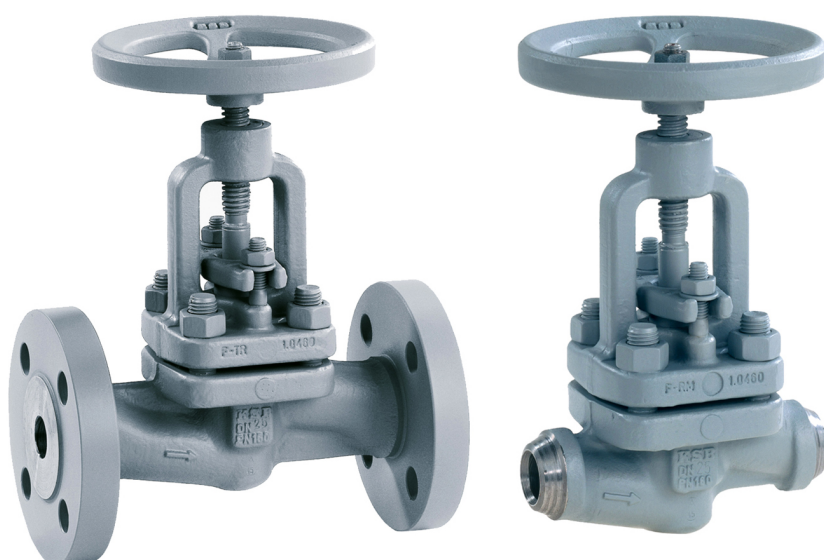




Globe Valve

NORI 160 ZXL/ZXS

Type Series Booklet



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Type Series Booklet NORI 160 ZXL/ZXS

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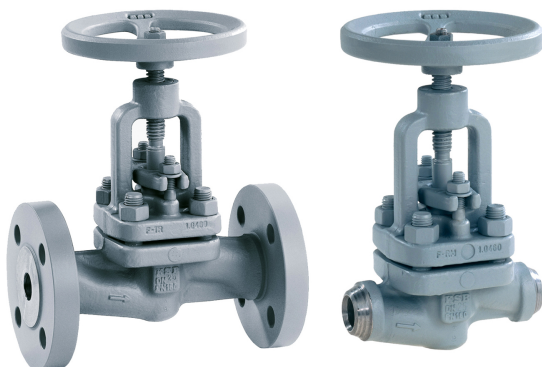
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Globe Valves

Globe Valves to DIN/EN with Stuffing Box

NORI 160 ZXL/ZXS



Main applications

- Fossil-fuelled power stations
- Boiler feed applications
- Process engineering
- Petrochemical industry
- Chemical industry
- Shipbuilding
- Paper industry / pulp industry
- Sugar industry
- Condensate transport
- Descaling units
- Snow-making systems
- Mining
- Nuclear power stations

Fluids handled

- Water
- Steam
- Other non-aggressive fluids such as gas or oil on request.

Operating data

Table 1: Operating properties

Characteristic	Value
Nominal pressure	PN 63 - 160
Nominal size	DN 10 - 200
Max. permissible pressure [bar]	160
Min. permissible temperature [°C]	≥ -10
Max. permissible temperature [°C]	≤ +550

Selection as per pressure/temperature ratings (⇒ Page 6)

Valve body materials

Overview of materials available for model with flanged ends, DN 10 - 25

Table 2: Overview of available materials

Material	Material number	Temperature limit
P 250 GH	1.0460	≤ 450 °C
13 CrMo 4-5	1.7335	≤ 550 °C

Overview of materials available for model with butt weld ends, DN 10 - 50

Table 3: Overview of available materials

Material	Material number	Temperature limit
16 Mo 3	1.5415	≤ 530 °C
13 CrMo 4-5	1.7335	≤ 550 °C

Overview of materials available for model with flanged ends, DN 32 - 200, and for model with butt weld ends, DN 65 - 200

Table 4: Overview of available materials

Material	Material number	Temperature limit
GP 240 GH+N	1.0619+N	≤ 450 °C
G 17 CrMo 5-5	1.7357	≤ 550 °C

Design details

Design

- Straight-way pattern
- On/off disc DN 10 - 100
- Balanced plug ≥ DN 125
- Rotating stem
- Seat/disc interface made of wear and corrosion-resistant chrome steel (Cr) or stellite
- Stem sealed by gland packing
- Fully confined bonnet gasket
- Corrosion-protected bolts/screws and nuts

