

Lift Check Valve

NORI 160 RXL/RXS

Type Series Booklet



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Type Series Booklet NORI 160 RXL/RXS

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Check Valves and Strainers

Lift Check Valves to DIN/EN

NORI 160 RXL/RXS



Main applications

- Fossil-fuelled power stations
- Boiler feed applications
- Boiler recirculation
- 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

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

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

Model with flanged ends, DN 32-200, and 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
- Spring-loaded check disc
- Seat/disc interface made of wear and corrosion-resistant chrome steel (Cr) or stellite
- Fully confined bonnet gasket
- Corrosion-protected bolts/screws and nuts
- Type-tested to TRD 110, TRB 801 No. 45 TÜ.A. 237 (DN 10-50)

Variants

- Stellite seat/disc interface (standard for 1.7335/1.7357)
- Oil-free and grease-free
- 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 TRD/TRB/AD2000 – German Steam Boiler / Pressure Vessel Regulations – or to customer specification

Product benefits

- Reliable sealing to atmosphere: serrated cover gasket fully confined to prevent creep.
- Hard-faced valve seat made of wear-resistant and corrosion-proof 17 % chrome steel or Stellite for long service life and high functional reliability.
- Easy to repair due to corrosion-protected bolts/screws and nuts

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 5: Information/documents

Document	Reference number
NORI 160 ZXL/ZXS type series booklet (globe valves with rotating stem)	7361.1
NORI 160 ZXLF/ZXSf type series booklet (globe valves with non-rotating stem)	7633.1
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
10. Pipe connection
11. Variants
12. Reference number

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

Pressure/temperature ratings

Table 6: Permissible operating pressure [bar] (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
63	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

