve disc and sensors! ▷ Remove the valve before carrying out welding work.

	<b>CAUTION</b>
	<b>Painting of the piping</b> Valve function impaired! Loss of important information provided on the valve! ▷ Protect stem and plastic components prior to applying paint. ▷ Protect printed name plates prior to applying paint.

#### 5.4.1 Flange connection

	<b>CAUTION</b>
	<b>Installation in copper pipes</b> Damage to the electrostatic plastic coating! ▷ Fit fabric-reinforced rubber gaskets (sealing elements to DIN EN 1514) between the valve flanges and the pipe flanges. ▷ Fit insulating bushes with centring collar made of polyamide between bolts and bolt holes.

**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.  
(⇒ Section 5.4.2, Page 21)

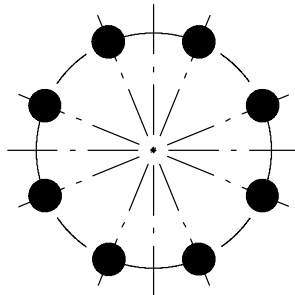
- Flange connection** ✓
- ✓ Any flange caps on the line connection ports have been removed.
  - ✓ The mating flange faces are clean and undamaged.
  - ✓ Verify that the piping is correctly aligned and the flanges are parallel.
  - ✓ Bolts and nuts are available.
    1. Align the valve between the pipe flanges.
    2. Use an appropriate tool to evenly tighten the fasteners crosswise.



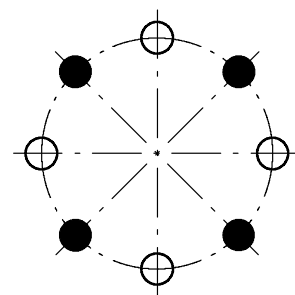
#### NOTE

##### Exception: DN 65 PN 16

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°.



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



DN 65 PN 16 (steel/cast iron):  
DIN EN 1092-1 with DIN EN 1092-2:  
bolt hole circle to DIN EN 1092-1 rotated by 22,5°  
bolts through 4 holes, 4 holes free

Fig. 5: Flange connections



#### NOTE

For the valves to reach the documented Kv values, the flow direction must correspond to the flow direction arrow.

#### 5.4.2 Bolt lengths for flange connections

Connecting elements are needed to install a valve in a pipeline. These are bolts and nuts.

Select the bolts and nuts in accordance with DIN EN 1515-4 "Flanges and their joints, Part 4, Selection of bolting". In order to ensure the correct installation of the valve, the bolts and nuts must be made of the materials defined by this standard as a function of pressure and temperature for use within the scope of the Pressure Equipment Directive 97/23/EC.

The bolt lengths are specified without considering tolerances; they refer to the installation of a valve in a pipe with a standardised steel mating flange to DIN EN 1092-1.




The number of bolts, their thread size and length are specified for the respective valve series and nominal pressures. This data can also be obtained via KSB's flange selector (reference No. 0570.3).

**Table 6: Bolt sizes and lengths to DIN EN 1092-2 PN 10/16**

DN	BOA-Control/BOA-Control IMS
15	4x M12 x 45
20	4x M12 x 50
25	4x M12 x 50
32	4x M16 x 55
40	4x M16 x 55
50	4x M16 x 55
65	4x M16 x 55
80	8x M16 x 60
100	8x M16 x 65
125	8x M16 x 65
150	8x M20 x 70
200	12x M20 x 75 <sup>3)</sup>
250	12x M24 x 85 <sup>3)</sup>
300	12x M24 x 85 <sup>3)</sup>
350	16x M24 x 95 <sup>3)</sup>

### 5.5 Insulation

For handling hot fluids, the valve should be insulated 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>
	<p><b>NOTE</b></p> <p>For handling hot fluids, the valve should be insulated 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>

