

Lift Check Valve

RGS

PN 250-500
DN 10-50

Type Series Booklet



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Type Series Booklet RGS

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Check Valves and Strainers

Lift Check Valves to DIN/EN

RGS



Main applications

- Fossil-fuelled power stations
- Boiler feed applications
- Process engineering
- Petrochemical industry
- Chemical industry
- Shipbuilding
- Pulp and paper industry
- Sugar industry
- Descaling units
- Mining
- Nuclear power stations

Fluids handled

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

Operating data

Operating properties

Characteristic	Value
Nominal pressure	PN 250 - 500
Nominal size	DN 10 - 50
Max. permissible pressure [bar]	500
Min. permissible temperature [°C]	-10
Max. permissible temperature [°C]	+580

Selection as per pressure/temperature ratings (⇒ Page 5)

Body materials

Overview of available materials

Material	Material number	Temperature limit
16 Mo 3	1.5415	≤ 530 °C
13 CrMo 4-5	1.7335	≤ 550 °C
10 CrMo 9-10/ 11 CrMo 9-10	1.7380/ 1.7383	≤ 580 °C

Design details

Design

- Straight-way Y-valve
- Pressure seal design
- Forged body and cover
- Spring-loaded check disc
- Seat/disc interface made of wear-resistant and corrosion-proof Hastelloy
- 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.
- 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 (zones 2+22) to ATEX 2014/34/EU.

Variants

- 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
- Strainer
- Lift check valve with bolted cover, PN 250-320, DN 65-200, NORI 320 RXL/RXS, on request
- Lift check valve with bolted cover, PN 250-500, DN 10-50, NORI 500 RXLR/RXSR, on request

Product benefits

- Robust design made of forged steel.
 - Extremely robust material with a very dense, homogenous and fine-grained microstructure enables the valve to withstand high stresses.
 - Ideal for very high pressures and temperatures.
- Economically efficient due to Y-pattern. Excellent zeta values and little pressure loss.
- Added safety due to pressure seal design providing safe sealing to atmosphere: The higher the pressure in the body, the tighter the bonnet joint. Very low risk of leakage, particularly at high pressures and temperatures. Compact design.
- Long service life and high functional reliability:
 - Hard-faced valve seat made of wear-resistant and corrosion-proof Hastelloy.
 - Closing spring made of stainless steel as a standard for variable installation positions.

Related documents

Information/documents

Document	Reference number
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

Butt weld ends as per type series booklet, machined (DN 10-50)

Permissible operating pressure [bar]¹⁾

PN	Material	Material number	[°C]														
			Up to 300	350	400	425	450	475	500	510	520	530	540	550	560	570	580
320	16 Mo 3	1.5415	320	318	298	293	288	283	179	136	107	86	-	-	-	-	-
	13 CrMo 4-5	1.7335	320	320	320	320	320	315	274	229	181	148	119	93	-	-	-
	10 CrMo 9-10/ 11 CrMo 9-10	1.7380/ 1.7383	320	320	320	320	320	320	286	250	217	188	162	138	119	102	88

Butt weld ends, unmachined (DN 10-25)

Permissible operating pressure [bar]¹⁾

PN	Material	Material number	[°C]														
			Up to 300	350	400	425	450	475	500	510	520	530	540	550	560	570	580
500	16 Mo 3	1.5415	500	484	453	445	437	429	290	231	184	146	-	-	-	-	-
	13 CrMo 4-5	1.7335	500	500	500	500	500	493	428	362	293	243	190	153	-	-	-
	10 CrMo 9-10/ 11 CrMo 9-10	1.7380/ 1.7383	500	500	500	500	500	500	421	368	321	281	243	212	181	159	137

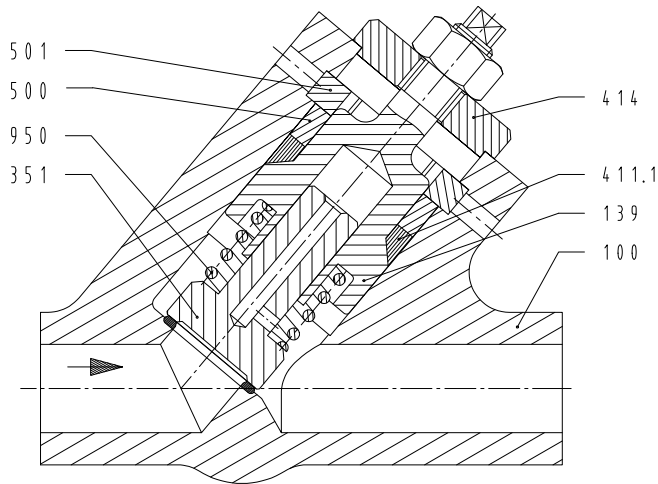
Butt weld ends, unmachined (DN 32-50)

Permissible operating pressure [bar]¹⁾

PN	Material	Material number	[°C]														
			Up to 300	350	400	425	450	475	500	510	520	530	540	550	560	570	580
400	16 Mo 3	1.5415	400	387	362	356	350	343	226	180	143	113	-	-	-	-	-
	13 CrMo 4-5	1.7335	400	400	400	400	400	394	342	289	228	186	150	117	-	-	-
	10 CrMo 9-10/ 11 CrMo 9-10	1.7380/ 1.7383	400	400	400	400	400	400	337	294	257	225	194	170	145	127	109