Variants

- Throttling plug
- Balanced plug
- Position indicator
- Stellite seat/disc interface (standard for 1.7335/1.7357)
- Locking device
- Oil and grease free (wetted parts)
- Back seat (standard for DN 10 - 50)
- Connection branches made of 16 Mo 3 (≥ DN 65)
- Other flange designs
- Other butt weld end versions
- Other socket weld end versions
- Inspections to technical codes such as AD2000 or to customer specification

Product benefits

- Additional features ensure safe sealing to atmosphere:
 - Serrated bonnet gasket, fully confined to prevent creep.
 - Graphite gland packing with packing end rings.
- Additional safety and blow-out protection by standard back seat.
- Long service life and high functional reliability
 - of the gland packing due to stem with burnished shank.
 - Hard-faced valve seat made of wear-resistant and corrosion-proof 17 % chrome steel or Stellite.
- Easy to repair due to corrosion-protected bolts/screws and nuts
- Threaded bush free from non-ferrous metals, for versatile application.

10. Pipe connection
11. Variants
12. Reference number

Always indicate the original serial number and the year of construction when ordering spare parts.

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 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 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.

Related documents

Table 5: Information/documents

Document	Reference number
NORI 160 ZXLF/ZXS type series booklet (globe valves with non-rotating stem)	7633.1
NORI 160 RXL/RXS type series booklet (lift check valves)	7681.1
Operating manual	0570.82

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. Material
8. Fluid handled
9. Flow rate

Pressure/temperature ratings

Table 6: Permissible operating pressure (to EN 1092-1)

DN	Material		[°C]																		
	Designation	Number	RT ¹⁾	100	150	200	250	300	350	400	450	460	470	480	490	500	510	520	530	540	550
				[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]	[bar]
3	P 250 GH	1.0460	63	59	56	53	48	44	41	38	21	-	-	-	-	-	-	-	-	-	-
	GP 240 GH+N	1.0619+N	63	59	56	53	48	44	41	38	21	-	-	-	-	-	-	-	-	-	-
	13 CrMo 4-5	1.7335	63	63	63	63	63	63	60	57	53	51	48	45	43	41	35	28	23	18	15
	G 17 CrMo 5-5	1.7357	63	63	63	63	63	63	60	57	53	51	48	45	43	41	35	28	23	18	15
100	P 250 GH	1.0460	100	93	88	83	76	69	64	60	33	-	-	-	-	-	-	-	-	-	-
	GP 240 GH+N	1.0619+N	100	93	88	83	76	69	64	60	33	-	-	-	-	-	-	-	-	-	-
	13 CrMo 4-5	1.7335	100	100	100	100	100	100	95	90	84	80	76	72	68	65	55	45	37	29	23
	G 17 CrMo 5-5	1.7357	100	100	100	100	100	100	95	90	84	80	76	72	68	65	55	45	37	29	23
160	P 250 GH	1.0460	160	149	141	133	122	110	103	95	53	-	-	-	-	-	-	-	-	-	-
	GP 240 GH+N	1.0619+N	160	149	141	133	122	110	103	95	53	-	-	-	-	-	-	-	-	-	-
	16 Mo 3	1.5415	160	160	160	160	156	137	130	120	110	103	95	87	79	71	56	45	36	-	-
	13 CrMo 4-5	1.7335	160	160	160	160	160	160	152	144	135	128	122	115	109	104	88	72	59	46	37
	G 17 CrMo 5-5	1.7357	160	160	160	160	160	160	152	144	135	128	122	115	109	104	88	72	59	46	37

¹ RT: room temperature (-10 °C to +50 °C)

