

VALVOSIDER

MANUFACTURER OF VALVES

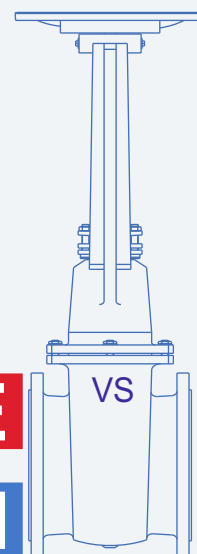
CHECK
VALVES
STRAINERS

CATALOGUE

R. 05/17

ASME

DIN



VALVOSIDER s.r.l.

Via S. Rocco, 2 - P.O. BOX 76 - 13011 Borgosesia (VC) - Italy

Phone: +39 0163 22991 - Fax: +39 0163 21537

e-mail: valvo@valvosider.com - <http://www.valvosider.com>



Main Location in Borgosesia



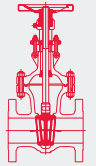
Second Location in Borgosesia

1 The Company

p. 4

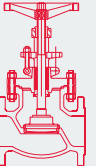
2 Gate valves

p. 7



3 Globe valves

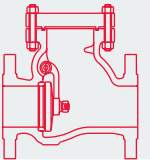
p. 19



ASME

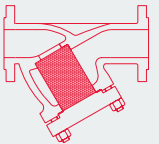
4 Check valves

p. 37



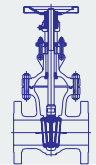
5 Strainers

p. 53



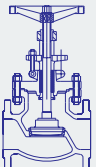
6 Gate valves

p. 59



7 Globe valves

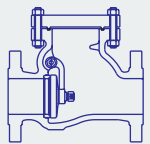
p. 71



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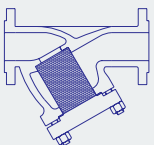
8 Check valves

p. 91



9 Strainers

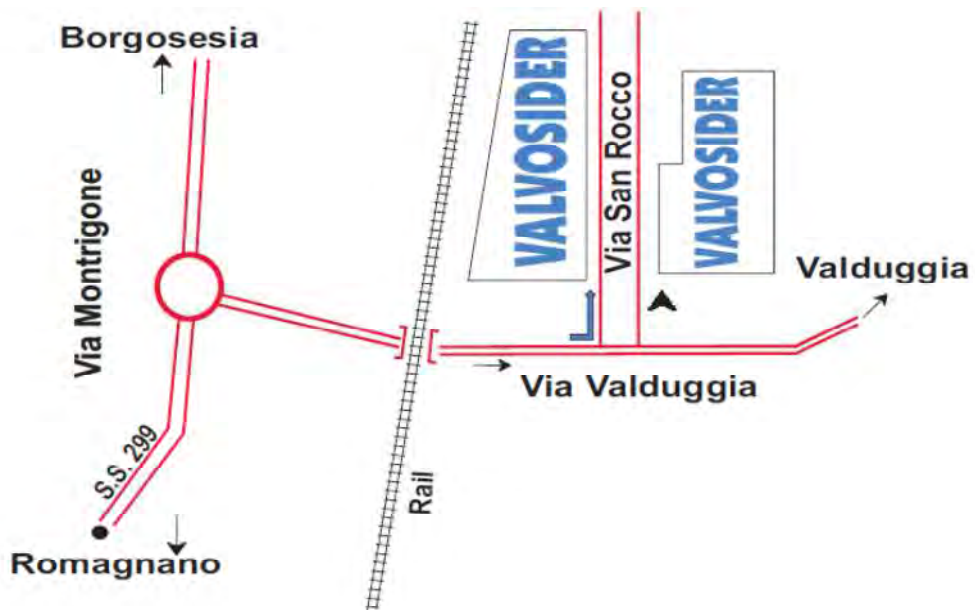
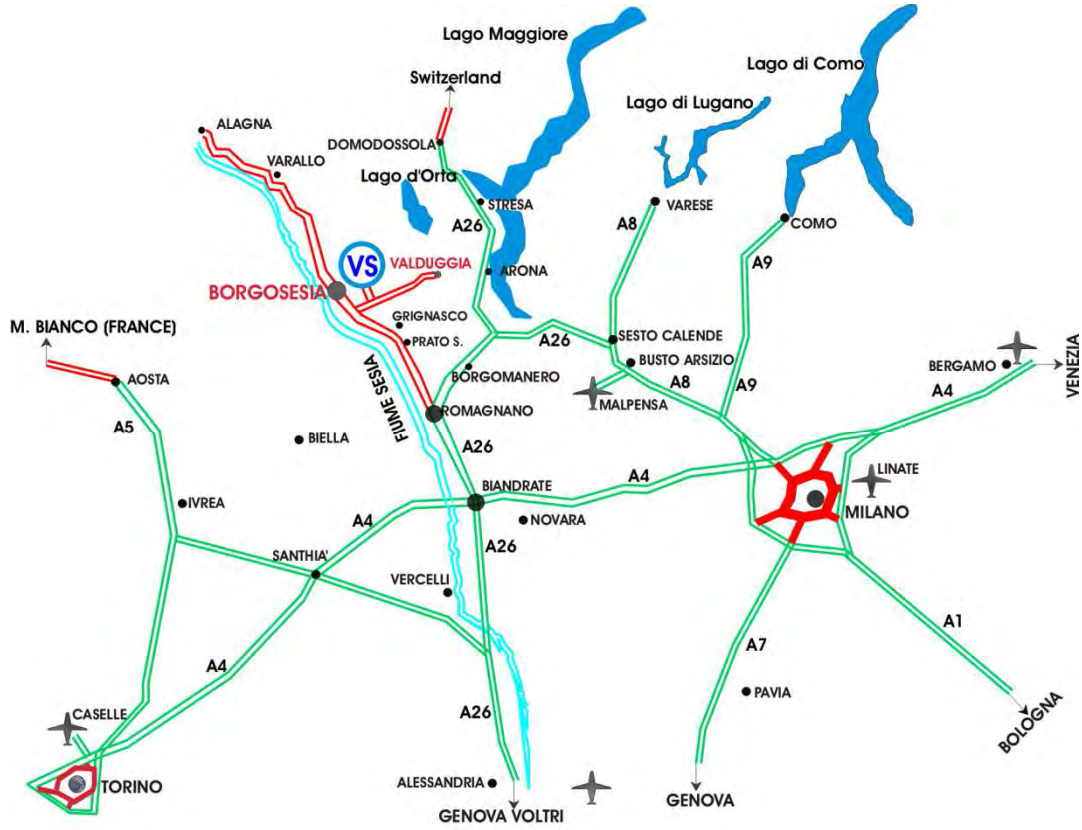
p.109



10 Technical data

p.115

BORGOSIESIA AREA MAP





COMPANY INFORMATION & LOCATION

Valvosider was founded in 1951 as a manufacturer of industrial valves and, after more than 60 years of continuous growth, has become a valve manufacturer of international reputation. The production encompasses a wide range of valves meeting the requirements of the chemical, petrochemical, marine, oil (on and offshore), gas and power plant industries.

