

Globe Valve

BOACHEM-ZXAB/ZYAB

Type Series Booklet



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Type Series Booklet BOACHEM-ZXAB/ZYAB

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Contents

Globe Valves.....	4
Bellows-type Globe Valves to DIN/EN	4
BOACHEM-ZXAB/ZYAB	4
Main applications.....	4
Fluids handled	4
Operating data.....	4
Valve body materials.....	4
Design details	4
Product benefits.....	4
Product information	5
Related documents	5
Purchase order specifications	5
Pressure/temperature ratings.....	5
Materials.....	6
Variants.....	8
Dimensions and weights.....	9
Installation information.....	11

Globe Valves

Bellows-type Globe Valves to DIN/EN

BOACHEM-ZXAB/ZYAB



Main applications

- Food industry / beverage industry
- Petrochemical industry
- Process engineering
- Sugar industry

Fluids handled

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

Operating data

Table 1: 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 (⇒ Page 5)

Valve body materials

Table 2: Overview of available materials

Material	Material number	Temperature limit
GX5CrNiMo19-11-2	1.4408	≤ 400 °C

Design details

Design

- 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

Variants

- Throttling plug ≥ 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-free and grease-free
- PTFE packing
- Other flange designs
- Straight-way Y-valve (DN 15 - 200)

Product benefits

- Leak-free stem seal: Primary sealing to atmosphere by multi-walled metal bellows welded to the stem. Secondary sealing to atmosphere by several graphite packing rings. Double graphite gaskets between body and bonnet (on valves with single-piece upper valve section), or between bonnet and yoke (on valves with two-piece upper valve section)
- Reliable sealing of body/bonnet joint by gaskets arranged above and below the bellows end fitting. Long service life due to lower gasket confined by the body shoulder and confined bellows end fitting. No direct contact with fluid

8146.1/10-EN

handled. The upper gasket serves as a back-up seal preventing fluid from leaking into the atmosphere in the event of a bellows failure.

- Multi-walled bellows designed to withstand 1.5 times the nominal pressure for longer service life. Positive anti-rotation device prevents bellows from twisting. Travel stop prevents excessive compression of bellows. On large valve sizes the bellows is positioned well outside the flow path and thus not exposed to abrupt changes in fluid pressure. Guided valve disc (on large valve sizes) prevents bellows vibrations.
- Service-friendly: No cost for daily or frequent maintenance work thanks to reliable bellows seal. If required, a leakage detection hole can be provided in the gland packing area.
- Reliable operation: Travel stop prevents valve damage caused by excessive actuating forces. Position indicator for identification of valve disc position.
- Suitable for various installation positions: Guided disc design (of large valve sizes) allows valve installation in any position (also with horizontal stem).
- Suitable for high differential pressures. Version with pilot plug (on large valve sizes) for valve duties up to the nominal pressure; no limitations for high differential pressures.

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 European 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.

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.

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

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

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

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

Related documents

Table 3: Information/documents

Document	Reference number
Type series booklet BOACHEM-ZXA (globe valve with gland packing)	8149.1
Type series booklet BOACHEM-RXA (lift check valve)	8147.1
Type series booklet BOACHEM-FSA (strainer)	8150.1
Operating manual BOACHEM	8115.8

Purchase order specifications

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

1. Type
2. Nominal pressure
3. Nominal size
4. Operating pressure
5. Differential pressure
6. Operating temperature
7. Fluid handled
8. Pipe connection
9. Variants
10. Reference number

Pressure/temperature ratings

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

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

¹ The valves are suitable for temperatures down to -10 °C.