<sup>3</sup> PN 16 only

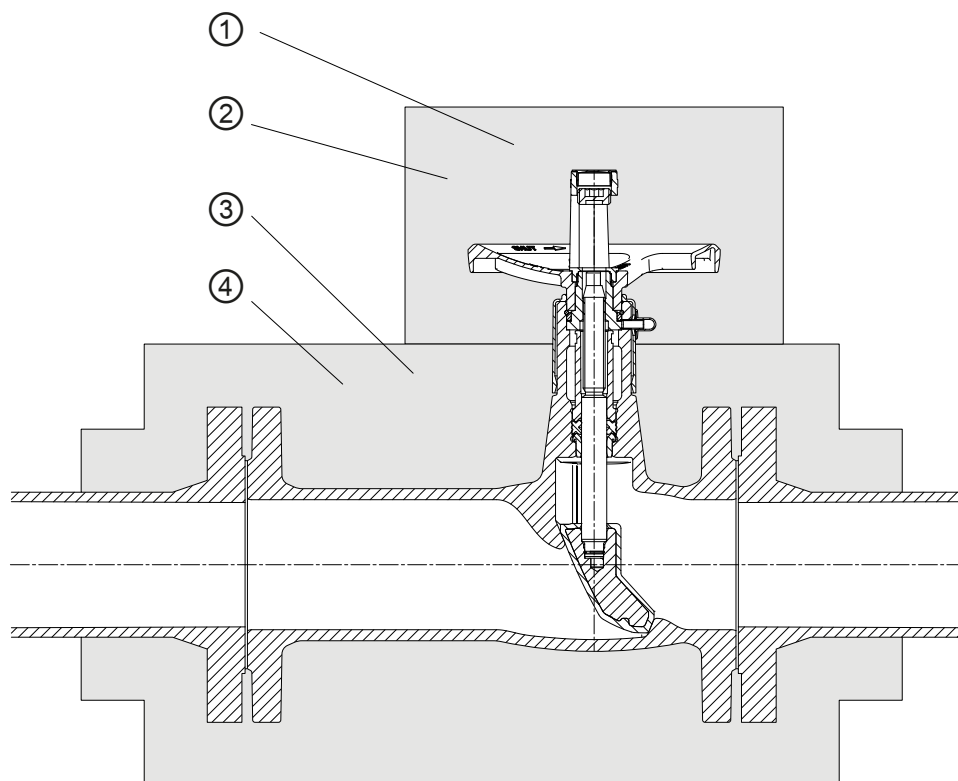


Fig. 6: Proper diffusion-tight insulation (schematic)

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

## 5.6 Measuring computer

	<b>CAUTION</b>
	<p><b>Incorrect operation of the measuring computer</b></p> <p>Incorrect readings and setting of valve!</p> <p>▷ Read and observe the operating manuals of the measuring computers before using the measuring computers.</p>

Setting and operation of BOA-Control/BOA-Control IMS balancing valves require the use of measuring computers, as otherwise the valve cannot perform all of its functions. Without a measuring computer, the scaled travel indicator only allows a preliminary setting on the basis of the characteristic curves.

BOA-Control IMS can be set and adjusted by means of the BOATRONIC MS or BOATRONIC MS-420 measuring computers. The length of the connection cable to the sensor must not be changed without prior consultation. The cable must only be extended using the extension cable available from KSB.

BOA-Control can only be set and adjusted by means of the BOATRONIC MS measuring computer. The length of the connection cable to the sensor must not be changed without prior consultation. The cable must only be extended using the extension cable available from KSB.

The valves of the BOA-Control/BOA-Control IMS series can be used as shut-off valves. They will then perform the functions of sealing and shutting off like any standard shut-off valve. No particular measures with regard to sensors or measuring taps need to be taken for this purpose.


## 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 shown on the valve is compatible with the operating conditions of the piping.
- The material's chemical resistance and stability under load have been checked.

	<p><b>CAUTION</b></p> <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.</li> <li>▷ If necessary, install a strainer.</li> </ul>
---	--

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.

	<p><b>! DANGER</b></p> <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>
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	<p><b>CAUTION</b></p> <p><b>Incorrect venting. Too many air pockets or gas pockets in the fluid handled</b> Flow rate measurement using ultrasonic equipment is limited or impossible!</p> <ul style="list-style-type: none"> <li>▷ Properly vent the system before commissioning/start-up.</li> </ul>
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#### Functional testing prior to commissioning/start-up



Check the shut-off function of the installed valve by opening and closing it several times.

#### 6.1.2 Valve actuation

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 shown on the top of the handwheel.

Depending on the flow rate to be set, balancing valves are opened or set to the required valve plug position. Since the valves come with throttling plugs as standard, they are suitable for both on/off and control duties.