Our many years of experience in producing top quality products enable us to bring industry leading innovations to our customers.

We are certified by the following organizations:

ISO 9001:2008 RINA / IQNET
PRESSURE EQUIPMENT DIRECTIVE (2014/68/UE) - TÜV
ATEX DIRECTIVE 2014/68/UE - VALVOSIDER
API 600-0020 / AMERICAN PETROLEUM INSTITUTE
API 6D-0166 / AMERICAN PETROLEUM INSTITUTE
API 6A-0992 / AMERICAN PETROLEUM INSTITUTE
AD 2000 MERKBLATT HP0 /A4 / EN ISO 3834-2 - TÜV
API 622 / API 624 FUGITIVE EMISSION - TÜV
ISO 15848-1 Class BH FUGITIVE EMISSION - TÜV
TA-LUFT FUGITIVE EMISSION - TÜV
VDI 2440 - TÜV
FIRE SAFE API 607/BS EN ISO 10497/BS EN ISO 6755-2 - TÜV
TR CU 010/2011 & 032/2013
ACHILLES JQS
Canadian Registration Numbers (CRN)
API 591 - TÜV
SIL IEC 61508-1÷7:2010 - TÜV

Valvosider is located in Northern Italy in the town of Borgosesia between Milan and Turin, approximately one hour drive from either city.

The closest airport is Malpensa International Airport in Milan approximately a 45 minutes drive.

Genoa is approximately 150 kilometers and is the nearest Maritime Port.

The plant is approximately 96,000 square meters with a 37,800 square meters of covered structure.

COMPANY STRATEGY

We will continue changing the way we do business focusing on the customer's needs and our company's Vision, Mission & Values.

VISION:

Valvosider S.r.l. is a family owned company committed to provide its clients with a product which conforms with the requirements of the contract and the client's needs at a fair cost, within the contractual delivery time, with the highest possible safety standards, while at the same time protecting the well-being of the natural environment and our community.

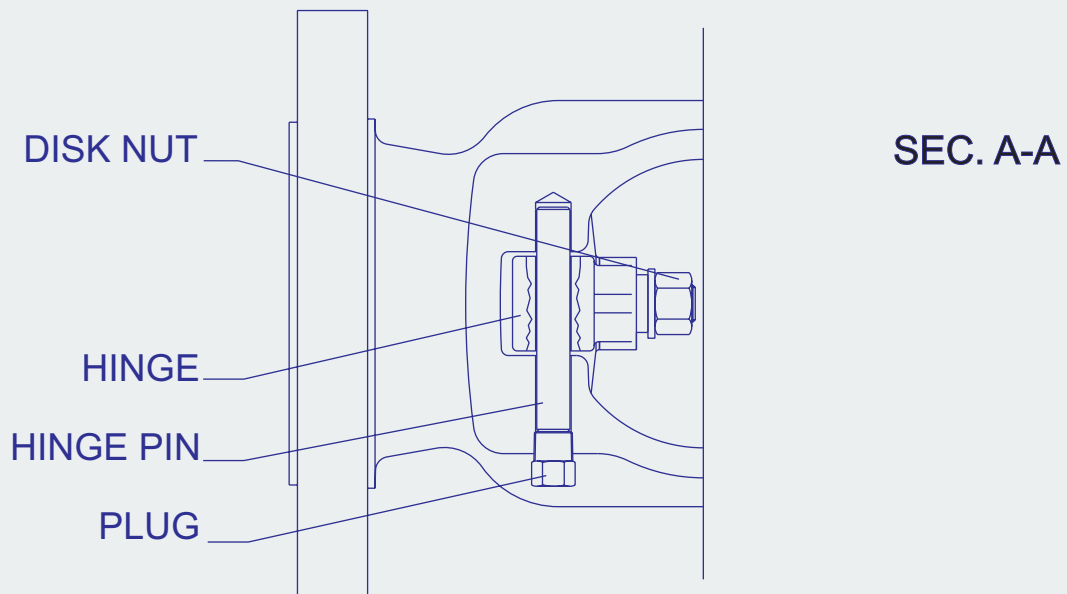
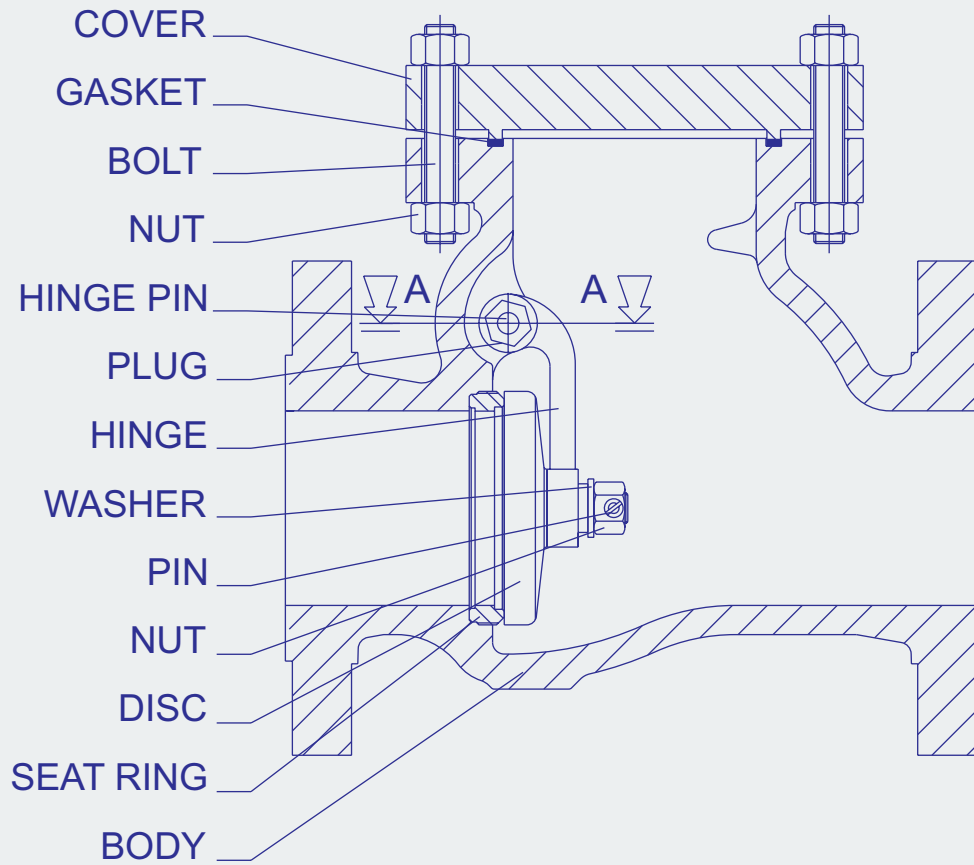
MISSION:

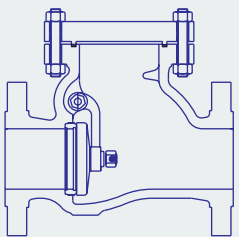
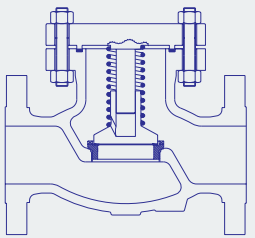
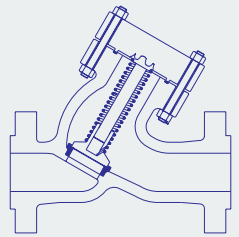
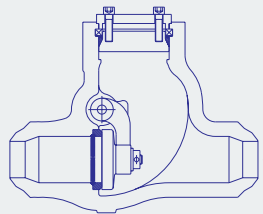
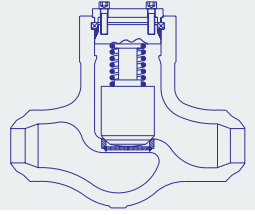
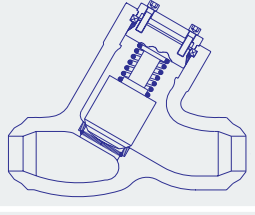
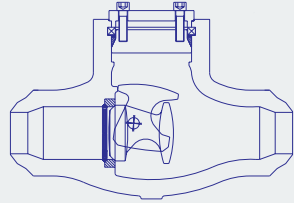
As an international valve manufacturer it continues providing quality valves and meeting the client's specified requirements. Valvosider continues to be a strong source of income for the community, a safe environment for all employees and keeps embracing new ideas and ways of operation. Valvosider delivers what it promises to its clients building strong relationships. Let's keep improving our business and ourselves for that is a the reason for living.

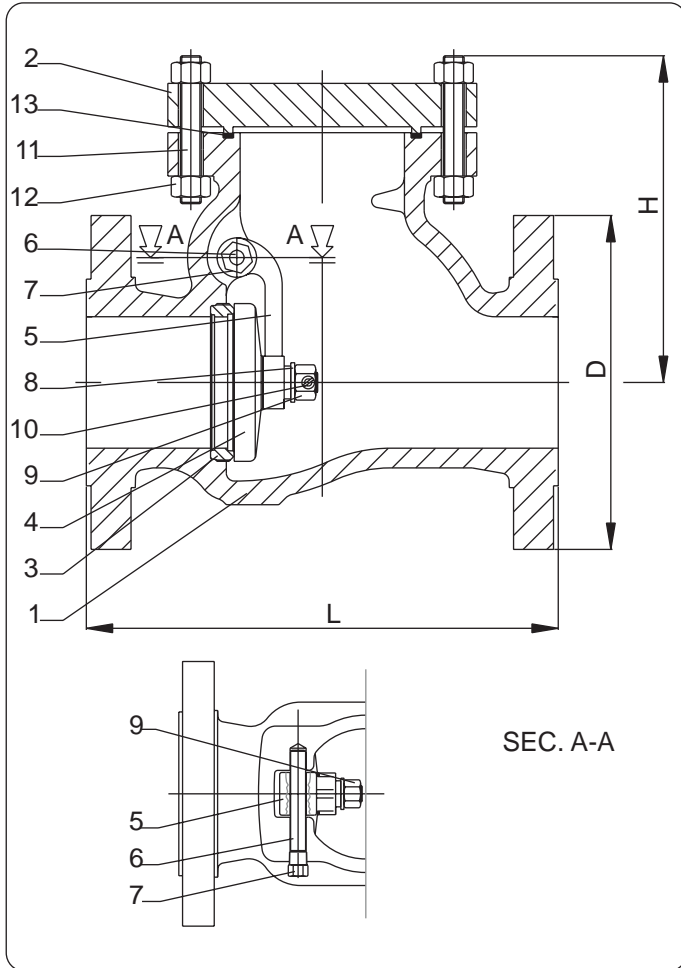
VALUES:

Valvosider is committed of providing our clients, employees and our community with the best product and work environment by doing always our best. Respect, integrity, support, knowledge is our way of life.

