Globe Valve

NORI 40 ZXL/ZXS

Type Series Booklet

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Type Series Booklet NORI 40 ZXL/ZXS

Contents

Globe Valves

Globe Valves to DIN/EN with Gland Packing

NORI 40 ZXL/ZXS

Main applications

- Process engineering
- Chemical industry
- Petrochemical industry
- Fossil-fuelled power stations
- Boiler feed applications
- Boiler recirculation
- Condensate transport
- Descaling units
- Snow-making systems
- Paper industry / pulp industry
- Sugar industry
- Shipbuilding
- 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 25/40
Nominal size	DN 10 - 400
Max. permissible pressure [bar]	40
Min. permissible temperature [°C]	≥ -10
Max. permissible temperature [°C]	≤ +450

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

Valve body materials

Model with flanged ends, DN 10-40, and model with butt weld ends, DN 10-50

Table 2: Overview of available materials

Material	Material number	Temperature limit
P 250 GH	1.0460	≤ 450 °C

Model with flanged ends, DN 50-400, and model with butt weld ends, DN 65-350

Table 3: Overview of available materials

Material	Material number	Temperature limit
GP 240 GH+N	1.0619+N	≤ 450 °C

Design details

Design

- Straight-way pattern
- On/off disc
- Rotating stem
- Seat/disc interface made of wear-resistant and corrosion-resistant chrome (Cr) steel or chrome nickel (CrNi) steel
- Back seat
- Stem sealed by gland packing
- Fully confined cover gasket
- EC type tested (Module B), component mark TÜ.A.-290
- Exterior coating: blue, RAL 5002

Variants

- Throttling plug
- Balanced plug
- Valve disc with Gylon gasket (240 °C max.)
- PTFE-encapsulated bonnet/cover gasket (250 °C max.)
- Serrated bonnet/cover gasket (PTFE-lined or graphite lined)
- Gland follower with scraper ring
- Lantern ring in gland packing
- Position indicator
- Locking device
- Stellited seat/disc interface
- Combined non-return/shut-off valve
- Studs and nuts made of A4-70 (low-temperature steel)
- TA-Luft-compliant model (with or without spring loading) for applications to VDI 2440 at temperatures up to 250 °C and above 250 °C (400 °C maximum)
- PTFE gland packing (250 °C max.)
- Oil and grease free (wetted parts)
- Oil and grease free for oxygen
- Other flange designs

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- Other butt weld end versions
- Other socket weld end versions
- Inspections to technical codes such as TRD/TRB/AD2000 – German Steam Boiler / Pressure Vessel Regulations – or to customer specification

Product benefits

- 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-resistant materials.
- Reliable sealing. Bonnet gasket fully confined to prevent creep.
- Additional safety and blow-out protection by standard back seat.
- Easy to repair due to corrosion-protected bolts/screws and nuts
- Threaded bush free from non-ferrous metals, for versatile application.

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 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 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).

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.

Related documents

Table 4: Information/documents

Document	Reference number
NORI 40 ZXLF/ZXSF type series booklet (globe valves with gland packing and non-rotating stem)	7622.1
NORI 40 RXL/RXS type series booklet (lift check valves)	7673.1
NORI 40 ZXLB/ZXSB type series booklet (bellows-type globe valves with two-piece stem)	7165.1
NORI 40 ZXLBV/ZXSBV type series booklet (bellows-type globe valves with two-piece stem)	7168.1
NORI 40 ZYLB/ZYSB type series booklet (Y-pattern bellows-type globe valves)	7160.1
NORI 40 FSL/FSS type series booklet (strainers)	7127.1
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. Fluid handled
8. Pipe connection
9. Variants
10. Reference number

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Pressure/temperature ratings

Table 5: Permissible operating pressure [bar] (to EN 1092-1) [1)]