Materials

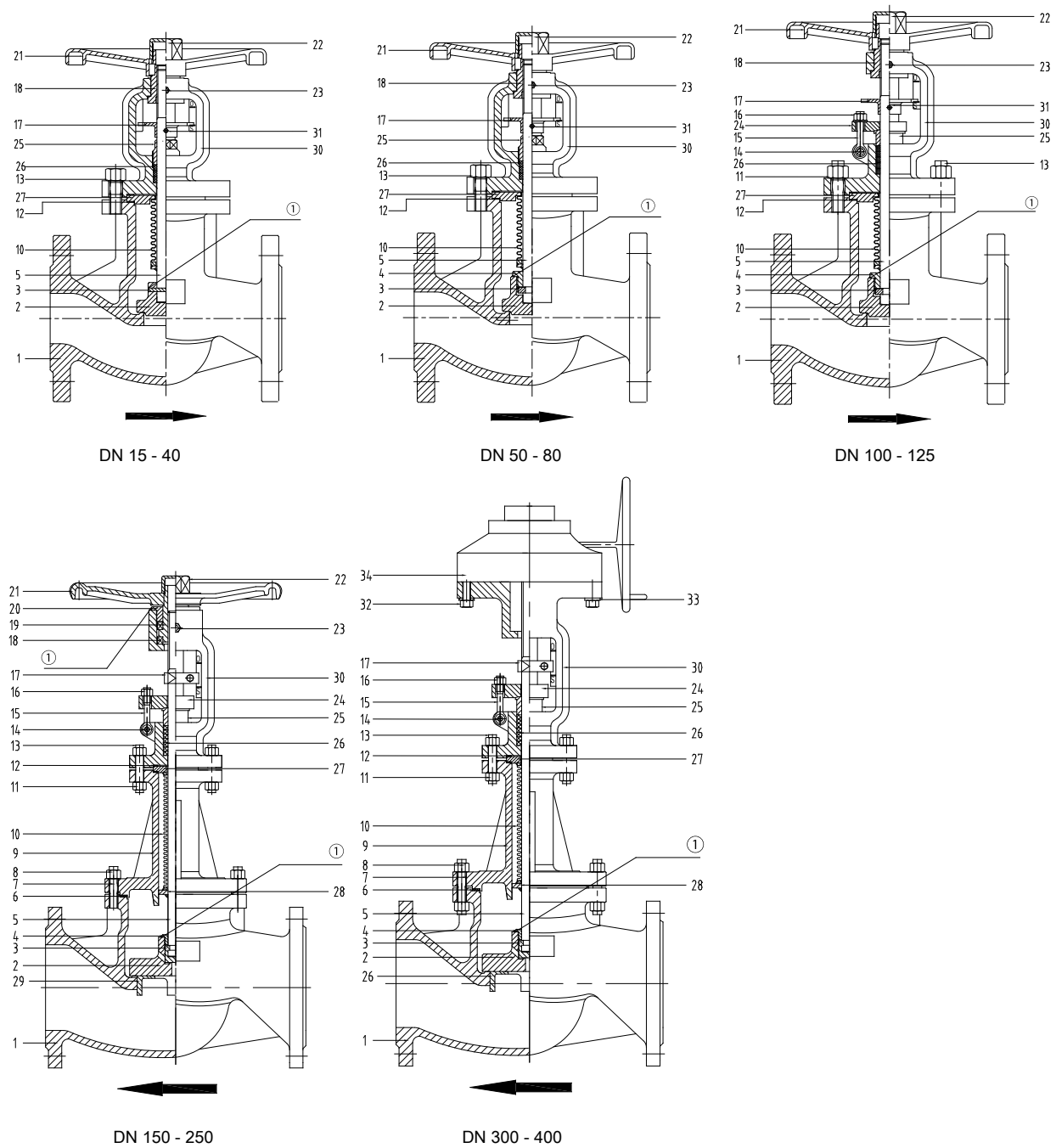


Fig. 1: Sectional drawings

①	Tack-welded
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Table 5: Parts list

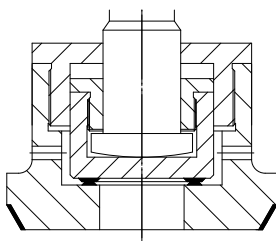
Part No.	Description	Material	Material number
1	Body	G X 5 CrNiMo 19-11-2	1.4408
2	Valve disc	ASTM A182 F316	-
3	Retaining pin (DN 15-40)	ASTM A182 F316	-
	Retaining ring (DN 50-125)	ASTM A182 F316	-
	Pilot plug (DN 150-400)	ASTM A182 F316	-
4	Valve disc nut	ASTM A276 316	-