DESCRIPTION OF A TYPICAL SWING CHECK VALVE



	TYPE	CLASS	SIZES	FIG. N.
	SWING CHECK VALVES	150	2" - 48"	470
		300	2" - 48"	471
	REGULAR TYPE OR FULL OPENING	600	2" - 40"	472
		900	2" - 24"	473
		1500	2" - 24"	474
		2500	2" - 12"	475
	page 38			
	PISTON CHECK VALVES	150	2" - 16"	460PC
		300	2" - 16"	461PC
		600	2" - 12"	462PC
		900	2" - 12"	463PC
		1500	2" - 12"	464PC
	page 40			
	PISTON CHECK VALVES	150	2" - 24"	490PC
		300	2" - 24"	491PC
	'Y' TYPE	600	2" - 24"	492PC
		900	2" - 16"	493PC
		1500	2" - 16"	494PC
		2500	2" - 12"	495PC
	page 42			
	SWING CHECK VALVES	600	2" - 24"	P72
		900	2" - 24"	P73
	PRESSURE SEAL	1500	2" - 24"	P74
		2500	2" - 12"	P75
	page 44			
	LIFT CHECK VALVES	600	2" - 16"	P62PC
	PRESSURE SEAL	900	2" - 16"	P63PC
	'STRAIGHT'	1500	2" - 12"	P64PC
		2500	2" - 12"	P65PC
	page 46			
	LIFT CHECK VALVES	600	2" - 16"	P82PC
	PRESSURE SEAL	900	2" - 16"	P83PC
	'Y' PATTERN	1500	2" - 12"	P84PC
		2500	2" - 12"	P85PC
	page 48			
	TILTING DISC CHECK VALVES	600	2" - 24"	P72T
	PRESSURE SEAL	900	2" - 24"	P73T
		1500	2" - 24"	P74T
		2500	2" - 12"	P75T
	page 50			



standard features

- **Description** REGULAR TYPE OR FULL OPENING
BOLTED COVER
LAPPED DISC AND SEAT
WALL THICKNESS TO API 600
RENEWABLE SEAT
- **Design** BS 1868
API 6D
ASME B16.34
- **Face to face** ASME B16.10
- **Flanges** ASME B16.5 FOR 2" TO 24"
ASME B16.47 FOR 26"
BW ENDS TO ASME B16.25
- **Testing** API 598
API 6D
BS 6755
- **Rating** ASME B16.34
- **Marking** MSS-SP 25
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	W47x	L47x	M47x	C47x	B47x	E47x	D47x	F47x	H47x
1 Body	WCB	LCB	WC6	C5	C12	CF8	CF8C	CF8M	CF3M
2 Cover	WCB	LCB	WC6	C5	C12	CF8	CF8C	CF8M	CF3M
3 Seat ring surface	F6A (1)	F6A (1)	F6A (1)	F6A (1)	F6A (1)	F304 (1)	F321 (1)	F316 (1)	F316L (1)
4 Disc seat surface	F6A (2)	F6A (2)	F6A (2)	F6A (2)	F6A (2)	F304 (2)	F321 (2)	F316 (2)	F316L (2)
5 Hinge	A105 (3)	LF2 (3)	F316 (3)	F316 (3)	F316 (3)	F304 (3)	F321 (3)	F316 (3)	F316L (3)
6 Hinge pin	F6A	F6A	F6A	F6A	F6A	F316L	F321	F316	F316L
7 Plug	A105	F316	F316	F316	F316	F316	F316	F316	F316L
8 Washer	A105	F316	F316	F316	F316	F316	F316	F316	F316
9 Nuts	2H	G4	G4	G4	G4	G8	G8	G8	G8
10 Pin						← F316 →			
11 Bolts	B7	L7	B16	B16	B16	B8	B8	B8	B8
12 Nuts	2H	G4	G4	G4	G4	G8	G8	G8	G8
13 Gasket	ANSI 150-300-600-900-1500: S.S. spiral wound reinf. graphite / RTJ - ANSI 2500: RTJ (4)								

(1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: 17 Cr - Monel® - Hastelloy® - other materials

(4) On request: PTFE - other materials

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SWING CHECK VALVES

ASME 150 - 300 - 600 - 900 - 1500 - 2500

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FIG. N. 470 - SWING CHECK VALVES ANSI 150

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	34"	36"	40"	42"	48"
L RF/BW	203	216	241	292	330	356	495	622	699	787	864	978	978	1295	1448	1524	---	---	1956	---	---	---
L RTJ	216	229	254	305	343	368	508	635	711	800	876	991	991	1308	---	---	---	---	---	---	---	---
D	152	178	191	229	254	279	343	406	483	533	597	635	699	813	927	984	1060	1111	1168	1289	1346	1511
H	150	180	195	220	230	270	330	350	400	440	490	550	620	740	800	840	900	960	1040	1150	1280	1350

FIG. N. 471 - SWING CHECK VALVES ANSI 300

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	34"	36"	40"	42"	48"
L RF/BW	267	292	318	356	400	445	533	622	711	838	864	978	1016	1346	1499	1594	---	---	2083	---	---	---
L RTJ	282	308	333	371	416	460	549	638	727	854	879	994	1035	1369	1524	1619	---	---	2111	---	---	---
D	165	191	210	254	279	318	381	445	521	584	648	711	775	914	1035	1092	1149	1207	1270	1238	1289	1467
H	150	180	200	225	270	300	355	390	445	495	530	610	660	750	---	---	---	---	---	---	---	---

FIG. N. 472 - SWING CHECK VALVES ANSI 600

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	34"	36"	40"	42"	48"
L RF/BW	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397	1549	1651	---	---	2083	---	---	---
L RTJ	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407	1560	1664	---	---	2099	---	---	---
D	165	191	210	273	330	356	419	508	559	603	686	743	813	940	1073	1130	1194	1245	1315	1321	---	---
H	194	211	230	292	306	368	408	468	516	564	666	740	838	---	---	---	---	---	---	---	---	---

FIG. N. 473 - SWING CHECK VALVES ANSI 900

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"
L RF/BW	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	---
L RTJ	371	384	460	613	740	842	968	1038	1140	1232	1334	1568	---
D	216	241	292	381	470	546	610	641	705	787	857	1041	---
H	263	265	326	352	409	536	600	700	762	822	885	1000	---

FIG. N. 474 - SWING CHECK VALVES ANSI 1500

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"
L RF/BW	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	---
L RTJ	371	473	549	711	842	1000	1146	1276	1407	1559	1686	1972	---
D	216	267	311	394	483	584	673	749	826	914	984	1168	---
H	263	304	423	506	716	762	818	---	---	---	---	---	---

FIG. N. 475 - SWING CHECK VALVES ANSI 2500

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"
L RF/BW	451	578	673	914	1022	1270	1422	---	---	---	---	---	---
L RTJ	454	584	683	927	1038	1292	1445	---	---	---	---	---	---
D	235	305	356	483	552	673	762	---	---	---	---	---	---
H	---	---	---	---	---	---	---	---	---	---	---	---	---