	<b>CAUTION</b>  <b>Excessively long idle periods</b> Damage to the valve! <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>
	<b>CAUTION</b>  <b>Use of levers</b> Damage to the valve as a result of excessive forces! <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

As the valve can be damaged by applying excessive force, it is not allowed to use levers to move the handwheels of nominal valve sizes up to and including DN 125. On all nominal sizes greater than DN 125, suitable levers may be used up to the following torque limits:

**Table 7:** BOA-Control/BOA-Control IMS

DN	150	200	250	300	350
M <sub>t</sub> [Nm]	120	140	200	200	200
Hex. head WAF	36	65	46	46	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.

#### 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 8:** 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

**Table 9:** Test pressure and operating pressure

PN	DN	Materials	Shell test	Seat tightness test	Permissible operating pressure <sup>4)</sup>
			With water		
			Tests P10 and P11 to DIN EN 12266-1	Test P14 to DIN EN 12266-1	-10 to +120 °C <sup>5)</sup>
			[bar]	[bar]	[bar]
16 <sup>6)</sup>	15 - 300	EN-GJL-250	24	17,6	16
	350	EN-GJS-400-18-LT			16

Valves from DN 250 can only be used for shut-off duties up to the differential pressures indicated below, even when handwheel levers are used!

**Table 10:** Permissible differential pressures [bar]

PN	DN	Δ p [bar]
16	250	9
	300/350	6

## 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 (⇒ Section 6.1, Page 24) and the operating limits (⇒ Section 6.2, Page 26) .

In addition, carry out all servicing/maintenance operations before returning the valve to service. (⇒ Section 7, Page 27)


<sup>4)</sup> Static load

<sup>5)</sup> Variants BOA-Control EKB and BOA-Control IMS EKB -10 to +40 °C

<sup>6)</sup> PN 10 available for variants BOA-Control EKB and BOA-Control IMS EKB up to DN 150 (same design as for PN 16)

## 7 Servicing/Maintenance


### 7.1 Safety regulations

	<b>⚠ DANGER</b>
	<p><b>Valve under pressure</b> High-pressure hazard! Leakage of hot and/or toxic fluids! Risk of burns!</p> <ul style="list-style-type: none"> <li>▷ Depressurise the valve and its surrounding system prior to any maintenance work and installation work.</li> <li>▷ If the bellows are defective or fluid escapes, depressurise the valve.</li> <li>▷ Ensure the valve is depressurised before removing any drain plugs, opening plugs or vent plugs.</li> <li>▷ Allow the valve to cool down until the temperature of the fluid in all valve areas in contact with the fluid is lower than the fluid's vaporisation temperature.</li> <li>▷ Never vent the valve by removing the bonnet bolting or gland packing.</li> <li>▷ Use original spare parts and appropriate tools, even in emergencies.</li> </ul>

Before removing the valve from the piping, ensure that the pipe has been shut off and released for repair/maintenance work.

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.

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


	<b>NOTE</b>
	<p>All maintenance, service and installation work can be carried out by KSB Service or authorised workshops. Find your contact on the Internet at "<a href="http://www.ksb.com/contact">www.ksb.com/contact</a>".</p>

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 to ensure 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 user is responsible for defining appropriate intervals for checks and maintenance, depending on the application of the valve.</p>

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 200 and stem nut 925 using standardised lubricants to DIN 51825.
- Re-tightening or replacing the bonnet/cover gasket 411 in good time.

### 7.2.1 Inspection work

#### 7.2.1.1 (Re-)tightening the bonnet/cover bolting


Replacing bonnets or bonnet gaskets is possible and permitted on BOA-Control IMS nominal valve sizes 250 to 350.

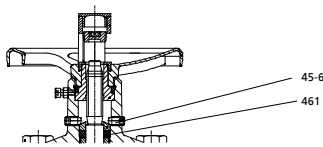
After maintenance or repair work has been completed, all bolting in the bonnet/cover area must be re-tightened so as to restore full functionality of the valve.

	<b>WARNING</b>
	<b>Failure to test overhauled valves</b> Hazard to persons and the environment! <ul style="list-style-type: none"> <li>▷ After reassembly and prior to commissioning/start-up, the valves must be subjected to shell and leak testing to DIN EN 12266-1.</li> </ul>
	<b>NOTE</b>
	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.

