Globe Valve

BOA-SuperCompact

Type Series Booklet

KSB

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Type Series Booklet BOA-SuperCompact

Contents

Globe Valves

Soft-seated Globe Valves to DIN/EN

BOA-SuperCompact

Main applications

- Hot-water heating systems
- Air-conditioning systems
- Heat recovery systems

Fluids handled

- Water
- Water/glycol mixtures
- Not suitable for fluids containing mineral oils, steam or fluids liable to attack EPDM and cast iron.
- Other fluids on request.

Operating data

Table 1: Operating properties

Characteristic	Value
Nominal pressure	PN 6/10/16
Nominal size	DN 20 - 200[1)]
Max. permissible pressure [bar]	16
Min. permissible temperature [°C]	≥ -10
Max. permissible temperature [°C]	≤ +120

Valve body materials

Table 2: Overview of available materials

Material	Material number
EN-GJL-250	5.1301

Design details

Design

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

Variants

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

Product benefits

- Zero leakage and zero maintenance for life due to lubricated-for-life EPDM profile ring and single-piece body
- Minimum pressure loss by hydraulically favourable flow passage
- One model for shut-off and throttling due to EPDM-encapsulated throttling plug with linear characteristic
- Easy insulation due to simple body design and anti-condensation feature (insulating cap)
- Fully equipped at no extra price: internal travel stop, position indicator and locking device included.
- Suitable for universal use for PN 6/10/16: complete bolt hole pattern for PN 6/10/16 in a single body.
- Space-saving body design with face-to-face length to EN 558/94 (up to DN 150: face-to-face length = nominal size).
- Very low component weight for easy installation.
- Suitable for dead-end service due to alignment lugs with flange thickness to DIN EN 1092-2.

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1 DN 200, type BOA-Compact

Product information

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

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see https://www.ksb.com/en-global/company/corporate-responsibility/reach.

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

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

Product information as per Pressure Equipment (Safety) Regulations 2016

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

Related documents

- Use BOA-Control or BOA-Control IMS valves for flow rate and temperature measurement during hydraulic balancing, and our BOATRONIC MS or BOATRONIC MS-420 measuring computers.
- Use maintenance-free BOA-Compact EKB globe valves for water supply systems and cooling circuits as well as drinking water applications.
- Use maintenance-free BOA-H globe valves for handling fluids containing mineral oils, for temperatures above 120 °C and for low-pressure steam systems.
- The valves are available as automated variants with electric actuators (continuous-action 24 V AC, 230 V AC) and 3-point actuators (24 V AC, 230 V AC) as BOA-CVE globe valves.

Table 3: Information/documents

Document	Reference number
Flow characteristics	7113.4
Operating manual	0570.8
Assembly instructions "Accessories Set: Lead-sealable Handwheel Cap"	0570.811
BOA-Compact EKB type series booklet	7112.11
BOA-Control IMS type series booklet	7128.1
BOA-CVE C/CS/W/IMS/EKB/IMS EKB type series booklet	7520.1
BOA-H type series booklet	7150.1
Typical tender for BOA-SuperCompact	7113.521

Purchase order specifications

Please specify the following information in all enquiries or purchase orders:

1. Type
2. Nominal pressure
3. Nominal size
4. Variants
5. Reference number

Pressure/temperature ratings

Table 4: Test pressure and operating pressure

PN	DN	Shell test	Leak test (seat)	Permissible operating pressure[2)]
		With water		
		Tests P10 and P11 to DIN EN 12266-1	Test P12, leakage rate A to DIN EN 12266-1	-10 to 120 °C
		[bar]	[bar]	[bar]
16	20/25-200	24	17,6	16