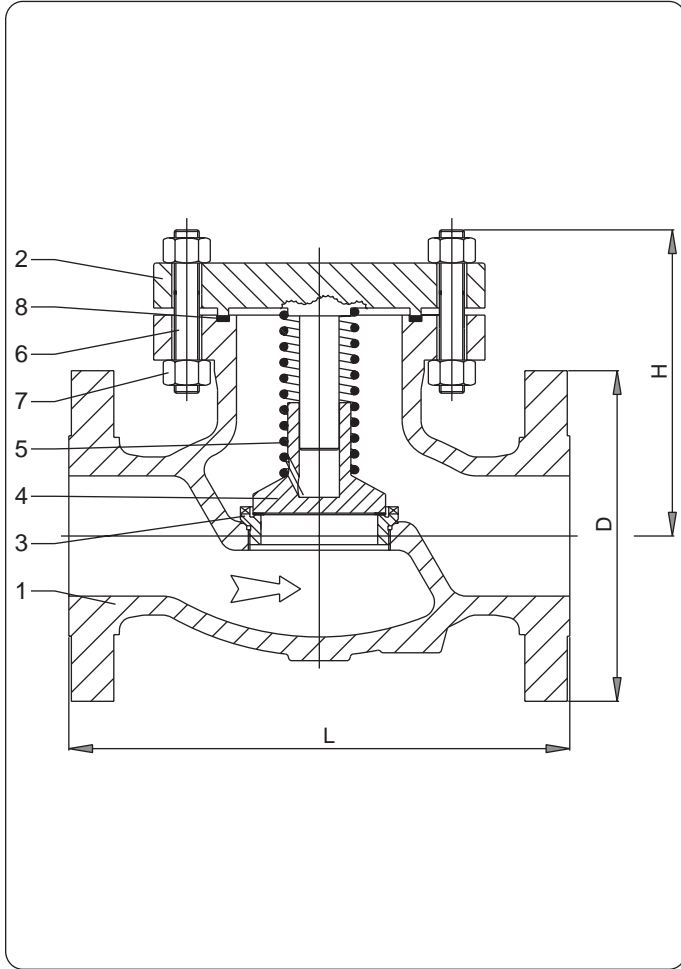
features on request

- DISC WITH PTFE OR RUBBER
- LEVER AND WEIGHT
- SHOCK ABSORBER
- LOCKING DEVICE
- INTEGRAL SEAT
- DRAIN PLUG
- BY PASS
- BW ENDS
- RTJ FLANGES
- DIN CONNECTIONS

All dimensions in mm (except where differently indicated)

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VALVOSIDER s.r.l. - Via S. Rocco, 2 - P.O. BOX 76 - 13011 Borgosesia (VC) - Italy
Phone: +39016322991 - Fax: +39016321537 - www.valvosider.com - e-mail: valvo@valvosider.com



standard features

- **Description** BOLTED COVER
RETURN SPRING
WALL THICKNESS TO API 600
RENEWABLE SEAT
- **Design** BS 1873
API 600
ASME B16.34
- **Face to face** ASME B16.10
- **Flanges** ASME B16.5
BW ENDS TO ASME B16.25
- **Testing** API 598
API 6D
BS 6755
- **Rating** ASME B16.34
- **Marking** MSS-SP 25
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	W46xPC	L46xPC	M46xPC	C46xPC	B46xPC	E46xPC	D46xPC	F46xPC	H46xPC
1 Body	WCB	LCB	WC6	C5	C12	CF8	CF8C	CF8M	CF3M
2 Cover	WCB	LCB	WC6	C5	C12	CF8	CF8C	CF8M	CF3M
3 Seat ring surface	F6A (1)	F6A (1)	F6A (1)	F6A (1)	F6A (1)	F304 (1)	F321 (1)	F316 (1)	F316L (1)
4 Disc seat surface	F6A (2)	F6A (2)	F6A (2)	F6A (2)	F6A (2)	F304 (2)	F321 (2)	F316 (2)	F316L (2)
5 Spring			← F316 →						
6 Bolts	B7	L7	B16	B16	B16	B8	B8	B8	B8
7 Nuts	2H	G4	G4	G4	G4	G8	G8	G8	G8
8 Gasket			← S.S. spiral wound reinf. graphite / RTJ (3) →						

(1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: PTFE - other materials

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PISTON CHECK VALVES

ASME 150 - 300 - 600 - 900 - 1500

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FIG. N. 460PC - PISTON CHECK VALVES ASME CLASS 150

SIZE	2"	2 $\frac{1}{2}$ "	3	4	5	6	8	10	12	14	16	---	---	---	---
L RF/BW	203	216	241	292	356	406	495	622	699	787	914	---	---	---	---
L RTJ	216	219	254	305	368	419	508	635	711	800	927	---	---	---	---
D	152	178	191	229	254	279	343	406	483	533	597	---	---	---	---
H	155	180	185	195	215	250	295	330	380	420	500	---	---	---	---

FIG. N. 461PC - PISTON CHECK VALVES ASME CLASS 300

SIZE	2"	2 $\frac{1}{2}$ "	3	4	5	6	8	10	12	14	16	---	---	---	---
L RF/BW	267	292	318	356	400	445	559	622	711	838	864	---	---	---	---
L RTJ	282	308	333	371	416	460	575	638	727	854	879	---	---	---	---
D	165	191	210	254	279	318	381	445	521	584	648	---	---	---	---
H	155	180	195	220	255	285	335	350	430	495	500	---	---	---	---

FIG. N. 462PC - PISTON CHECK VALVES ASME CL. 600

SIZE	2"	2 $\frac{1}{2}$ "	3	4	5	6	8	10	12
L RF/BW	292	330	356	432	508	559	660	787	838
L RTJ	295	333	359	435	511	562	663	790	841
D	165	191	210	273	330	356	419	508	559
H	155	180	195	220	306	320	380	480	505

FIG. N. 463PC - PISTON CHECK VALVES ASME CL. 900

SIZE	2"	2 $\frac{1}{2}$ "	3	4	5	6	8	10	12
L RF/BW	368	419	381	457	559	610	737	838	965
L RTJ	371	422	384	460	562	613	740	842	968
D	216	244	241	292	349	381	470	546	610
H	220	230	240	280	330	365	409	536	600