PN	Material	[°C]								
		RT[2)]	100	150	200	250	300	350	400	450
25	P 250 GH	25,0	23,2	22,0	20,8	19,0	17,2	16,0	14,8	8,2
40	GP 240 GH+N	40,0	37,1	35,2	33,3	30,4	27,6	25,7	23,8	13,1

Materials

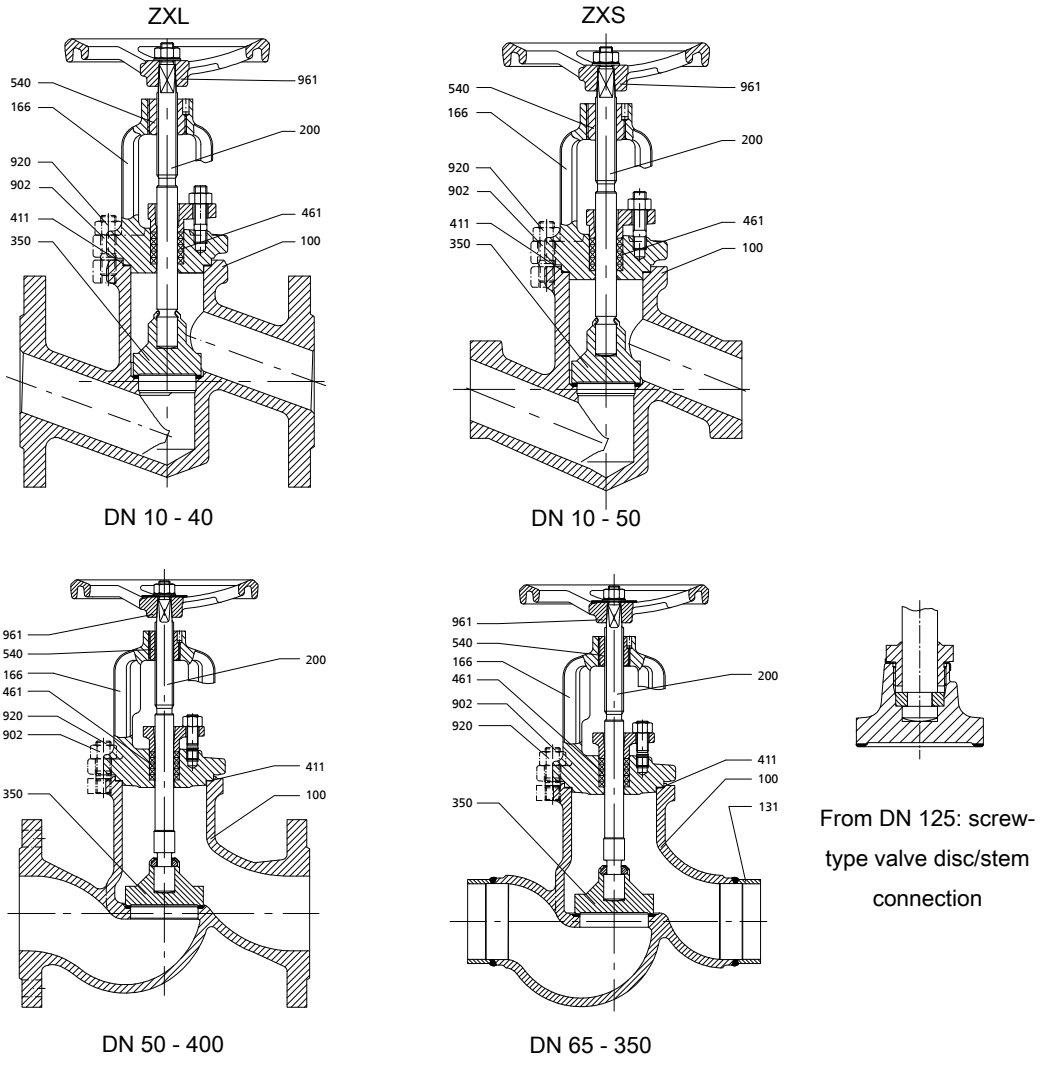

Fig. 1: Sectional drawings

Table 6: Parts list

Part No.	Description	DN	Material	Material number	Note
100	Body	DN 10-40 type ZXL DN 10-50 type ZXS	P 250 GH	1.0460	Hard-faced with stainless steel (1.4370)
		DN 50-400 type ZXL DN 65-350 type ZXS	GP 240 GH+N	1.0619+N	
131	Connection branch	≥ DN 65	P 235 GH	1.0305	-
166	Yoke	-	P 250 GH	1.0460	-
		≥ DN 250	GP 240 GH	1.0619	-
200[3)]	Stem	-	X 20 Cr 13	1.4021	-

1 Operating pressures to DIN 2401 are also permissible.
2 RT: room temperature (-10 °C to +50 °C)
3 Recommended spare parts

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Part No.	Description	DN	Material	Material number	Note