#### 7.2.1.2 (Re-)tightening the back-up gland packing

BOA-Control IMS valves of nominal sizes 250 to 350 are delivered with the back-up gland packing not tightened to its full sealing performance.

	<b>DANGER</b>
	<b>Bellows failure</b> Leakage of hot and/or toxic fluids! Risk of burns! <ul style="list-style-type: none"> <li>▷ Tighten the stuffing box screws (45-6) until no leakage can be seen.</li> </ul>




**Fig. 7:** Sectional drawing of BOA-Control IMS DN 250-350

**Table 11:** Stuffing box screws to DIN 913


DN	Thread	Hexagon socket
250-350	M 16	WAF 8

The valve should be replaced as quickly as possible to ensure proper functioning!

#### 7.2.2 Valves with actuator

	<b>NOTE</b>
	If the valves are fitted with actuators, ensure that the actuator's operating manual is also observed.

#### 7.2.3 Valve reassembly

	<b>CAUTION</b>
	<b>Improper reassembly</b> Damage to the valve! <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>

Valve reassembly must be effected in reverse order to dismantling.

**NOTE**

To maintain functional reliability, new sealing elements must be used when the valve is reassembled.

### 7.3 Tightening torques

#### 7.3.1 Tightening torques for the bonnet bolting

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

**Table 12:** Bolt tightening torques for BOA-Control IMS [Nm]

Nominal pressure PN	Material number	Nominal size		
		250	300	350
16	5.1301 <sup>7)</sup>	260	260	-
16	5.3103 <sup>8)</sup>	290	290	290

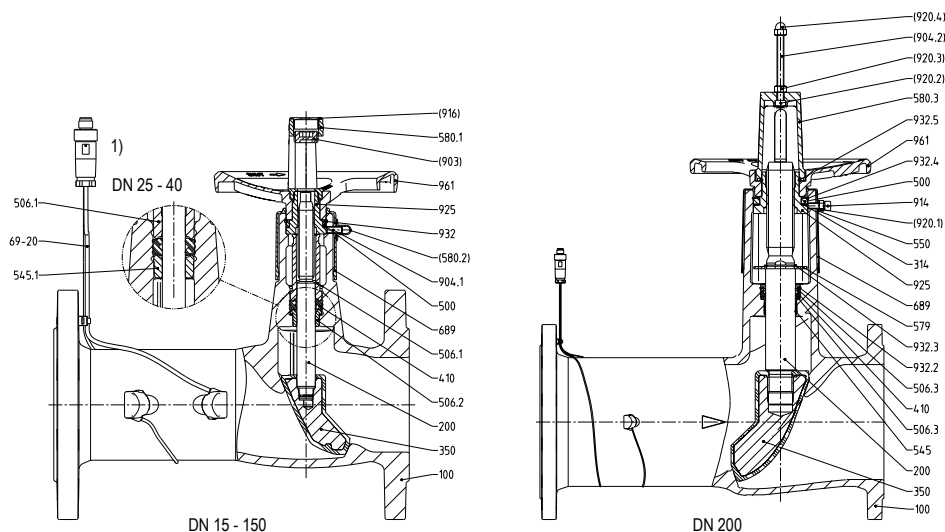
<sup>7</sup> EN-GJL-250 (JL1040)