Part No.	Description	Material	Material number
5	Stem ²⁾³⁾	ASTM A182 F316	-
6	Gasket ²⁾	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 ²⁾³⁾	Stainless steel 316L	-
11	Nut	A4-80	-
12	Gasket ²⁾	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 ²⁾	Graphite	-
27	End fitting ³⁾	ASTM A276 316	-
28	Stem guiding plate ²⁾³⁾	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	-

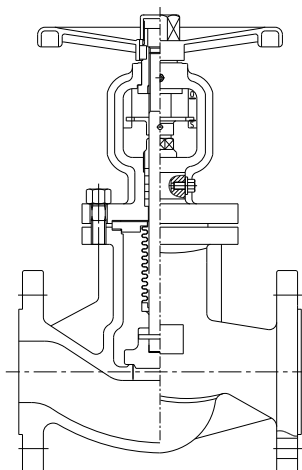
²⁾ Spare part

³⁾ Bellows assembly

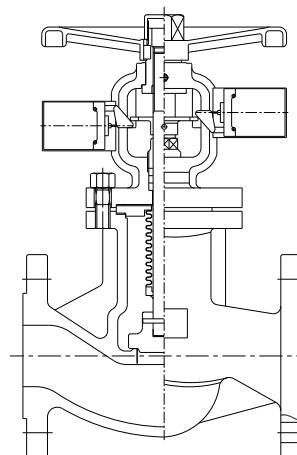
Variants



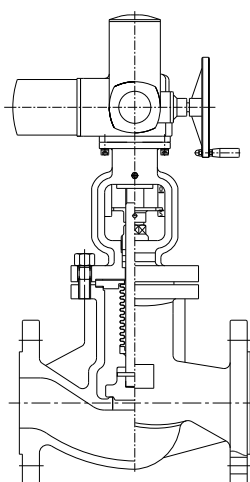
Balanced plug



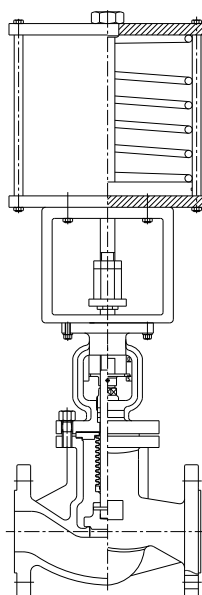
Leakage detection hole



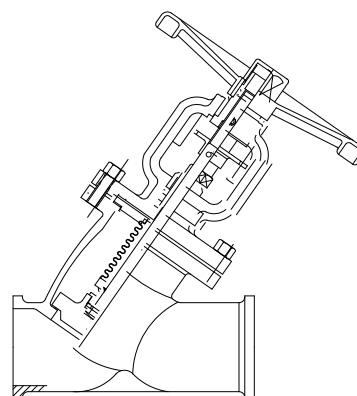
Limit switch(es)