Materials

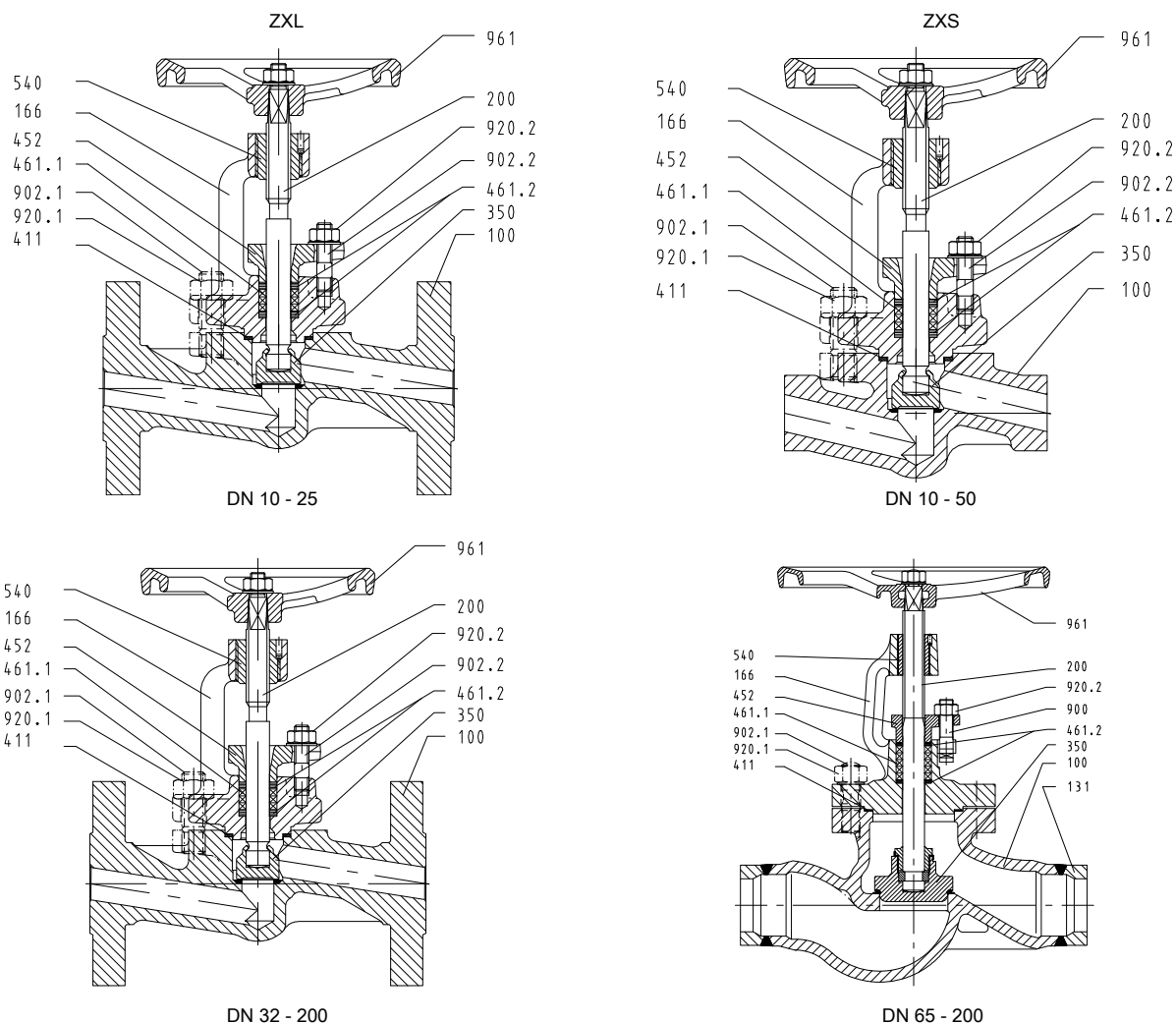


Fig. 1: Sectional drawings

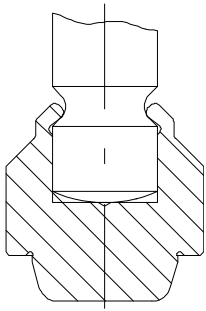
Table 7: Parts list

Part No.	Description	Temperature [°C]	Material	Material number	Note	Seat/disc interface
100	Body	≤ 450	P 250 GH	1.0460	ZXL ≤ DN 25	17 % chrome steel (Cr)
			GP 240 GH+N	1.0619+N	ZXL ≥ DN 32, ZXS ≥ DN 65	
		≤ 530	16 Mo 3	1.5415	ZXS ≤ DN 50	Stellite
		≤ 550	13 CrMo 4-5	1.7335	ZXL ≤ DN 25, ZXS ≤ DN 50	
			G 17 CrMo 5-5	1.7357	ZXL ≥ DN 32, ZXS ≥ DN 65	
131	Connection branch	≤ 450	P 250 GH	1.0460	≥ DN 65	-
		≤ 550	13 CrMo 4-5	1.7335		-
166	Yoke	≤ 450	GP 240 GH+N	1.0619+N	≥ DN 65	-
		≤ 530	16 Mo 3	1.5415	≤ DN 50	-
		≤ 550	13 CrMo 4-5	1.7335	-	-
			G 17 CrMo 5-5	1.7357	≥ DN 65	-
200 ²⁾	Stem	≤ 550	X 39 CrMo 17-1	1.4122	-	-
350 ²⁾	Valve disc	≤ 550	X 39 CrMo 17-1	1.4122	≤ DN 50	-
		≤ 450	P 250 GH	1.0460	≥ DN 65	17 % chrome steel (Cr)