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

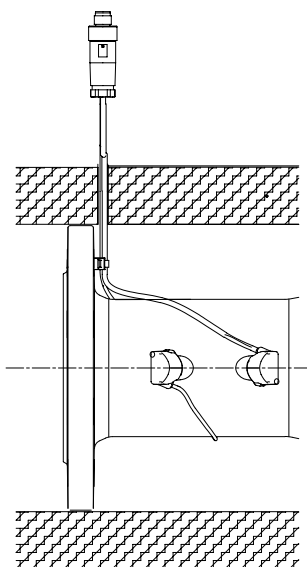
## 8 Related Documents

### 8.1 General assembly drawing with list of components

#### 8.1.1 BOA-Control/BOA-Control IMS, type BOA-CL, DN 15 - 200



**Fig. 8:** Sectional drawings of BOA-Control/BOA-Control IMS, type BOA-CL, DN 15 - 200; 1) EKB variant DN 25 - 40



**Fig. 9:** Detail of insulation shell

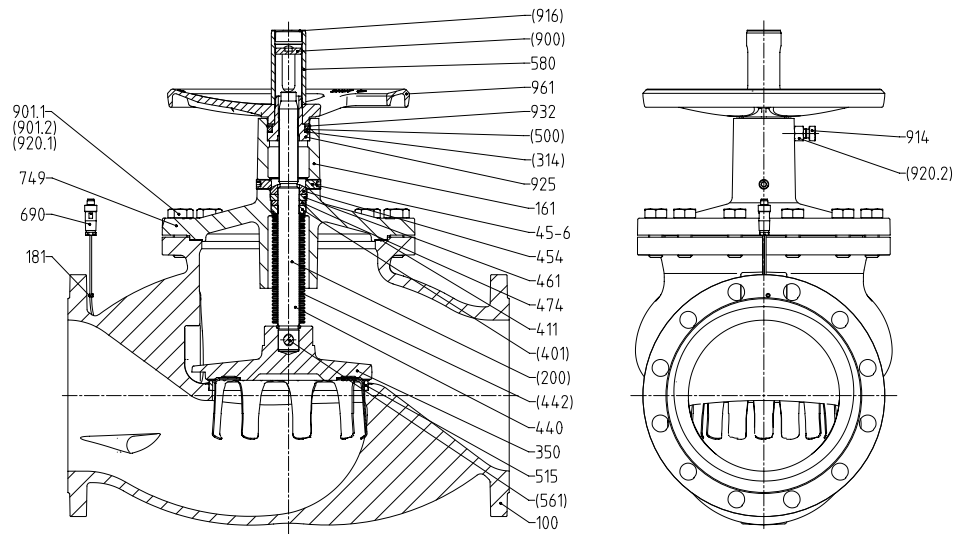
**Table 13:** Parts list

Part No.	Description	Standard material	Material of EKB variant	Note
100	Body	EN-GJL-250 (5.1301)	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	EN-GJL-250 (5.1301) / EPDM, as per KTW recommendation	-

Part No.	Description	Standard material	Material of EKB variant	Note
410	Profile seal	Elastomer EPDM	Elastomer EPDM, as per KTW recommendation	-
500	Ring	Steel, electro-galvanised and thick-film passivated		DN 32 - 200
506.1	Retaining ring	Plastic	Plastic, as per KTW recommendation	DN 50 - 150
506.2		Plastic	Plastic	DN 15 - 150
506.3		Stainless steel		DN 200
545.1	Bearing bush	-	Brass (CW614N)	DN 25 - 40, below profile seal
545.2		Steel/PTFE	Plastic	DN 200
579	Stop	Steel, electro-galvanised and thick-film passivated		DN 200
580.1 <sup>9)</sup>	Cap assembly incl. travel stop, comprising:			
	580.1	Cap	Plastic, glass-fibre reinforced, impact-resistant	DN 15 - 150
	903	Screw plug	Steel, electro-galvanised, blue chromated	
	916	Plug	Plastic	
580.3 <sup>9)</sup>	Cap assembly incl. travel stop, comprising:			
	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	-	-
69-20	Sensor set	Plastic with ceramics		BOA-Control IMS and BOA-Control IMS EKB only
81-73	Cable tie	Plastic		BOA-Control IMS and BOA-Control IMS EKB only
904.1 <sup>9)</sup>	Locking device assembly, comprising:			
	904.1	Grub screw	Galvanised steel	DN 15 - 150
	580.2	Cap	Plastic	
914 <sup>9)</sup>	Locking device assembly, comprising:			
	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
-	Insulation shell	Polystyrene shell with hard polyurethane foam		Accessories