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

Materials

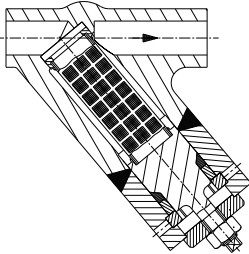


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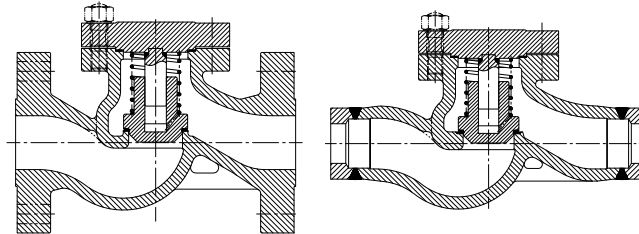
Parts list

Part No.	Description	Temperature [°C]	Material	Material number	Note	Seat/disc interface
100	Body	≤ 530	16 Mo 3	1.5415	Die-forged	Hastelloy hard-faced
		≤ 550	13 CrMo 4-5	1.7335		
		≤ 580	10 CrMo 9-10/ 11 CrMo 9-10	1.7380/ 1.7383		
139	Bonnet	≤ 580	21 CrMo V 5-7	1.7709	-	-
351 ²⁾	Check disc		X 39 CrMo 17-1	1.4122	-	Solid
411.1 ²⁾	Joint ring		Graphite	-	-	-
414	Thrust plate		13 CrMo 4-5	1.7335	-	-
500	Ring		21 CrMo V 5-7	1.7709	-	-
501	Segmental ring		21 CrMo V 5-7	1.7709	-	-
950 ²⁾	Spring		X 7 CrNiAl 17 7	1.4568	-	-

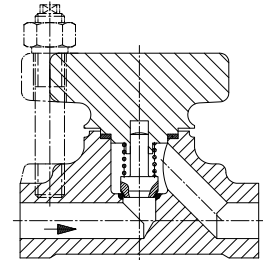
Variants



Strainer type FSS



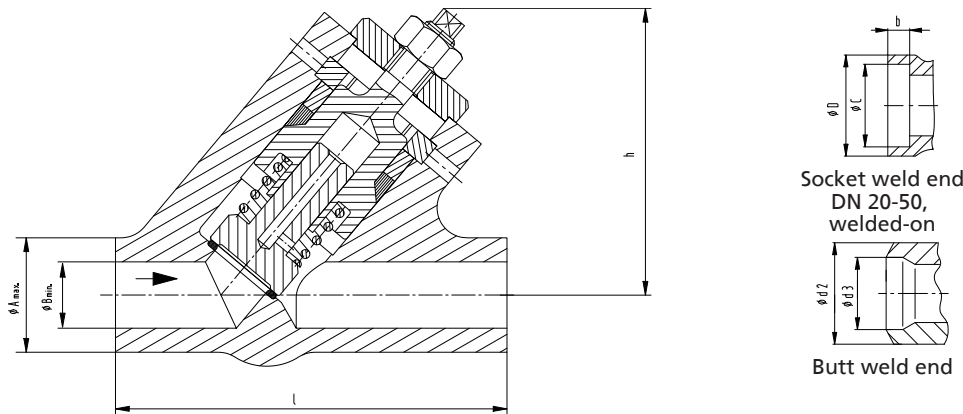
Lift check valve with bolted cover, PN 250-320, DN 65-200, NORI 320 RXL/RXS



Lift check valve with bolted cover, PN 250-500, DN 10-50, NORI 500 RXLR/RXSR

2) Recommended spare parts

Dimensions and weights



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Dimensions [mm] and weights [kg]

PN	DN	I		Butt weld ends, unmachined		Butt weld ends to DIN EN 12627				Socket weld ends to DIN EN 12760 (PN 320)			h	[kg]	
		Butt weld ends	Socket weld ends	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.}
							PN 250	PN 320	PN 250	PN 320					
250 320 500	10	130	130	38	9	18	12,0	11,5	17,2 × 2,6	17,2 × 2,9	27,0	17,6	10,0	95	3,0
	15	130	130	38	14	22	16,0	15,0	21,3 × 2,6	21,3 × 3,2	32,5	21,8	10,0	95	3,0
	20	130	200	38	19	28	20,0	19,0	26,9 × 3,6	26,9 × 4,0	39,5	27,2	13,0	95	3,0
	25	130	200	38	22	35	26,5	24,0	33,7 × 3,6	33,7 × 5,0	48,0	33,9	13,0	95	3,5
250 320 400	32	160	240	58	30	44	34,0	30,5	42,4 × 4,5	42,4 × 6,3	57,0	42,7	13,0	125	6,5
	40	160	240	58	35	50	39,0	36,0	48,3 × 5,0	48,3 × 6,3	64,5	48,8	13,0	125	6,5
	50	210	290	80	46	62	48,0	47,0	60,3 × 6,3	60,3 × 7,1	83,0	61,2	16,0	145	9,0

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Dimensions [mm]

PN	DN	Standard mesh				Fine mesh			
		Kv [m³/h]	Zeta value	Mesh width	Wire diameter	Kv [m³/h]	Zeta value	Mesh width	Wire diameter
250 320 400	10	2,8	2,0	1,25	0,63	2,3	2,9	0,28	0,22
	15	6,7	1,8	1,25	0,63	5,5	2,7	0,28	0,22
	20	12,2	1,7	1,25	0,63	9,9	2,6	0,28	0,22
	25	19,2	1,7	1,25	0,63	15,6	2,6	0,28	0,22
	32	31,7	1,7	1,25	0,63	25,6	2,6	0,28	0,22
	40	49,9	1,6	1,25	0,63	40,2	2,5	0,28	0,22
	50	78,0	1,6	1,25	0,63	62,9	2,5	0,28	0,22

Mating dimensions as per standard

- Face-to-face lengths: See table
- Butt weld ends: DIN EN 12627 Figure 2
- Socket weld ends: ASME B16.11, 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 and/or socket weld ends to DIN 3239-2 are possible.

Installation instructions

i 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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