

Line Blind Valve

VTS

p approx. 600 bar
DN 200-500
Billet-forged
Pressure Seal Design
Butt Weld Ends

Type Series Booklet



Legal information/Copyright

Type Series Booklet VTS

KSB Aktiengesellschaft Pegnitz

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Line Blind Valve

Line Blind Valve in Pressure Seal Design

VTS



Main applications

- Fossil-fuelled power stations
- Process engineering
- Boiler feed applications
- Boiler recirculation
- Nuclear power stations

Fluids handled

- Water
- Steam
- Gas
- Oil
- Other non-aggressive fluids
- Other fluids on request.

Operating data

Operating properties

Characteristic	Value
Rated pressure	ca. 600 bar
Nominal size	DN 200-500
Max. permissible pressure	ca. 600 bar
Max. permissible temperature	650 °C

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

Body materials

Overview of available materials

Material	Material number	Temperature limit
P 250 GH	1.0460	Up to 450 °C
15 NiCuMoNb 5	1.6368	Up to 450 °C
16 Mo 3	1.5415	Up to 530 °C
13 CrMo 4-5	1.7335	Up to 550 °C
10 CrMo 9-10	1.7380	Up to 570 °C
X 10 CrMoVNb 9-1	1.4903	Up to 650 °C
X 10 CrWMoVNb 9-2	1.4901	Up to 650 °C

Other materials on request.

Design details

Design

- Body made of forged steel
- Pressure seal design
- Position indicator
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 97/23/EC (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 94/9/EC.

Variants

- Position switch(es)
- Flanged ends
- Extended nozzles
- Blow-out attachment
- Inspections to technical codes such as TRD/TRB/AD2000 – German Steam Boiler / Pressure Vessel Regulations – or to customer specification

Product benefits

- Robust body made of billet-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.
 - Compared with cast bodies no risk of porosity and shrinkage cavities, excellent weldability.
- Additional features ensure safe sealing to atmosphere:
 - Pressure seal design: The higher the pressure in the valve body, the tighter the bonnet joint. Very low risk of leakage, particularly at high pressures and temperatures. Compact design.
 - Pure graphite gaskets protected against oxidation by metal caps.
- Versatile use.
 - Economical substitute for gate valve in the event of a pressure test.
 - Can also be used for flushing or pickling duties.
 - Limit switches can be fitted for remote indication.
- Hard-faced seat/disc interface made of wear-resistant and corrosion-proof stellite for long service life and high functional reliability.

Related documents

- Operating manual 0570.81

On all enquiries/orders please specify

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. Number of type series booklet