<sup>9)</sup> Spare part

### 8.1.2 BOA-Control/BOA-Control IMS, type BOA-H, DN 250 - 350



**Fig. 10:** Sectional drawings of BOA-Control/BOA-Control IMS, type BOA-H, DN 250 - 350

**Table 14:** Parts list

Part No.	Description	Material	Note
<b>100<sup>10)</sup></b>	<b>Complete body assembly, comprising:</b>		
100	Body	EN-GJL-250 (5.1301)	DN 250 - 300
		EN-GJS-400-18-LT	DN 350
411 <sup>10)</sup>	Joint ring	CrNi steel/graphite 1 F	-
515	Seat ring	1.4301	-
901.1	Hexagon head bolt	8.8	DN 250 - 300
901.2	Stud	C35E+QT	DN 350
920.1	Hexagon nut	C35E+N	DN 350
181	Cable tie	PA	-
690	Sensor set	Acc. to manufacturer	-
<b>749<sup>10)</sup></b>	<b>Complete bonnet assembly, comprising:</b>		
161	Body bonnet	EN-GJL-250 (5.1301)	DN 250 - 350
		EN-GJS-400-18-LT	DN 350
<b>350<sup>10)</sup></b>	<b>Complete V-port plug assembly, comprising:</b>		
350	V-port plug	EN-GJL-250 (5.1301)	-
561	Grooved pin	45 H+A2A	-
411 <sup>10)</sup>	Joint ring	CrNi steel/graphite 1 F	-
<b>440</b>	<b>Bellows assembly, comprising:</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	-
<b>580<sup>10)</sup></b>	<b>Complete cap assembly for V-port plug incl. travel stop, comprising:</b>		
580	Cap	1.4027	-

<sup>10)</sup> Spare part



Part No.	Description	Material	Note
900	Bolt/screw	1.4021+QT800	-
916	Plug	PE-LD	-
<b>914<sup>10)</sup></b>	<b>Locking device assembly, comprising:</b>		
914	Hexagon head bolt	8.8	-
920.2	Hexagon nut	8+A2A	-
<b>925</b>	<b>Stem nut assembly, comprising:</b>		
314	Thrust bearing	Steel/PTFE	-
500	Ring	ST+GAL ZN	-
925	Stem nut	46S20+C	-
932	Circlip	1.4310	-
961 <sup>10)</sup>	Handwheel	AC-46200F-D	-