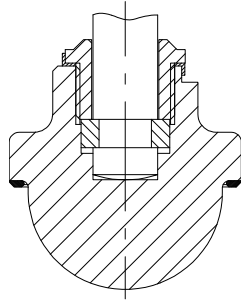
2 Recommended spare parts

Part No.	Description	Temperature [°C]	Material	Material number	Note	Seat/disc inter- face
350 ²⁾	Valve disc	≤ 550	13 CrMo 4-5	1.7335	≥ DN 65	Stellite
411 ²⁾	Joint ring	≤ 550	CrNi steel/graphite	-	Serrated	-
452	Gland follower		P 250 GH	1.0460	-	-
461.1 ²⁾	Packing ring		Graphite	-	-	-
461.2 ²⁾					Packing end ring	-
540 ²⁾	Yoke bush		11 SMn 30+C	1.0715+C	Nitrided	-
900	T-head bolt		C 35 E	1.1181	≥ DN 65, olive-chromated	-
902.1/2	Stud		21 CrMo V 5-7	1.7709	Corrosion-protected	-
920.1/2	Hexagon nut		25 CrMo 4	1.7218	Corrosion-protected	-
920.2	Hexagon nut		C 35 E	1.1181	≥ DN 65, corrosion-protected	-
961	Handwheel		EN-GJL-200	5.1300	≤ DN 50	-
			EN-GJL-200	5.1300	DN 65, DN 80	-
			EN-GJL-250	5.1301	DN 100 - 200	-