350[3)]	Valve disc	-	X 20 Cr 13	1.4021	-
		≥ DN 125	P 250 GH	1.0460	Hard-faced (1.4115)
411[3)]	Joint ring	-	CrNi steel/ graphite	-	-
461[3)]	Gland packing	-	Graphite	-	-
540[3)]	Yoke bush	-	11 SMn30+C	1.0715	Nitrided
902	Stud	-	21 CrMoV 5-7	1.7709	Olive-chromated
920	Hexagon nut	-	25 CrMo 4	1.7218	
961	Handwheel	-	EN-GJL-200	5.1300	-

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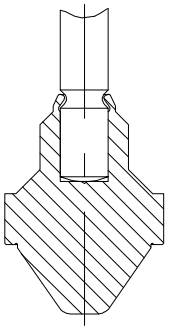
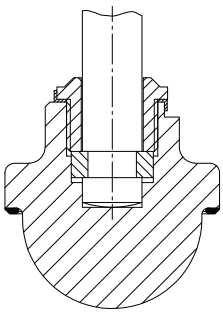
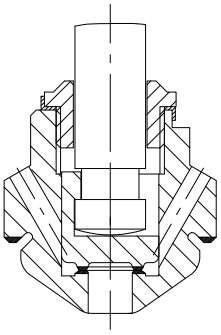
Variants



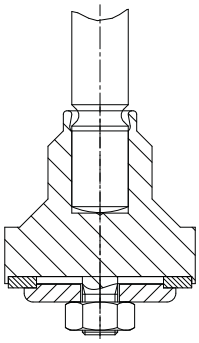
Throttling plug
(DN 10-100)



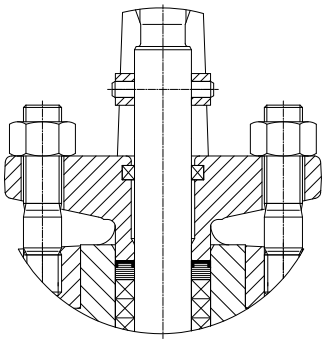
Throttling plug
(DN 125-400)



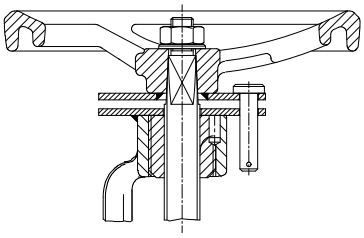
Balanced plug
(from DN 125)



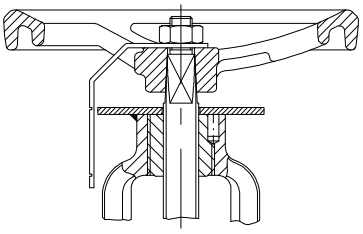
Valve disc with Gylon
gasket (240 °C max.)