2 Static load

Materials

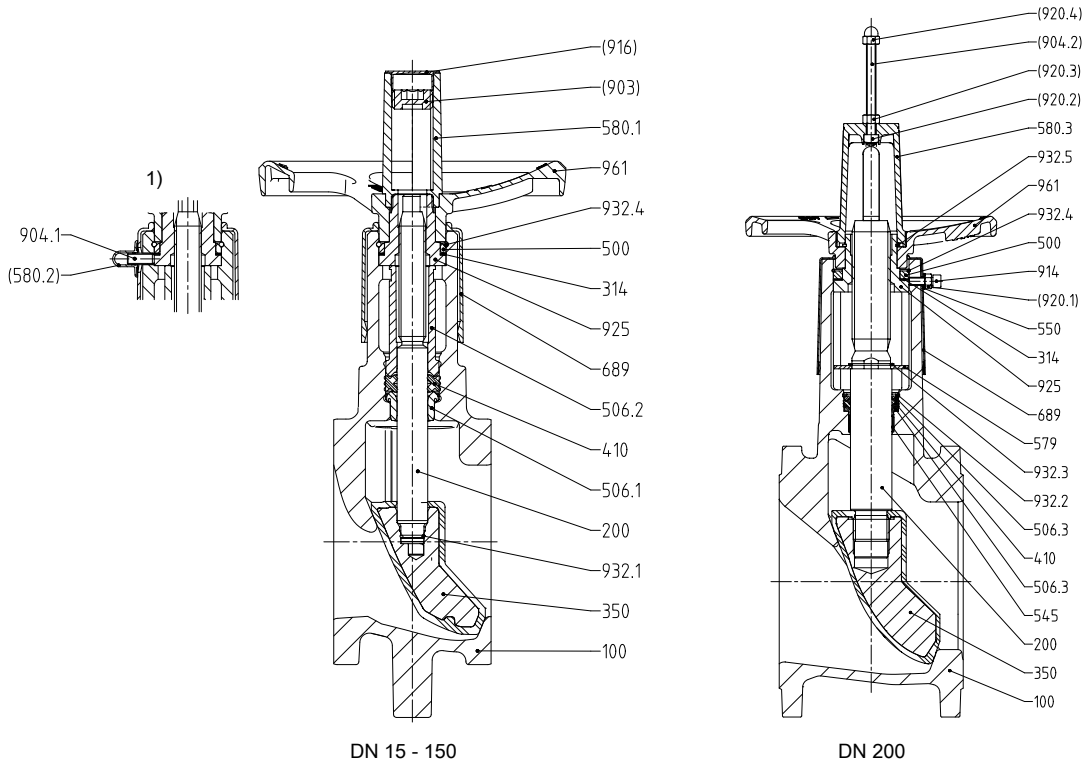


Fig. 1: Sectional drawings; 1) shown offset by 90°

Table 5: Parts list

Part No.		Description	Material	Note
100		Body	EN-GJL-250 (5.1301)	-
200		Stem	Stainless steel, min. 13 % chrome (Cr)	-
314		Thrust bearing	Steel/PTFE	DN 50 - 200
350		Valve disc	EN-GJL-250 (5.1301)	-
410		Profile seal	Elastomer EPDM	-
500		Ring	Steel, electro-galvanised and thick-film passivated	DN 32 - 200
506.1		Retaining ring	Plastic	DN 15 - 150
506.2			Plastic	DN 15 - 150
506.3			Stainless steel	DN 200
545		Bearing bush	Steel/PTFE	DN 200
550		Disc	Steel, electro-galvanised	DN 200
579		Stop	Steel, electro-galvanised and thick-film passivated	DN 200
580.1[3)]		**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[3)]		**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	-
904.1[3)]		**Locking device assembly, comprising:**		
	904.1	Grub screw	Galvanised steel	DN 15 - 150
	580.2	Cap	Plastic	
914[3)]		**Locking device assembly, comprising:**		