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

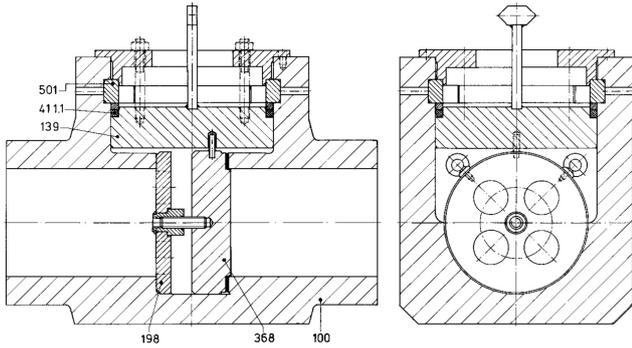
Pressure/temperature ratings

Permissible operating pressures in bar at temperatures in °C⁽¹⁾⁽²⁾

Material	Subseries	20	100	150	200	250	300	350	400	425	450	475	500	510	520	530	540	550	560	570	580	590	600	610	620	630	640	650		
P 250 GH 1.0460	C	212	202	181	161	141	126	105	85	76	66																			
	D	323	308	277	246	215	192	161	130	115	100																			
	E	426	407	366	325	284	254	213	172	152	132																			
	F	521	496	446	397	347	310	260	210	186	160																			
15NiCuMoNb5 1.6368	C	429	407	394	380	367	356	341	327	314	242																			
	D	660	618	598	578	558	539	518	498	476	374																			
	E	869	814	789	764	738	711	685	658	629	495																			
16 Mo 3 1.5415	C	268	237	214	192	177	151	147	141	140	136	134	94	66	52	42														
	D	408	361	326	292	269	231	223	215	211	207	205	143	100	79	63														
	E	539	478	432	386	356	304	294	284	279	275	269	189	132	104	83														
	F	657	583	527	471	434	372	359	347	341	335	329	231	162	128	102														
13 CrMo 4-5 1.7335	C	268	243	228	213	202	187	177	167	162	157	155	138	118	95	79	61	49												
	D	408	369	346	323	308	284	269	254	246	238	235	211	178	145	119	93	75												
	E	539	488	457	427	407	376	355	335	325	315	310	277	236	191	158	124	100												
	F	657	596	558	521	496	459	434	409	397	385	378	341	288	233	193	151	121												
10 CrMo 9-10 1.7380	C	268	248	232	217	213	202	187	177	173	167	162	136	119	104	91	79	69	58	51										
	D	408	377	354	331	323	308	284	269	262	254	246	207	181	158	138	119	104	89	78										
	E	539	498	467	437	427	407	376	355	345	335	325	275	239	210	183	158	138	117	103										
	F	657	608	570	533	521	496	459	434	422	409	397	335	292	255	223	193	168	144	126										
X10CrMoVNb9-1 1.4903	C	268													245	225	204	185	166	148	131	116	102	89	78	67	59	50		
	D	408													324	296	270	244	214	195	174	154	135	117	103	87	77	67		
	E	539													470	429	391	353	316	283	251	221	197	170	148	126	112	96		
	F	657													514	472	428	387	347	311	275	244	215	186	162	139	122	105		
X10CrWMoVNb9-2 1.4901	C	268																			134	120	107	94	82	71	61	53		
	D	408																			201	180	160	142	123	106	92	79		
	E	539																			262	234	208	184	160	138	120	103		
	F	657																			314	281	250	221	192	166	144	124		

1) The valves are suitable for temperatures down to -10 °C.
 2) The test pressure is defined in accordance with the provisions of the technical codes PED 97/23/EC; DIN EN 12516-2 and EN 12266-1

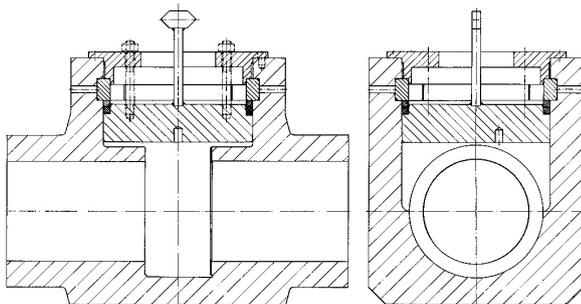
Materials



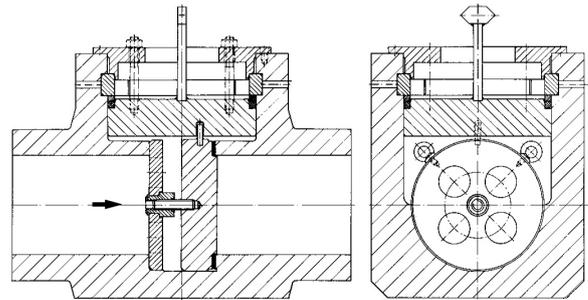
Overview of available materials

Part No.	Description	Materials for operating temperatures up to [° C]					
		450	530	550	570	600	650
100	Body Hard-faced with 17 % Cr steel	P 250 GH 1.0460	15NiCuMoNb5 1.6368	16 Mo 3 1.5415	13 CrMo 4-5 1.7335	10 CrMo 9-10 1.7380	X10CrMoVNb 9-1 1.4903 X10CrWMoVNb 9-2 1.4901
134	Blow-out attachment	16 Mo 3 1.5415					
139	Bonnet	P 250 GH 1.0460	15NiCuMoNb5 1.6368	16 Mo 3 1.5415	13 CrMo 4-5 1.7335	10 CrMo 9-10 1.7380	X10CrMoVNb 9-1 1.4903 X10CrWMoVNb 9-2 1.4901
198	Plate	16 Mo 3 1.5415					
368 ³⁾	Seal plate hard-faced with CrNi steel	10 CrMo 9-10 1.7380	15NiCuMoNb5 1.6368	10 CrMo 9-10 1.7380		X10CrMoVNb 9-1 1.4903 X10CrWMoVNb 9-2 1.4901	
411.1	Joint ring	Pure graphite, capped with stainless steel					
501	Segmental ring	10 CrMo 9-10 1.7380	15NiCuMoNb5 1.6368	10 CrMo 9-10 1.7380		X10CrMoVNb 9-1 1.4903 X10CrWMoVNb 9-2 1.4901	

Typical applications



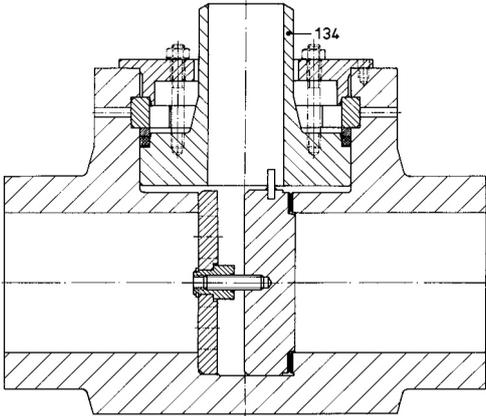
Free passage (seal plate dismantled)