FIG. N. 464PC - PISTON CHECK VALVES ASME CL.1500

SIZE	2"	2 $\frac{1}{2}$ "	3	4	5	6	8	10	12
L RF/BW	368	419	470	546	673	705	832	991	1130
L RTJ	371	422	473	549	676	711	842	1000	1146
D	216	244	267	311	375	394	483	584	673
H	220	230	280	325	400	430	716	762	818

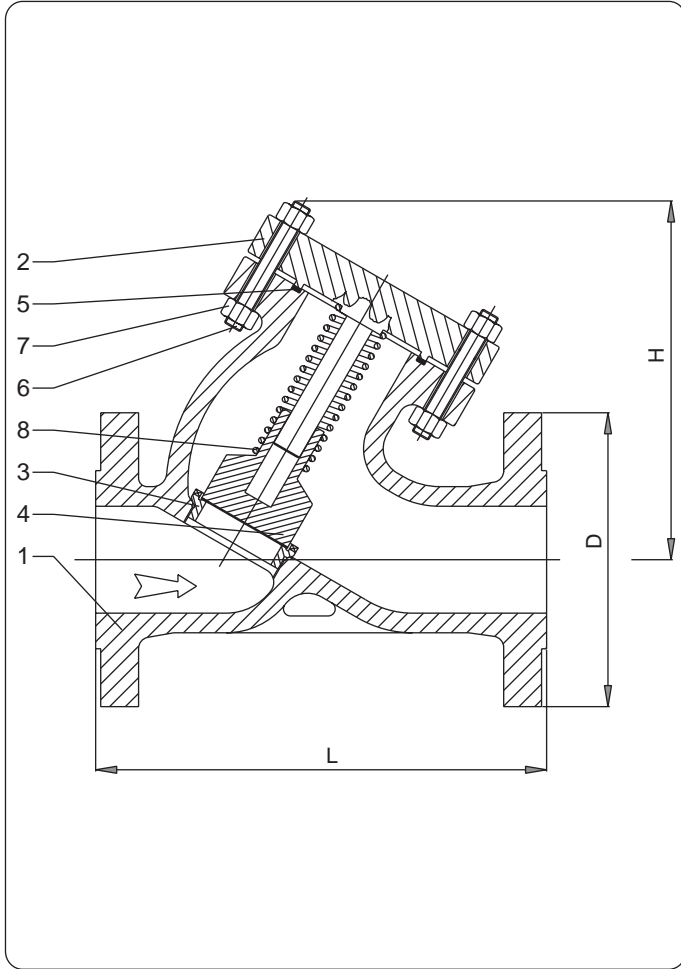
features on request

- DISC WITH PTFE OR RUBBER
- INTEGRAL SEAT
- DRAIN PLUG
- BY PASS
- BW ENDS
- RTJ FLANGES
- DIN CONNECTIONS

All dimensions in mm (except where differently indicated)

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standard features

- **Description** BOLTED COVER
RETURN SPRING
WALL THICKNESS TO API 600
RENEWABLE SEAT
- **Design** BS 1873
API 600
ASME B16.34
- **Face to face** ASME B16.10
- **Flanges** ASME B16.5
BW ENDS TO ASME B16.25
- **Testing** API 598
API 6D
BS 6755
- **Rating** ASME B16.34
- **Marking** MSS-SP 25
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	W49xPC	L49xPC	M49xPC	C49xPC	B49xPC	E49xPC	D49xPC	F49xPC	H49xPC
1 Body	WCB	LCB	WC6	C5	C12	CF8	CF8C	CF8M	CF3M
2 Cover	WCB	LCB	WC6	C5	C12	CF8	CF8C	CF8M	CF3M
3 Seat ring surface	F6A (1)	F6A (1)	F6A (1)	F6A (1)	F6A (1)	F304 (1)	F321 (1)	F316 (1)	F316L (1)
4 Disc seat surface	F6A (2)	F6A (2)	F6A (2)	F6A (2)	F6A (2)	F304 (2)	F321 (2)	F316 (2)	F316L (2)
5 Spring			← F316 →						
6 Bolts	B7	L7	B16	B16	B16	B8	B8	B8	B8
7 Nuts	2H	G4	G4	G4	G4	G8	G8	G8	G8
8 Gasket			← S.S. spiral wound reinf. graphite / RTJ (3) →						

(1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: PTFE - other materials

All data, subject to technical changes, are only for information and not for official use.

PISTON CHECK VALVES - 'Y' TYPE ASME 150 - 300 - 600 - 900 - 1500 - 2500

VALVOSIDER
MANUFACTURER OF VALVES

FIG. N. 490PC - PISTON CHECK VALVES 'Y' TYPE ASME CLASS 150

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---
L RF/BW	203	216	241	292	356	406	495	622	699	787	914	978	978	1295	---
L RTJ	216	219	254	305	368	419	508	635	711	800	927	991	991	1308	---
D	152	178	191	229	254	279	343	406	483	533	597	635	699	813	---
H	146	185	195	235	301	366	530	530	665	---	---	---	---	---	---

FIG. N. 491PC - PISTON CHECK VALVES 'Y' TYPE ASME CLASS 300

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---
L RF/BW	267	292	318	356	400	445	559	622	711	838	864	978	1016	1346	---
L RTJ	282	308	333	371	416	460	575	638	727	854	879	994	1035	1368	---
D	165	191	210	254	279	318	381	445	521	584	648	711	775	914	---
H	145	190	223	235	300	330	365	570	740	---	---	---	---	---	---

FIG. N. 492PC - PISTON CHECK VALVES 'Y' TYPE ASME CLASS 600

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---
L RF/BW	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397	---
L RTJ	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407	---
D	165	191	210	273	330	356	419	508	559	603	686	743	813	940	---
H	185	210	230	290	370	425	470	---	---	---	---	---	---	---	---

FIG. N. 493PC - PISTON CHECK V. 'Y' TYPE ASME CL.900

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"
L RF/BW	368	381	457	610	737	838	965	1029	1130
L RTJ	371	384	460	613	740	842	968	1038	1140
D	216	241	292	381	470	546	610	641	705
H	---	---	---	---	---	---	---	---	---

FIG. N. 494PC - PISTON CHECK V. 'Y' TYPE ASME CL.1500

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"
L RF/BW	368	470	546	705	832	991	1130	1257	1384
L RTJ	371	473	549	711	842	1000	1146	1276	1407
D	216	267	311	394	483	584	673	749	826
H	---	---	---	---	---	---	---	---	---