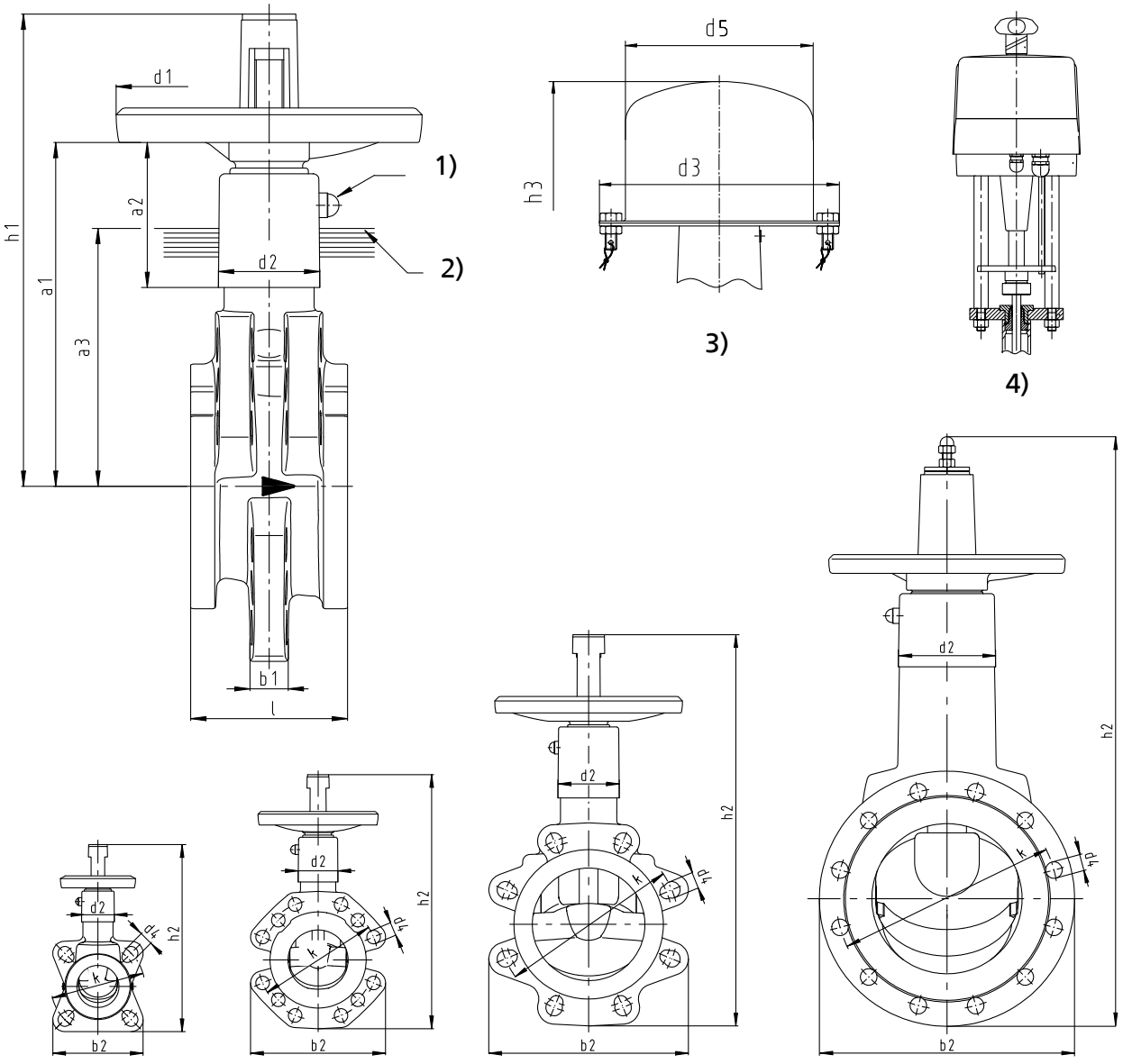
3 Spare part

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

Colour coding system

White plug / grey cap

Dimensions and weights



DN 20-65 DN 80-100 DN 125-150 DN 200

1)	Locking device (shown offset by 90°)	2)	Insulation boundary in acc. with German energy-saving regulations
3)	Lead-sealable cap (prevents unauthorised actuation) as assembly set	4)	With electric actuator (BOA-CVE globe valves)