## 8.2 Dimensions and weights

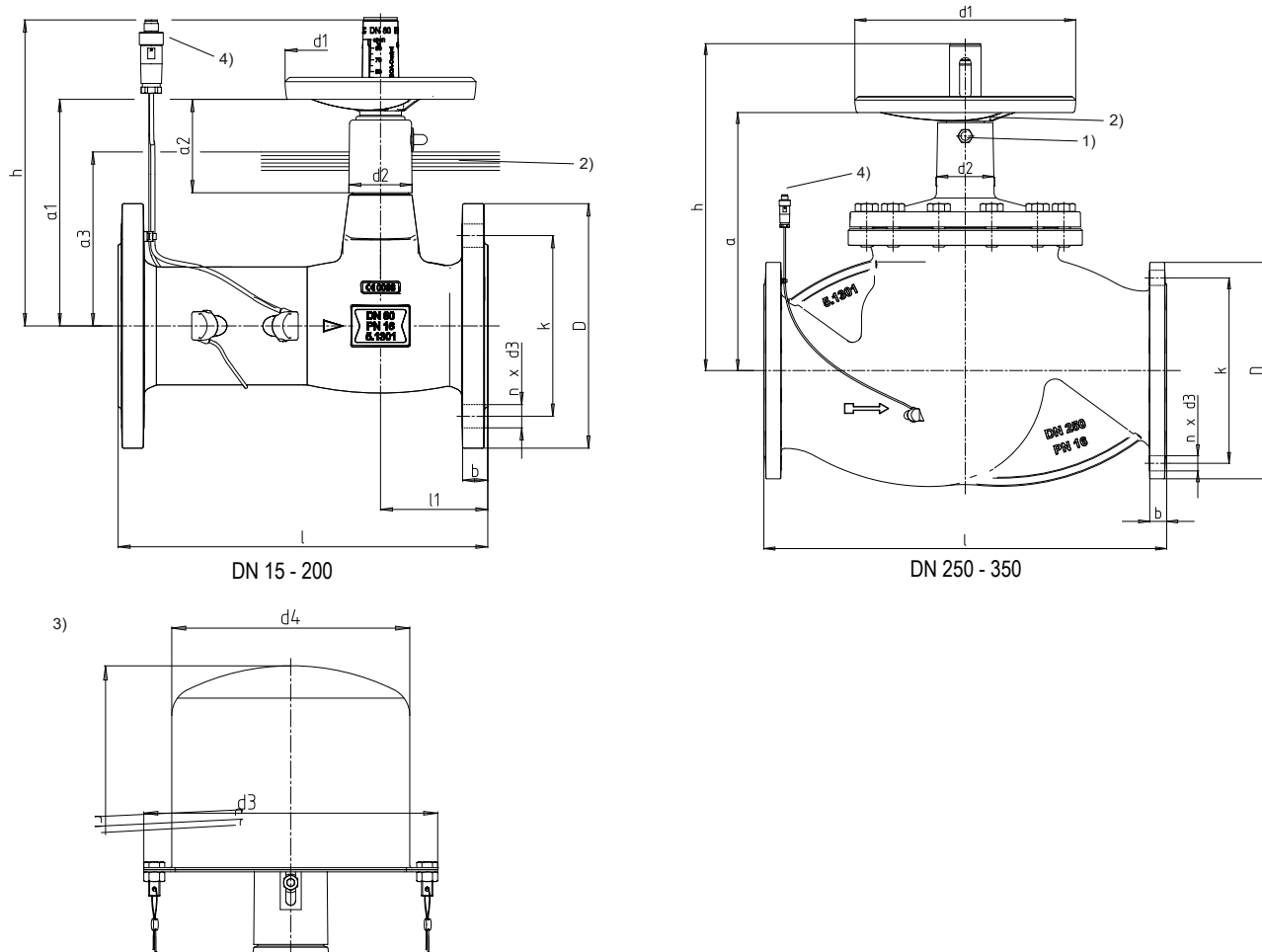


Fig. 11: Dimensions; BOA-CL DN 15 - 200, BOA-H DN 250 - 350

1)	Shown offset by 90°	2)	Insulation boundary <sup>11)</sup>
3)	Lead-sealable cap (prevents unauthorised actuation) as assembly set	4)	Sensor

Table 15: Dimensions and weights

PN	DN	a <sub>1</sub>	a <sub>2</sub>	a <sub>3</sub>	b	D	d <sub>1</sub>	d <sub>2</sub> ≈	h	k	l	l <sub>1</sub>	n × d <sub>3</sub>	[kg]	Capped valve		
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		h <sub>3</sub>	d <sub>4</sub>	a <sub>4</sub>
16	15	93	29	57,5	14	95	50	33	130	65	130	42,5	4 × 14	2,0	181,5	130	166
	20	93	29	62,5	16	105	50	33	130	75	150	48	4 × 14	2,4	181,5	130	166
	25	105	46	72,5	16	115	80	35	156	85	160	54,5	4 × 14	3,1	191,5	130	166
	32	122	46	85	18	140	100	43	178	100	180	65	4 × 19	5,0	205,0	130	166
	40	122	46	95	18	150	100	43	178	110	200	70	4 × 19	5,8	207,5	130	166
	50	133	46	107,5	20	165	100	43	189	125	230	75	4 × 19	7,6	218,5	130	166
	65	175	66	125	20	185	125	47	247	145	290	85	4 × 19	11,5	258,5	130	166
	80	186	76	140	22	200	160	52	251	160	310	90	8 × 19	14,5	330,5	170	210
	100	224	73	160	24	220	160	63	305	180	350	95	8 × 19	20,7	346,5	170	210
	125	271	115	175	26	250	200	85	371	210	400	125	8 × 19	31,7	431,0	220	270
	150	283	113	192,5	26	285	250	85	385	240	480	150	8 × 23	41,6	453,0	340	390
	200	434	175	220	30	340	315	136	697	295	600	180,5	12 × 23	90,7	597,0	340	390

<sup>11</sup> In acc. with EnEV



**Table 16:** Dimensions

PN	DN	a	b	D	d <sub>1</sub>	d <sub>2</sub> ≈	h	k	l	n × d <sub>3</sub>	[kg]
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
16	250	476	32	405	400	93	606	355	730	12 × 28	239
	300	530	32	460	400	93	660	410	850	12 × 28	343
	350	530	36	520	400	93	660	470	980	16 × 28	390

**Mating dimensions as per standard**

Face-to-face lengths: DIN EN 558/1, ISO 5752/1  
 Flanges: DIN EN 1092-2, flange type 21  
 Flange facing: DIN EN 1092-2, type B

## 9 Trouble-shooting

	 <b>WARNING</b>
	<p><b>Improper remedial work on the valve</b></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 service is required.