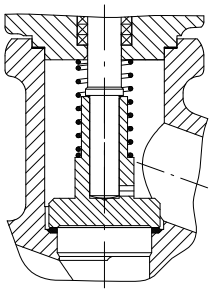
Gland follower with scraper ring



Locking
device



Position indicator



Combined non-
return / shut-off
valve

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Dimensions and weights

Dimensions and weights of NORI 40 ZXL

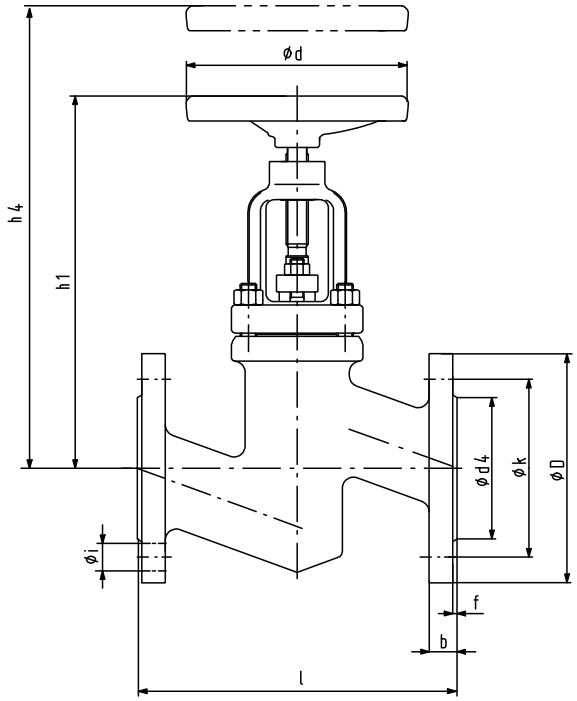

Fig. 2: NORI 40 ZXL

Table 7: Dimensions and weights

PN	DN	l	ø D	ø k	No. of bolt holes z	Bolt hole dia. i	ø d_4 × f	b	h_1 [4]	h_4 [5]	Travel	ø d	[kg]
		[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
25/40	10	130	90	60	4	14	40 × 2	16	220	290	8	125	4,1
	15	130	95	65	4	14	45 × 2	16	220	290	8	125	4,3
	20	150	105	75	4	14	58 × 2	18	230	310	15	125	5,5
	25	160	115	85	4	14	68 × 2	18	230	310	15	125	6,2
	32	180	140	100	4	18	78 × 2	18	280	370	19	160	9,6
	40	200	150	110	4	18	88 × 3	18	285	380	24	160	10,5
	50	230	165	125	4	18	102 × 3	20	300	400	30	160	13,5
	65	290	185	145	8	18	122 × 3	22	348	490	40	200	21,3
	80	310	200	160	8	18	138 × 3	24	405	575	48	200	33,3
	100	350	235	190	8	22	162 × 3	24	457	665	60	250	46,0
	125	400	270	220	8	26	188 × 3	26	515	650	50	315	68,0
	150	480	300	250	8	26	218 × 3	28	540	685	60	315	95,0
25	200	600	360	310	12	26	278 × 3	30	680	855	90	400	159,0
	250	730	425	370	12	30	335 × 3	32	810	1005	105	500	240,0
	300	850	485	430	16	30	395 × 4	34	965	1165	119	630	390,0
	350	980	555	490	16	33	450 × 4	38	1075	1330	148	630	530,0
	400	1100	620	550	16	36	505 × 4	40	1360	1640	135	630	680,0
40	200	600	375	320	12	30	285 × 3	34	680	855	90	400	175,0
	250	730	450	385	12	33	345 × 3	38	810	1005	105	500	280,0
	300	850	515	450	16	33	410 × 4	42	965	1165	119	630	425,0
	350	980	580	510	16	36	465 × 4	46	1075	1330	148	630	600,0

4 Open
5 Vertical clearance for removal

Mating dimensions as per standard

Face-to-face lengths:	DIN EN 558-1/1; ISO 5752/T1
Flanges:	DIN EN 1092
Flange facing:	Type B