Table 6: Dimensions and weights

PN	DN	a_1	a_2	a_3	b_1	b_2	d_1	d_2	d_3	d_5	h_1	h_2	h_3	k	l	n × d_4	
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
6	20[4)]	90	29	72,5	13	85	50	33	166	130	128	170	180	65	25	4 × 11	0,8
	25[4)]	90	29	72,5	13	85	50	33	166	130	128	170	180	75	25	4 × 11	0,8
	32	118	46	85	16	103	80	35	166	130	169	220	205	90	32	4 × 14	1,5
	40	118	46	95	16	110	80	35	166	130	169	224	205	100	40	4 × 14	2
	50	131	46	107,5	20	120	100	43	166	130	189	250	220	110	50	4 × 14	3
	65	174	66	125	24	135	125	47	166	130	248	316	260	130	65	4 × 14	5
	80	180	76	140	20	180	160	52	210	170	248	339	300	150	80	4 × 18	7,5
	100	215	73	160	20	203	160	63	210	170	298	401	340	170	100	4 × 18	10,5
	125	270	115	175	23	230	200	80	270	220	373	490	430	200	125	8 × 18	15
	150	282	113	192,5	23	266	250	80	390	340	386	522	455	225	150	8 × 18	21

4 Single valve size: DN 20/25

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PN	DN	a_1	a_2	a_3	b_1	b_2	d_1	d_2	d_3	d_5	h_1	h_2	h_3	k	l	n × d_4	
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg]
6	200	434	174	220	30	340	315	136	390	340	693	863	600	280	230	8 × 19	68
10/16	20[4)]	90	29	72,5	13	85	50	33	166	130	128	170	180	75	25	4 × 14	0,8
	25[4)]	90	29	72,5	13	85	50	33	166	130	128	170	180	85	25	4 × 14	0,8
	32	118	46	85	16	103	80	35	166	130	169	220	205	100	32	4 × 18	1,5
	40	118	46	95	16	110	80	35	166	130	169	224	205	110	40	4 × 18	2
	50	131	46	107,5	20	120	100	43	166	130	189	250	220	125	50	4 × 18	3
	65	174	66	125	24	135	125	47	166	130	248	316	260	145	65	4 × 18	5
	80	180	76	140	20	180	160	52	210	170	248	339	300	160	80	8 × 18	7,5
	100	215	73	160	20	203	160	63	210	170	298	401	340	180	100	8 × 18	10,5
	125	270	115	175	23	230	200	80	270	220	373	490	430	210	125	8 × 18	15
	150	282	113	192,5	23	266	250	80	390	340	386	522	455	240	150	8 × 22	21
16	200	434	174	220	30	340	315	136	390	340	693	863	600	295	230	12 × 23	68

Mating dimensions as per standard

Face-to-face length:	DN 25-150: DIN EN 558/94
	DN 200: DIN EN 558/14
Flange facing:	DIN EN 1092-2, type A

Installation instructions

Flow through the globe valves should be in the direction of the embossed flow direction arrow. An alternating direction of flow is permissible.

Further installation instructions

Bolt dimensions

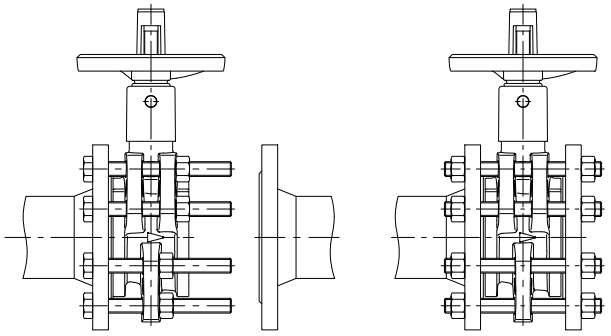
Table 7: Dimensions [mm]

PN	DN	Quantity	Thread size	Hexagon head bolts used on		Threaded rods/fully threaded studs used on	
				steel flanges DIN EN 1092-1	cast iron flanges DIN EN 1092-2	steel flanges DIN EN 1092-1	cast iron flanges DIN EN 1092-2
				Standardised bolt length		Length	
6	20	4	M10	80	80	90	90
	25	4	M10	80	80	90	90
	32	4	M12	90	90	105	105
	40	4	M12	100	100	110	110
	50	4	M12	110	110	120	120
	65	4	M12	120	130	135	135
	80	4	M16	150	150	160	160
	100	4	M16	180	180	180	180
	125	8	M16	200	200	210	210
	150	8	M16	220	220	240	240
	200	16	M16	70	80	90	90
10/16	20	4	M12	90	90	95	95
	25	4	M12	90	90	95	95
	32	4	M16	100	100	110	110
	40	4	M16	110	110	120	120
	50	4	M16	120	120	135	135
	65	4	M16	140	140	150	150
	80	8	M16	160	160	170	170
	100	8	M16	180	180	190	190
	125	8	M16	200	220	220	220
	150	8	M20	240	240	255	255
16	200	24	M20	80	90	110	110