Closed passage (seal plate fitted)

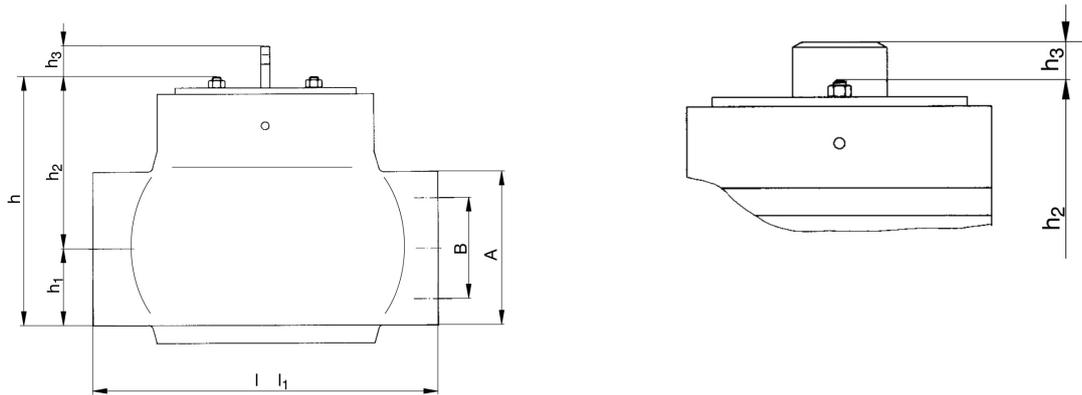
³⁾ Recommended spare parts

Variants



With blow-out attachment (seal plate fitted)

Dimensions



Blow-out attachment

Dimensions in mm

Subseries	DN Valve	DN Blow-out attachment	l	l ₁ ⁴⁾	h	h ₁	h ₂	h ₃	Butt weld ends, unmachined		[kg] for	
									ØA _{max.}	ØB _{min.}	l	l ₁
C	200	65	500	600	370	150	220	Approx. 100	225	170	180	190
	250	80	600	730	420	150	270	Approx. 100	275	215	300	310
	300	100	700	850	510	210	300	Approx. 100	325	265	520	540
	350	125	800	980	590	245	345	Approx. 100	375	310	830	870
	400	150	900	1100	660	280	380	Approx. 100	420	355	1190	1230
	450	200	1000	1175	750	280	470	Approx. 100	475	400	1700	1740
D	200	65	500	600	400	150	250	Approx. 100	260	170	270	290
	250	80	600	730	480	200	280	Approx. 100	320	215	420	490
	300	100	700	850	580	240	340	Approx. 100	385	265	920	1010
	350	125	800	980	690	280	410	Approx. 100	450	310	1400	1520
	400	150	900	1100	770	320	450	Approx. 100	510	355	1800	2050
	450	200	1000	1175	890	360	530	Approx. 100	590	400	2400	2850
E	200	65	550	750	460	170	290	Approx. 100	285	170	350	410
	250	80	650	900	540	220	320	Approx. 100	345	215	670	760
	300	100	750	1050	640	270	370	Approx. 100	410	265	1350	1470
	350	125	850	1200	730	310	420	Approx. 100	470	310	1800	1960
	400	150	950	1350	840	350	490	Approx. 100	545	355	2900	3250
	450	200	1050	1500	950	400	550	Approx. 100	610	400	4900	4400
F	200	65	600	750	510	190	320	Approx. 100	310	170	480	550
	250	80	730	900	580	230	350	Approx. 100	370	215	850	940
	300	100	850	1050	690	290	400	Approx. 100	440	265	1750	1880
	350	125	980	1200	790	340	450	Approx. 100	510	310	2700	2900
	400	150	1100	1350	890	390	500	Approx. 100	570	355	3900	4300
	450	200	1175	1500	1000	440	560	Approx. 100	640	400	5500	6000
	500	250	1250	1650	1230	490	740	Approx. 100	710	450	830	9000

Vertical clearance for removal: approx. 1.5 x DN

Special dimensions on request.

Mating dimensions - Standards

Face-to-face lengths: See table

Butt weld ends: See table

Dimensions of butt weld ends and weld groove form to customer's specification, but only within dimensions A_{max.} and B_{min.}

4) Face-to-face length l₁ (on request) with extended nozzles to fit the piping



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