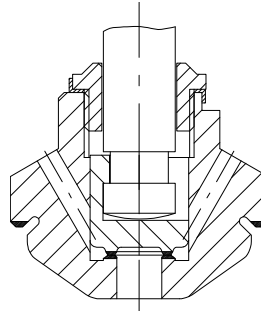
Variants



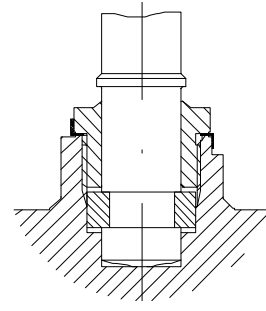
Throttling
plug
DN 10 - 50



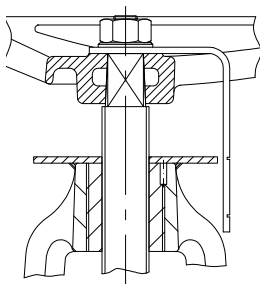
Throttling
plug
DN 65 - 200



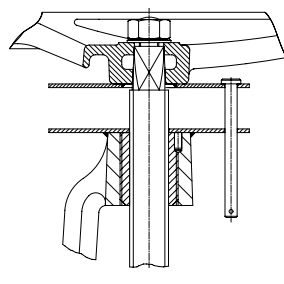
Balanced plug
DN 65 - 200



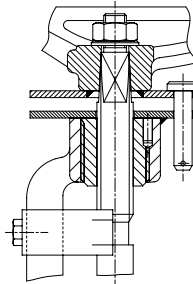
Back seat
DN 65 - 200



Position indicator
DN 65 - 200



Locking
device
DN 65 - 200



Position indicator and locking
device
DN 10 - 50

Dimensions and weights

Dimensions and weights of NORI 160 ZXL

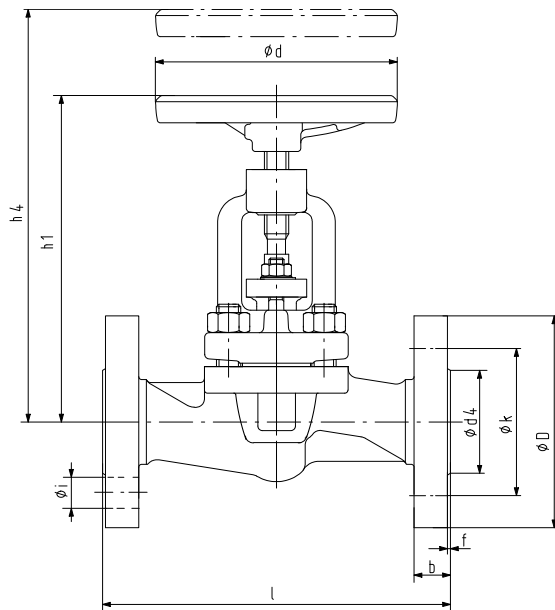


Fig. 2: NORI 160 ZXL

Table 8: Dimensions and weights

PN	DN	l	Ø D	Ø k	Number of bolt holes z	Bolt hole dia. i	Ø d ₄ × f	b	h ₁ ³⁾	h ₄ ⁴⁾	Travel	Ø d	[kg]
63-160	10	210	100	70	4	14	40 × 2	20	230	270	11	160	8,0
	15	210	105	75	4	14	45 × 2	20	230	270	11	160	9,5
	20	230	130	90	4	18	58 × 2	24	230	270	11	160	11,0
	25	230	140	100	4	18	68 × 2	24	230	270	11	160	12,5
	32	260	155	110	4	22	78 × 2	26	310	360	17	200	16,5
	40	260	170	125	4	22	88 × 3	28	310	360	17	200	20,5
63	50	300	180	135	4	22	102 × 3	26	315	370	22	200	25,0
100/160	50	300	195	145	4	26	102 × 3	30	315	370	22	200	26,0
63	65	340	205	160	8	22	122 × 3	26	415	540	36	315	40,0
	80	380	215	170	8	22	138 × 3	28	500	650	51	315	55,0
	100	430	250	200	8	26	162 × 3	30	550	710	51	400	85,0
	125	500	295	240	8	30	188 × 3	34	620	810	66	500	125,0
	150	550	345	280	8	33	218 × 3	36	625	840	75	500	150,0
	200	650	415	345	12	36	285 × 3	42	855	1120	118	500	260,0
100	65	340	220	170	8	26	122 × 3	34	415	540	36	315	45,0
	80	380	230	180	8	26	138 × 3	36	500	650	51	315	58,0
	100	430	265	210	8	30	162 × 3	40	550	710	51	400	88,0
	125	500	315	250	8	33	188 × 3	40	620	810	66	500	135,0
	150	550	355	290	12	33	218 × 3	44	625	840	75	500	170,0
	200	650	430	360	12	36	285 × 3	52	855	1120	118	500	285,0
160	65	340	220	170	8	26	122 × 3	34	415	540	36	315	45,0
	80	380	230	180	8	26	138 × 3	36	500	650	51	315	60,0
	100	430	265	210	8	30	162 × 3	40	550	710	51	400	90,0
	125	500	315	250	8	33	188 × 3	44	620	810	66	500	135,0
	150	550	355	290	12	33	218 × 3	50	625	840	75	500	175,0
	200	650	430	360	12	36	285 × 3	60	855	1120	118	500	320,0

3 Open

4 Vertical clearance for removal

Mating dimensions as per standard

Face-to-face lengths:	EN 558-1/2
Flanges:	Mating dimensions to DIN EN 1092-1
Flange facing:	Type B

Other flange designs

- E.g. groove (type D), recess (type F) to EN 1092-1 or lens gasket (type L) to DIN 2696 at both ends
- Other flange designs on request