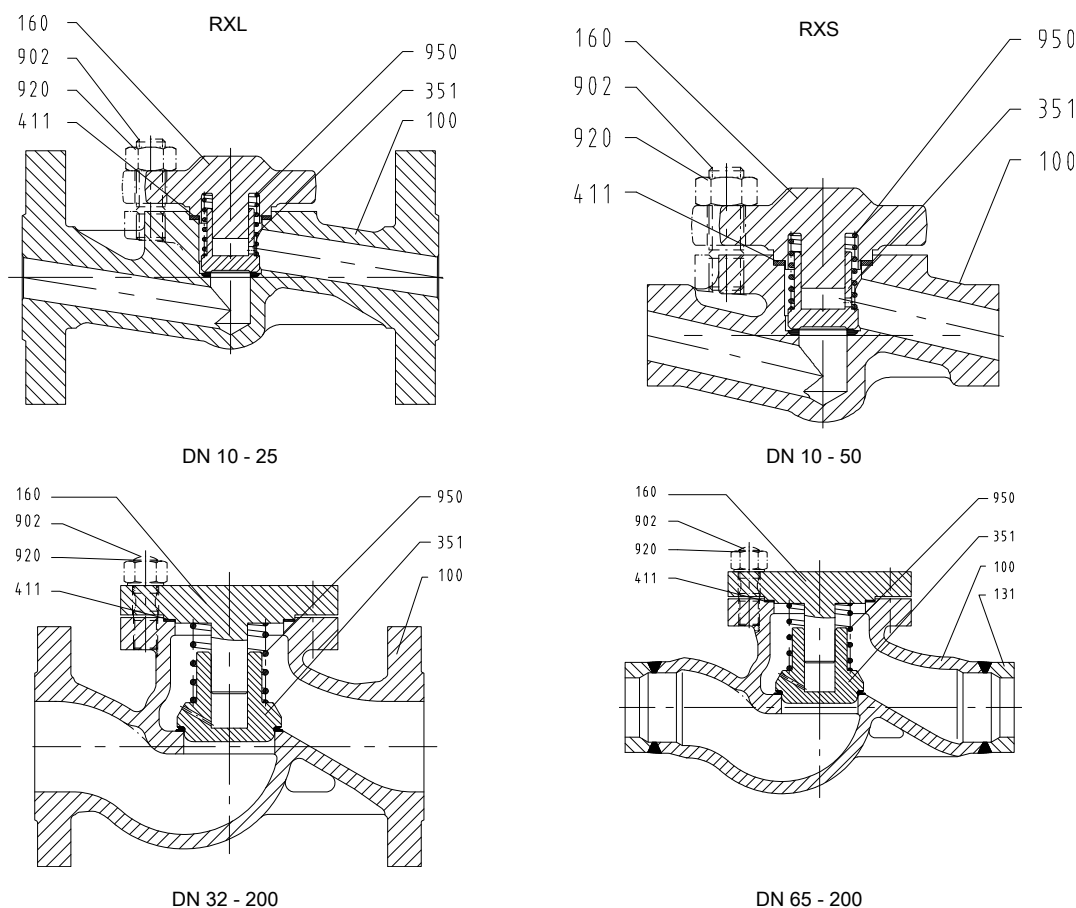


Fig. 1: Sectional drawings

Table 7: Parts list

Part No.	Description	Temperature [°C]	Material	Material number	Note	Seat/disc interface
100	Body	≤ 450	P 250 GH	1.0460	RXL ≤ DN 25	17 % chrome steel (Cr)
			GP 240 GH+N	1.0619+N	RXL ≥ DN 32, RXS ≥ DN 65	
		≤ 530	16 Mo 3	1.5415	RXS ≤ DN 50	Stellite
		≤ 550	13 CrMo 4-5	1.7335	RXL ≤ DN 25, RXS ≤ DN 50	
			G 17 CrMo 5-5	1.7357	RXL ≥ DN 32, RXS ≥ DN 65	
131	Connection branch	≤ 450	P 250 GH	1.0460	≥ DN 65	-
		≤ 550	13 CrMo 4-5	1.7335		-
160	Cover	≤ 550	13 CrMo 4-5	1.7335		-
351	Check disc	≤ 550	X 39 CrMo 17-1	1.4122	≤ DN 50	-
		≤ 450	P 250 GH	1.0460	≥ DN 65	17 % chrome steel (Cr)
		≤ 550	13 CrMo 4-5	1.7335		Stellite
411	Joint ring	≤ 550	CrNi steel/ graphite	-	Serrated	-
902	Stud		21 CrMo V 5-7	1.7709	Corrosion-protected	-
920	Hexagon nut		25 CrMo 4	1.7218	Corrosion-protected	-
950	Spring		X 7 CrNiAl 17 7	1.4568	-	-

Dimensions and weights

Dimensions and weights of NORI 160 RXL

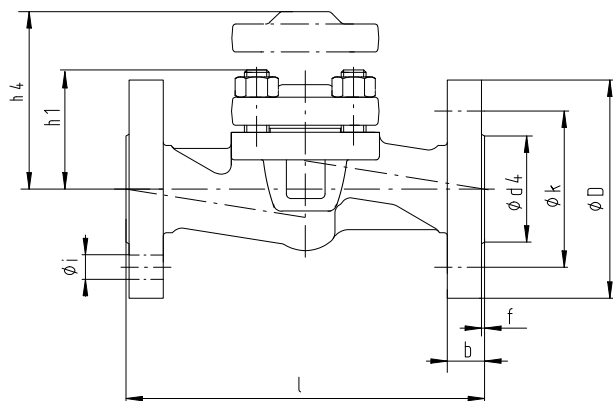


Fig. 2: NORI 160 RXL

Table 8: 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	h ₄	[kg]
		[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	
63-160	10	210	100	70	4	14	40 × 2	20	80	120	6,0
	15	210	105	75	4	14	45 × 2	20	80	120	7,0
	20	230	130	90	4	18	58 × 2	24	80	120	8,5
	25	230	140	100	4	18	68 × 2	24	80	120	10,0
	32	260	155	110	4	22	78 × 2	26	105	155	13,5
	40	260	170	125	4	22	88 × 3	28	105	155	17,5
63	50	300	180	135	4	22	102 × 3	26	110	165	21,0
100/160	50	300	195	145	4	26	102 × 3	30	110	165	21,0
63	65	340	205	160	8	22	122 × 3	26	180	305	30,0
	80	380	215	170	8	22	138 × 3	28	200	350	42,0
	100	430	250	200	8	26	162 × 3	30	220	380	52,0
	125	500	295	240	8	30	188 × 3	34	260	450	90,0
	150	550	345	280	8	33	218 × 3	36	270	485	115,0
	200	650	415	345	12	36	285 × 3	42	350	615	195,0
100	65	340	220	170	8	26	122 × 3	34	180	305	35,0
	80	380	230	180	8	26	138 × 3	36	200	350	46,0
	100	430	265	210	8	30	162 × 3	40	220	380	60,0
	125	500	315	250	8	33	188 × 3	40	260	450	94,0
	150	550	355	290	12	33	218 × 3	44	270	485	135,0
	200	650	430	360	12	36	285 × 3	52	350	615	225,0
160	65	340	220	170	8	26	122 × 3	34	180	305	35,0
	80	380	230	180	8	26	138 × 3	36	200	350	48,0
	100	430	265	210	8	30	162 × 3	40	220	380	65,0
	125	500	315	250	8	33	188 × 3	44	260	450	100,0
	150	550	355	290	12	33	218 × 3	50	270	485	145,0
	200	650	430	360	12	36	285 × 3	60	350	615	265,0