FIG. N. 495PC - PISTON CHECK V. 'Y' TYPE ASME CL.2500

SIZE	2"	3"	4"	6"	8"	10"	12"	---	---
L RF/BW	451	578	673	914	1022	1270	1422	---	---
L RTJ	454	584	683	927	1038	1292	1445	---	---
D	235	305	356	483	552	673	762	---	---
H	---	---	---	---	---	---	---	---	---

features on request

- DISC WITH PTFE OR RUBBER
- INTEGRAL SEAT
- DRAIN PLUG
- BY PASS
- BW ENDS
- RTJ FLANGES
- DIN CONNECTIONS

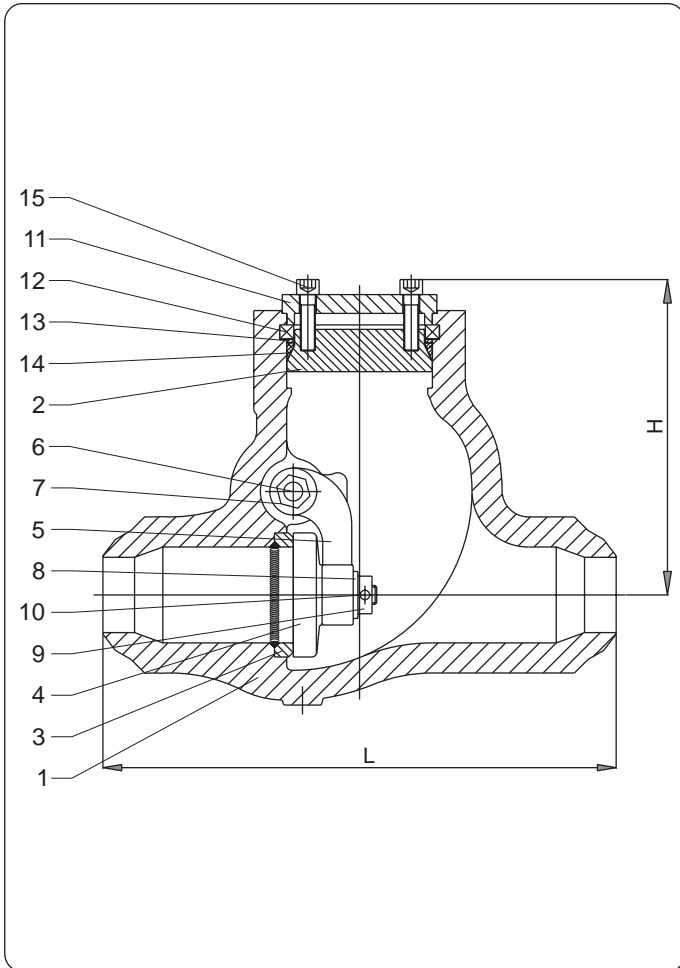
All dimensions in mm (except where differently indicated)

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Phone: +39016322991 - Fax: +39016321537 - www.valvosider.com - e-mail: valvo@valvosider.com

standard features

- **Description** PRESSURE SEAL BONNET
FULL BORE
LAPPED DISC AND SEAT
WELDED IN SEATS
- **Design** BS 1868
API 6D
- **Face to face** ASME B16.10
- **Flanges** ASME B16.5
BW ENDS TO ASME B16.25
- **Testing** API 598
API 6D
BS 6755
- **Rating** ASME B16.34
- **Marking** MSS-SP 25
CE - PED
- **Certificates** EN 10204 – 3.1 B



PART NAME	WP7x	IP7x	MP7x	WCP7x	FP7x
1 Body	WCB	WC1	WC6	WC9	CF8M
2 Cover	WCB	WC1	WC6	WC9	CF8M
3 Seat (integral)		← Stellite® (1) →			
4 Disc - seat	A105 + HF (2)	F6A + HF (2)	F6A + HF (2)	F6A + HF (2)	F316 + HF (2)
5 Hinge	WCB	WC1	WC6	WC9	CF8M
6 Hinge pin	F6A	F6A	F6A	F6A	F316
7 Plug (externally)	A105	F316	F316	F316	F316
8 Washer	A105	F316	F316	F316	F316
9 Nut	2H	G4	G4	G4	G8
10 Pin	F316	F316	F316	F316	F316
11 Retaining ring	A105	F6A	F6A	F6A	F316
12 Segmental retaining ring	F6A	F6A	F6A	F6A	F316
13 Spacer ring	F6A	F6A	F6A	F6A	F316
14 Gasket		← S.S. reinforced graphite (3) →			
15 Bolt	B7	B16	B16	B16	B8

(1) On request: faced with Stellite® - MoneI® - Hastelloy® - other materials

(2) On request: faced with Stellite® - MoneI® - Hastelloy® - other materials

(3) On request: Soft iron - Stainless steel

All data, subject to technical changes, are only for information and not for official use.

SWING CHECK VALVES - PRESSURE SEAL ASME 600 - 900 - 1500 - 2500

VALVOSIDER
MANUFACTURER OF VALVES

FIG. N. P72 - SWING CHECK VALVES PRESSURE SEAL ASME CLASS 600

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---	---	---
L RF/BW	292	356	432	559	660	787	838	889	991	1092	1194	1397	---	---	---
L RTJ	295	359	435	562	663	790	841	892	994	1095	1200	1407	---	---	---
H	180	215	275	350	390	450	500	555	630	710	800	1000	---	---	---

FIG. N. P73 - SWING CHECK VALVES PRESSURE SEAL ASME CLASS 900

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---	---	---
L RF/BW	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	---	---	---
L RTJ	371	384	460	613	740	842	968	1038	1140	1232	1334	1568	---	---	---
H	245	250	310	390	510	580	620	680	740	800	850	1100	---	---	---

FIG. N. P74 - SWING CHECK VALVES PRESSURE SEAL ASME CLASS 1500

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---	---	---
L RF/BW	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	---	---	---
L RTJ	371	473	549	711	842	1000	1146	1276	1407	1559	1686	1972	---	---	---
H	245	290	350	420	630	690	750	800	980	1100	1300	1550	---	---	---