**Table 17:** Trouble-shooting

Problem	Possible cause	Remedy
Leakage at the seat/disc interface of BOA-Control/BOA-Control IMS DN 15 to 200		Rework not possible. Replace valve.
Leakage at the seat/disc interface of BOA-Control IMS DN 250 to 350		<ol style="list-style-type: none"> <li>1. Dismantle the 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 bonnet gasket of BOA-Control IMS DN 250 to 350	Unevenly tightened bonnet/cover bolts	<ol style="list-style-type: none"> <li>1. Undo the bonnet/cover bolting (902/920 or 901).</li> <li>2. Replace the joint ring (411).</li> <li>3. Re-tighten the bonnet/cover bolting (902/920 or 901) as specified in the manual.</li> </ol>
	Defective bonnet/cover gasket	<ol style="list-style-type: none"> <li>1. Dismantle the bonnet/cover bolting (902/920/901).</li> <li>2. Clean the sealing surfaces.</li> <li>3. Replace the joint ring (411).</li> </ol>
Leakage at the stem seal of BOA-Control/BOA-Control IMS DN 15 to 200		Rework not possible. Replace valve.
Leakage at the stem seal of BOA-Control IMS DN 250 to 350		<ol style="list-style-type: none"> <li>1. Tighten the stuffing box screws (45-6) firmly to prevent leakage.</li> <li>2. Replace the complete upper valve section immediately.</li> </ol>

## 10 EU Declaration of Conformity

### 10.1 EU Declaration of Conformity for BOA-Control/BOA-Control IMS

Herewith we,

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

declare that **the product:**

<b>BOA-Control</b>	PN 16	DN 15-200
<b>BOA-Control IMS</b>	PN 16	DN 15-350

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

**Applied harmonised European standards:**

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

**Other standards/codes:**

DIN 3840

**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

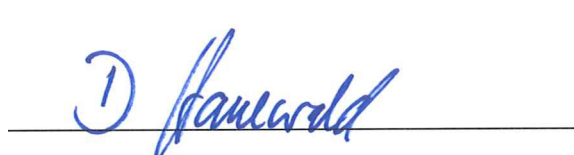
Valves  $\leq$  DN 50 (PN 16),  $\leq$  DN 100 (PN 10) and  $\leq$  DN 150 (PN 6) comply with the European Pressure Equipment Directive 2014/68/EU, Article 4, Section 3. They must bear neither the CE marking nor the identification number of a notified body.

The EU Declaration of Conformity was issued in/on:

Frankenthal, 8 March 2022



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-Control/BOA-Control IMS

Herewith we,

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

declare that **the product:**

<b>BOA-Control</b>	PN 16	DN 15-200
<b>BOA-Control IMS</b>	PN 16	DN 15-350

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

**Applied harmonised European standards:**

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

**Other standards/codes:**

DIN 3840

**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

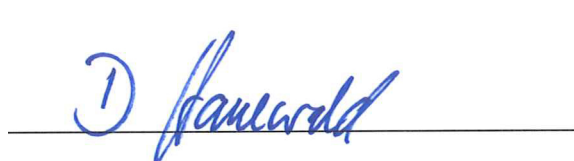
Valves  $\leq$  DN 50 (PN 16),  $\leq$  DN 100 (PN 10) and  $\leq$  DN 150 (PN 6) comply with the Pressure Equipment (Safety) Regulations 2016, PART 1, para. 8. They must bear neither the UKCA marking nor the identification number of the UK-approved body.

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

## 12 Certificate of Decontamination

Type: .....

Order number/ .....

Order item number<sup>12</sup>: .....

Delivery date: .....

Field of application: .....

Fluid handled<sup>12</sup>: .....

Please tick where applicable<sup>12</sup>:

☐

Corrosive


☐

Oxidising


☐

Flammable


☐

Explosive


☐

Hazardous to health


☐

Seriously hazardous to health


☐

Toxic


☐

Radioactive


☐

Hazardous to the environment


☐

Safe

Reason for return<sup>12</sup>: .....

Comments: .....

.....

The product/accessories have been carefully drained, cleaned and decontaminated inside and outside prior to dispatch/ placing at your disposal.

We herewith declare that this product is free from hazardous chemicals and biological and radioactive substances.

- ☐ No special safety precautions are required for further handling.
- ☐ The following safety precautions are required for flushing fluids, fluid residues and disposal:

.....

.....

We confirm that the above data and information are correct and complete and that shipping is effected in accordance with the relevant legal provisions.

.....  
Place, date and signature

.....  
Address

.....  
Company stamp

<sup>12</sup> Required fields

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