Minimum spacings at distribution manifold

With BOA-SuperCompact valves, no minimum spacings between the manifold branches must be allowed for.

Suitable for downstream dismantling and dead-end service



The flange alignment holes of BOA-SuperCompact comply with flange thickness requirements to DIN EN 1092-2 PN 16 (incl. tolerance) and are provided with the full bolt hole pattern. They are suitable for downstream dismantling and dead-end service just like normal flanges, e.g. on BOA-Compact.

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Chemical resistance chart

The information provided in this chemical resistance chart is based on experience, the Dechema lists as well as manufacturer information. Corrosion resistance is largely dependent on the operating conditions, temperatures and concentrations. Hydroabrasive wear in fluids containing solids is not covered in this list. The information provided in this list is for orientation only. Warranty claims may not be asserted on the basis of this list.

Table 8: Symbols key

Symbol	Description
✓	The fluid handled is not normally aggressive toward the materials. Valve can be used if [5] and [6] are observed.
✖	The fluid handled is aggressive toward the materials. Valve cannot be used.
○	The materials and/or the valve can only be used under certain operating conditions. Please enquire accordingly, stating the operating conditions such as concentration, temperature, pH and composition of the fluid handled.

Table 9: Chemical resistance chart for water[5]

Fluids handled	
Bathing water (fresh water)	○
Bathing water (seawater)	✖
Brackish water	✖
Service water	○
Chlorinated water (≤ 0.6 mg/kg)	✓
Deionised water (demineralised water)[7]	○
Distilled water[7]	○
Heating water[7]	✓
Condensate	○
Oil-free cooling water	○
Oil-containing cooling water	✖
Seawater	✖
Ozonised water (≤ 0.5 mg/kg)	✓
Pure water	✓
Raw water	○
Waste water[6]	✓
Partly desalinated water[7]	○
Thermal water	✖
Drinking water	✖
Fully desalinated water[7]	○

Table 10: Chemical resistance chart for oils (aromatic content 5 mg/kg)

Fluids handled	
Vegetable oils	✖
Mineral oils	✖
Synthetic oils	✖
Petroleum	✖
Oil/water emulsion	✖
Kerosene	✖

Table 11: Chemical resistance chart for refrigerants

Fluids handled	
Ammonium hydroxide (≤ 25 %, ≤ 25 °C)	✓
Glycol (ethylene glycol)	✓
Water/glycol mixture (20 % ≤ c ≤ 50 %, ≤ 90 °C)	✓
Inorganic cooling brine, pH 7.5	✓

Table 12: Chemical resistance chart for cleaning agents

Fluids handled	
Lye for bottle rinsers (e.g. P3)	✓
Lye for metal cleaning	✖

Table 13: Chemical resistance chart for other fluids

Fluids handled	
Landfill gas	○
Oil-containing compressed air	✖
Aqueous glycerine	○
Carbon dioxide (gas)	✓
Carbon dioxide (aqueous solution)	✖
Oxygen O_2	✖

5 General criteria for water to be handled by products made of non-alloyed materials: pH > 7; chlorides (Cl-) < 150 mg/kg; chlorine (Cl) < 0.6 mg/kg. Other factors to be considered: hardness, carbon dioxide content (CO_2), oxygen (O_2) and dissolved substances. Contact KSB if limits are exceeded!

6 Without larger solids or stringy material

7 Can only be used for installations and the respective water quality as specified in the VdTÜV 1466 or VDI 2035 guidelines. A pH ≥ 9.5 and an oxygen content of ≤ 0.02 mg/l are also recommended.

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