Dimensions and weights of NORI 160 ZXS

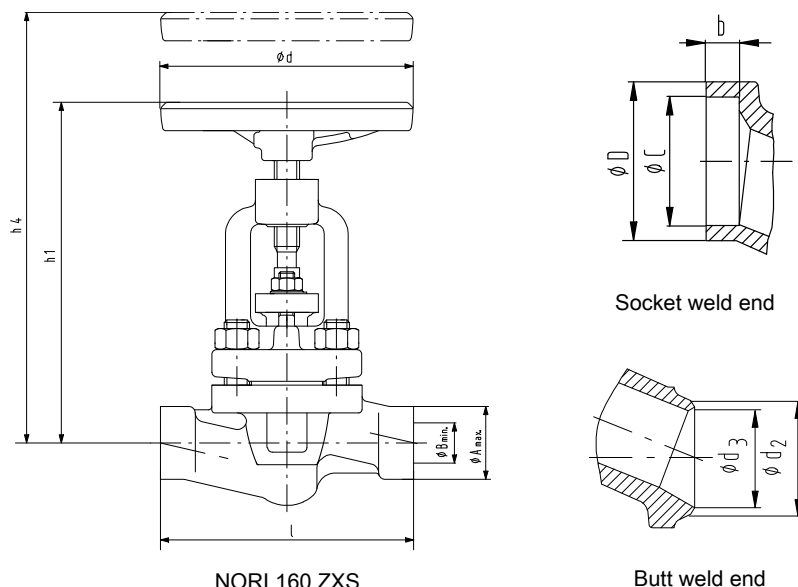


Table 9: Dimensions and weights

PN	DN	I	Butt weld ends, unmachined		Butt weld ends to DIN EN 12627				Associated pipe dimensions			Socket weld ends to DIN EN 12760			h ₁ ⁵⁾	h ₄ ⁶⁾	Travel	ø d	[kg]
			ø A _{max.}	ø B _{min.}	ø d ₂	ø d ₃			PN 63	PN 100	PN 160	ø D _{0.5}	ø C ^{+0.2}	b _{min.}					
						PN 63	PN 100	PN 160											
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		
63 - 160	10	150	46	9	18	13,0	13,0	13,0	17,2 × 2,0	17,2 × 2,0	17,2 × 2,0	25,0	17,6	10	230	270	11	160	6,0
	15	150	46	14	22	17,0	17,0	17,0	21,3 × 2,0	21,3 × 2,0	21,3 × 2,0	30,5	21,7	10	230	270	11	160	6,5
	20	150	46	19	28	22,0	22,0	22,0	26,9 × 2,3	26,9 × 2,3	26,9 × 2,3	36,5	27,1	13	230	270	11	160	7,5
	25	160	46	22	34	28,5	28,5	27,0	33,7 × 2,6	33,7 × 2,6	33,7 × 3,2	44,5	33,8	13	230	270	11	160	8,5
	32	180	63	28	43	37,0	37,0	35,0	42,4 × 2,6	42,4 × 2,6	42,4 × 3,6	53,5	42,5	13	305	355	17	200	11,0
	40	210	63	35	49	43,0	43,0	41,0	48,3 × 2,6	48,3 × 2,6	48,3 × 3,6	60,5	48,7	13	305	355	17	200	13,5
	50	250	80	42	61	54,0	54,0	52,5	60,3 × 3,2	60,3 × 3,2	60,3 × 4,0	73,5	61,1	16	310	365	22	200	17,0
	65	420	83	52	77	69,0	69,0	65,0	76,1 × 3,6	76,1 × 3,6	76,1 × 5,6	-	-	-	415	540	36	315	30,0
	80	460	108	62	90	81,0	81,0	76,5	88,9 × 4,0	88,9 × 4,0	88,9 × 6,3	-	-	-	500	650	51	315	45,0
	100	510	118	78	115	104,0	104,0	98,5	114,3 × 5,0	114,3 × 5,0	114,3 × 8,0	-	-	-	550	710	51	400	72,0
	125	600	153	109	141	130,5	127,0	120,5	139,7 × 4,5	139,7 × 6,3	139,7 × 10,0	-	-	-	620	810	66	500	110,0
	150	650	173	125	170	156,5	154,0	144,5	168,3 × 5,6	168,3 × 7,1	168,3 × 12,5	-	-	-	625	840	75	500	165,0
200	750	229	176	222	204,5	199,5	189,0	219,1 × 7,1	219,1 × 10,0	219,1 × 16,0	-	-	-	855	1120	118	500	215,0	

Mating dimensions as per standard

Face-to-face lengths: EN 12982/65 (DN 10-50) and as per table (DN 65-200)

Butt weld ends: DIN EN 12627 Figure 2

Socket weld ends: DIN EN 12760

Different designs of butt weld ends, socket weld ends and welding groove types are possible, but only within the dimensions A_{max.} and B_{min.}.
Butt weld ends to DIN 3239/1 or socket weld ends to ASME B16.11 and DIN 3239/2 are possible.

- 5 Open
6 Vertical clearance for removal

Installation instructions

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.

If the max. permissible differential pressures for shut-off are exceeded for valves from DN 65 to 200, a balanced plug design is required for handwheel-operated valves. In this case the valve must be installed in such a way that the pressure to be sealed off lies above the valve disc.

The balanced plug works on the bypass principle and can only serve its purpose if backpressure builds up after opening, so that the max. permissible differential pressures for shut-off (see table) are not exceeded.

Table 10: Differential pressure [bar] for manually operated valves with throttling plug or on/off disc

DN	Δp
65	110
80	70
100	44
125	33
150	21
200	14

For globe valves with throttling plug, detailed information about the operating mode is required for optimum valve selection.