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

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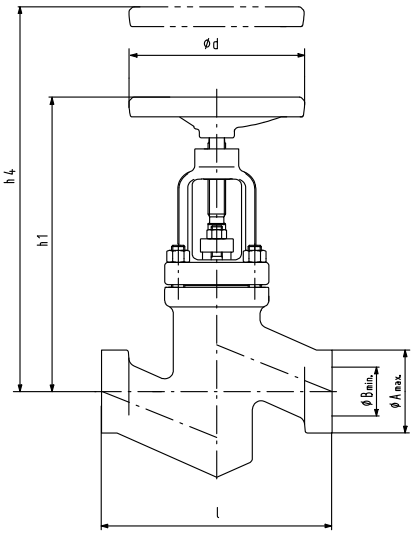
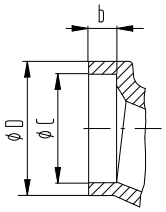
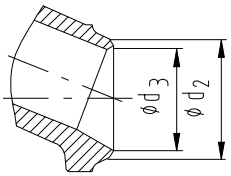
Dimensions and weights of NORI 40 ZXS



NORI 40 ZXS



Socket weld ends



Butt weld ends

Table 8: Dimensions and weights

PN	DN	l	Butt weld ends, unmachined		Butt weld ends to DIN EN 12627			Socket weld ends to DIN EN 12760			h_1 [6]	h_4 [7]	Travel	ø d	[kg]
			ø $A_{max.}$	ø $B_{min.}$	ø d_2	ø d_3	Associated pipe dimensions	ø $D_{-0,5}$	ø $C^{+0,2}$	$b_{min.}$					
		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
25/40	10	130	44	10	18	13	17,2 × 2,0	25	17,6	10	230	310	15	125	3,8
	15	130	44	15	22	17	21,3 × 2,0	30,5	21,7	10	230	310	15	125	3,8
	20	130	44	20	28	22	26,9 × 2,3	36,5	27,1	13	230	310	15	125	3,8
	25	130	44	24	34	28,5	33,7 × 2,6	44,5	33,8	13	230	310	15	125	3,8
	32	160	60	33	43	37	42,4 × 2,6	53,5	42,5	13	285	380	24	160	8,0
	40	180	60	38	49	43	48,3 × 2,6	60,5	48,7	13	285	380	24	160	8,0
	50	210	73	48	61	54	60,3 × 3,2	73,5	61,1	16	300	400	30	160	11,5
	65	290	76,1	64,9	76,1	69	76,1 × 3,6	-	-	-	348	490	40	200	14,8
	80	310	88,9	79,9	88,9	81	88,9 × 4,0	-	-	-	405	575	48	200	25,0
	100	350	114,3	100,1	114,3	104	114,3 × 5,0	-	-	-	457	665	60	250	34,0
	125	400	139,7	125,5	139,7	130,5	139,7 × 4,5	-	-	-	515	650	50	315	60,0
	150	480	168,3	148,3	168,3	156,5	168,3 × 5,6	-	-	-	540	685	60	315	80,0
	200	600	219,1	199,1	219,1	204,5	219,1 × 7,1	-	-	-	680	855	90	400	130,0
	250	730	273	251	273	256,5	273,0 × 8,0	-	-	-	810	1005	105	500	200,0
	300	950	345	305	323,9	306,5	323,9 × 8,8	-	-	-	965	1165	119	630	285,0
	350	1100	385	335	355,6	336,5	355,6 × 10,0	-	-	-	1075	1330	148	630	380,0

Mating dimensions as per standard

Face-to-face length:	EN 12982/64
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.

6 Open
7 Vertical clearance for removal

Installation instructions

Install shut-off globe valves in such a way that the fluid enters the valve beneath the valve disc and flows out above the valve disc. Installation in piping with alternating flow is also possible.

If the max. permissible differential pressures for shut-off are exceeded for valves from DN 125 to 200, a balanced plug design is required. 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 9: Differential pressure [bar] for standard valve disc

DN	Δp
125	33
150	21
200	14
250	9
300	6
350	4,5
400	3,5

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

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