Mounting of electric actuator



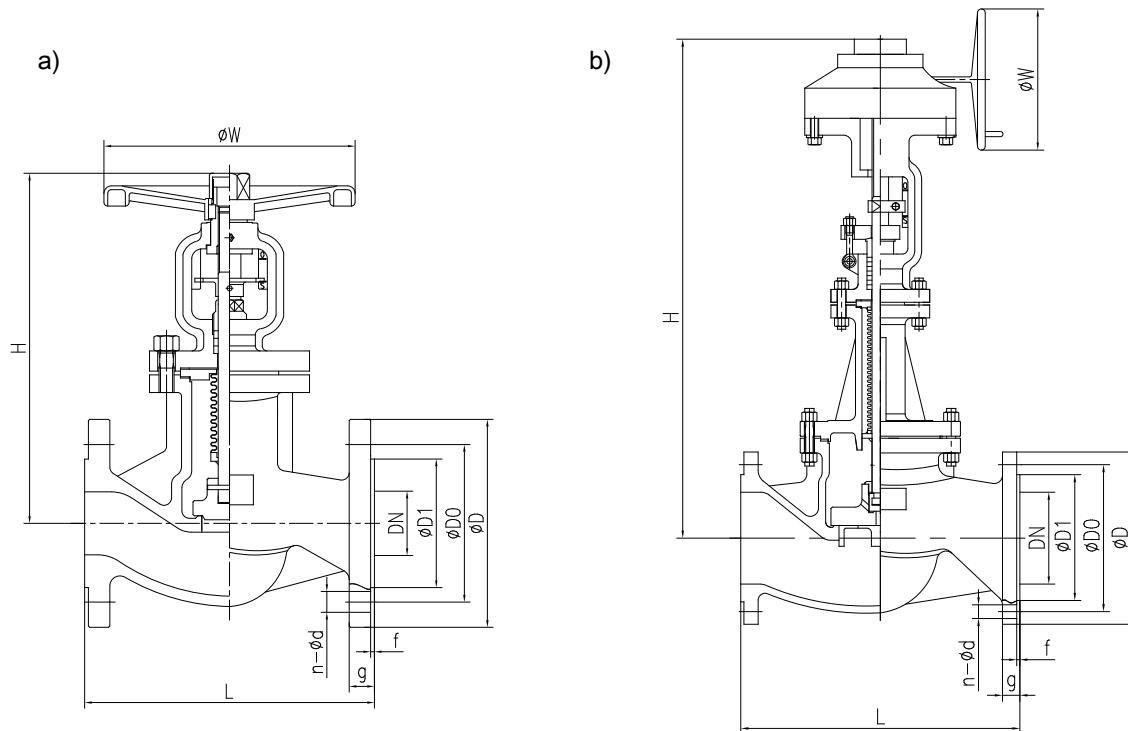
Mounting of pneumatic actuator



Straight-way Y-valve

Fig. 2: Sectional drawings

Dimensions and weights



a)	Dimensions of BOACHEM-ZXAB with handwheel	b)	Dimensions of BOACHEM-ZXAB with manual gearbox
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Table 6: Dimensions and weights

PN	DN	L	D	D0	D1	g	f	n × Ø d	H (closed)	W	[kg]
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
10-40	15	130	95	65	45	16	2	4 × 14	240	140	5,5
	20	150	105	75	58	18	2	4 × 14	240	140	6
	25	160	115	85	68	18	2	4 × 14	260	160	6,5
	32	180	140	100	78	18	2	4 × 18	260	180	9
	40	200	150	110	88	18	3	4 × 18	280	180	11,5
	50	230	165	125	102	20	3	4 × 18	280	200	14
10/16	65	290	185	145	122	18	3	4 × 18	380	200	20,8
	80	310	200	160	138	20	3	8 × 18	390	250	24
	100	350	220	180	158	20	3	8 × 18	460	280	41
	125	400	250	210	188	22	3	8 × 18	520	300	58
	150	480	285	240	212	22	3	8 × 22	905	400	110
10	200	600	340	295	268	24	3	8 × 22	1010	450	180
	250	730	395	350	320	26	3	12 × 22	1190	500	300
	300	850	445	400	370	26	4	12 × 22	1290	500	540
	350	980	505	460	430	26	4	16 × 22	1410	500	880
	400	1100	565	515	482	26	4	16 × 26	1620	500	1225
16	200	600	340	295	268	24	3	12 × 22	1010	450	180
	250	730	405	355	320	26	3	12 × 26	1190	500	300
	300	850	460	410	378	28	4	12 × 26	1290	500	540
	350	980	520	470	438	30	4	16 × 26	1410	500	880
	400	1100	580	525	490	32	4	16 × 30	1620	500	1225
25/40	65	290	185	145	122	22	3	8 × 18	380	200	21,5
	80	310	200	160	138	24	3	8 × 18	390	250	26,5
	100	350	235	190	162	24	3	8 × 22	460	280	48
	125	400	270	220	188	26	3	8 × 26	520	300	68
	150	480	300	250	218	28	3	8 × 26	905	400	128
25	200	600	360	310	278	30	3	12 × 26	1010	450	192
	250	730	425	370	335	32	3	12 × 30	1190	500	330
	300	850	485	430	395	34	4	16 × 30	1290	500	580