Mating dimensions as per standard

Face-to-face lengths: EN 558-1/2
 Flanges: Mating dimensions to DIN EN 1092-1
 Flange facing: Type B1

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 RXS

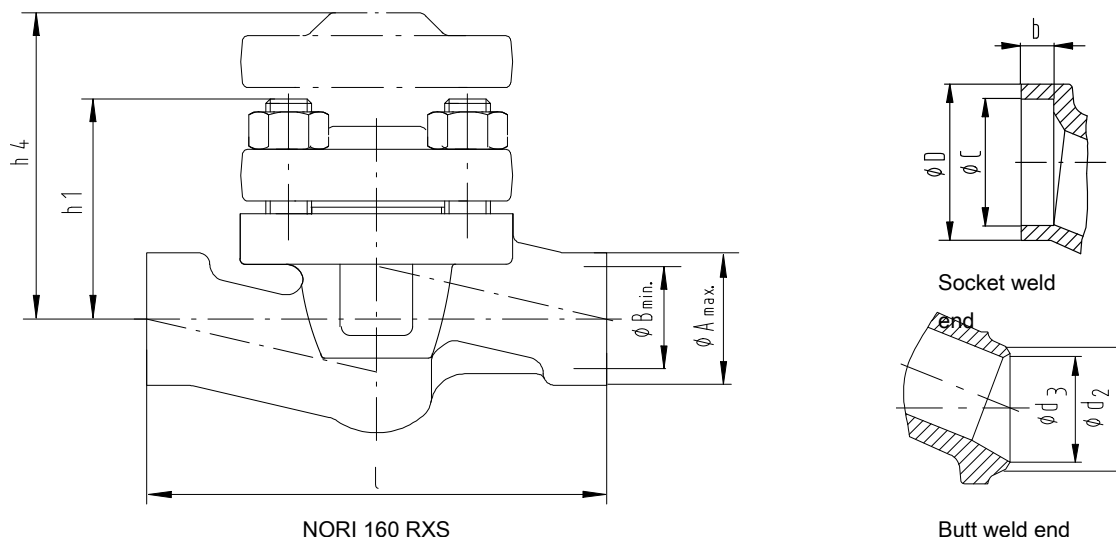


Table 9: Dimensions and weights

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	h ₄	[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]
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	9,5	80	120	3,5		
	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	9,5	80	120	4,0		
	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	12,7	80	120	5,0		
	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	12,7	80	120	6,0		
	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	12,7	105	155	8,0		
	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	12,7	105	155	10,5		
	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	15,9	110	165	13,0		
	65	420	83	52	77	69,0	69,0	65,0	76,1 × 3,6	76,1 × 3,6	76,1 × 5,6	-	-	-	180	305	25,0		
	80	460	108	62	90	81,0	81,0	76,5	88,9 × 4,0	88,9 × 4,0	88,9 × 6,3	-	-	-	200	350	40,0		
	100	510	118	78	115	104,0	104,0	98,5	114,3 × 5,0	114,3 × 5,0	114,3 × 8,0	-	-	-	220	380	52,0		
	125	600	153	109	141	130,5	127,0	120,5	139,7 × 4,5	139,7 × 6,3	139,7 × 10,0	-	-	-	260	450	90,0		
	150	650	173	125	170	156,5	154,0	144,5	168,3 × 5,6	168,3 × 7,1	168,3 × 12,5	-	-	-	270	495	110,0		
	200	750	229	176	222	204,5	199,5	189,0	219,1 × 7,1	219,1 × 10,0	219,1 × 16,0	-	-	-	350	615	160,0		

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.

Installation instructions

 Lift check valves must always be installed in the line such that the fluid enters the valve beneath the valve disc and flows out above the valve disc.



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