PN	DN	L [mm]	D [mm]	D0 [mm]	D1 [mm]	g [mm]	f [mm]	n × Ø d [mm]	H (closed) [mm]	W [mm]	[kg]
25	350	980	555	490	450	38	4	16 × 33	1410	500	950
	400	1100	620	550	505	40	4	16 × 36	1620	500	1185
40	200	600	375	320	285	34	3	12 × 30	1010	450	210
	250	730	450	385	345	38	3	12 × 33	1190	500	345
	300	850	515	450	410	42	4	16 × 33	1290	500	600
	350	980	580	510	465	46	4	16 × 36	1410	500	980
	400	1100	660	585	535	50	4	16 × 39	1620	500	1225

Mating dimensions as per standard

Face-to-face length: EN 558-1/1, ISO 5752/1
 Flanges: Mating dimensions to DIN EN 1092-1, ISO 7005
 Flange facing: DIN EN 1092-1, type B1

Other flange designs

- E.g. groove (type D), tongue (type C), recess (type F), spigot (type E) to EN 1092-1 at both ends
- Other flange designs on request

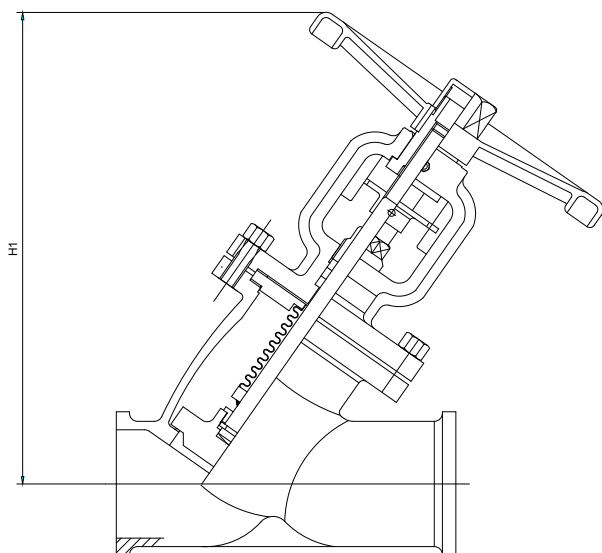


Fig. 3: Dimensions of BOACHEM-ZYAB

Table 7: Dimensions and weights

PN	DN	H1 (closed)	
		[mm]	[kg]
10-40	15	240	4
	20	240	4
	25	250	4,5
	32	250	6,5
	40	280	7
	50	290	9
10/16	65	360	17
	80	370	20
	100	420	34
	125	480	54
	150	710	98
10	200	890	158
16	200	890	158

PN	DN	H1 (closed)	
		[mm]	[kg]
25/40	65	360	18,5
	80	370	22
	100	420	42
	125	480	65
	150	710	102
25	200	890	170
40	200	890	199

Mating dimensions as per standard

Face-to-face lengths: EN 558-1/1, ISO 5752/1
 Flanges: Mating dimensions to DIN EN 1092-1, ISO 7005
 Flange facing: DIN EN 1092-1, type B1

Other flange designs

- E.g. groove (type D), tongue (type C), recess (type F), spigot (type E) to EN 1092-1 at both ends
- Other flange designs on request

Installation information

 Shut-off globe valves must be installed in the line so as to ensure that the fluid enters the valve beneath the valve disc and flows out above the valve disc. They can also be installed in lines with alternating flow.



KSB SE & Co. KGaA
Johann-Klein-Straße 9 • 67227 Frankenthal (Germany)
Tel. +49 6233 86-0
www.ksb.com