FIG. N. P75 - SWING CHECK VALVES PRESSURE SEAL ASME CLASS 2500

SIZE	2"	3"	4"	6"	8"	10"	12"	---	---	---	---	---	---	---	---
L RF/BW	451	578	673	914	1022	1270	1422	---	---	---	---	---	---	---	---
L RTJ	454	584	683	927	1038	1292	1445	---	---	---	---	---	---	---	---
H	245	300	380	430	650	720	780	---	---	---	---	---	---	---	---

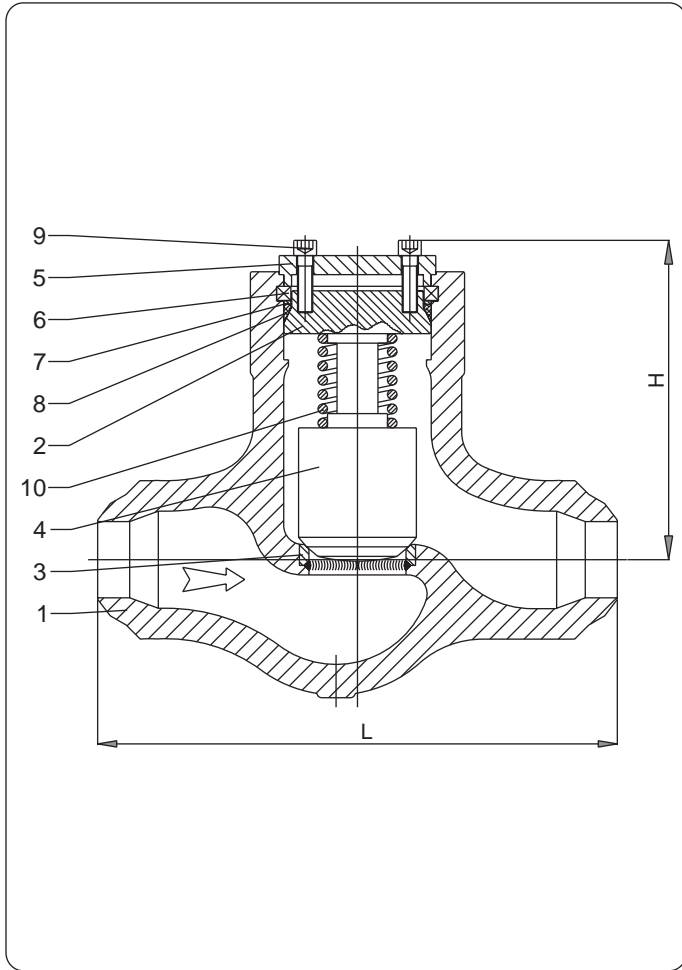
features on request

- | | |
|--|---------------------------------------|
| <input type="radio"/> DISC WITH PTFE OR RUBBER | <input type="radio"/> DRAIN PLUG |
| <input type="radio"/> LEVER AND WEIGHT | <input type="radio"/> BY PASS |
| <input type="radio"/> SHOCK ABSORBER | <input type="radio"/> FLANGED ENDS |
| <input type="radio"/> LOCKING DEVICE | <input type="radio"/> RTJ FLANGES |
| <input type="radio"/> INTEGRAL SEAT | <input type="radio"/> DIN CONNECTIONS |

All dimensions in mm (except where differently indicated)

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Phone: +39016322991 - Fax: +39016321537 - www.valvosider.com - e-mail: valvo@valvosider.com



standard features

- **Description** PRESSURE SEAL BONNET
LAPPED DISC AND SEAT
INTEGRAL SEAT
- **Design** BS 1873
API 6D
- **Face to face** ASME B16.10
- **Flanges** ASME B16.5
BW ENDS TO ASME B16.25
- **Testing** API 598
API 6D
BS 6755
- **Rating** ASME B16.34
- **Marking** MSS-SP 25
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	WP6xPC	IP6xPC	MP6xPC	WCP6xPC	FP6xPC
1 Body	WCB	WC1	WC6	WC9	CF8M
2 Cover	WCB	WC1	WC6	WC9	CF8M
3 Seat (integral)		← <i>Stellite® (1)</i> →			
4 Disc - seat	A105 + HF (2)	F6A + HF (2)	F6A + HF (2)	F6A + HF (2)	A182 F316 + HF (2)
5 Retaining ring	A105	F6A	F6A	F6A	F316
6 Segmental retaining ring	F6A	F6A	F6A	F6A	F316
7 Spacer ring	F6A	F6A	F6A	F6A	F316
8 Gasket		← <i>S.S. reinforced graphite (3)</i> →			
9 Bolt	B7	B16	B16	B16	B8
10 Spring		← <i>F316</i> →			

(1) On request: faced with Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: Soft iron - Stainless steel

All data, subject to technical changes, are only for information and not for official use.

**LIFT CHECK VALVES - PRESSURE SEAL
STRAIGHT TYPE - ASME 600 - 900 - 1500 - 2500**

VALVOSIDER
MANUFACTURER OF VALVES

FIG. N. P62PC - LIFT CHECK VALVES PRESSURE SEAL STRAIGHT TYPE - ASME CLASS 600

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	---	---	---	---	---	---
L RF/BW	292	356	432	559	660	787	838	889	991	---	---	---	---	---	---
L RTJ	295	359	435	562	663	790	841	892	994	---	---	---	---	---	---
H	230	280	330	450	520	600	700	800	900	---	---	---	---	---	---

FIG. N. P63PC - LIFT CHECK VALVES PRESSURE SEAL STRAIGHT TYPE - ASME CLASS 900

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	---	---	---	---	---	---
L RF/BW	368	381	457	610	737	838	965	1029	1130	---	---	---	---	---	---
L RTJ	371	384	460	613	740	842	968	1038	1140	---	---	---	---	---	---
H	270	300	390	430	520	600	700	800	900	---	---	---	---	---	---

FIG. N. P64PC - LIFT CHECK VALVES PRESSURE SEAL STRAIGHT TYPE - ASME CLASS 1500

SIZE	2"	3"	4"	6"	8"	10"	12"	---	---	---	---	---	---	---	---
L RF/BW	368	470	546	705	832	991	1130	---	---	---	---	---	---	---	---
L RTJ	371	473	549	711	842	1000	1146	---	---	---	---	---	---	---	---
H	270	310	400	440	530	620	720	---	---	---	---	---	---	---	---

FIG. N. P65PC - LIFT CHECK VALVES PRESSURE SEAL STRAIGHT TYPE - ASME CLASS 2500

SIZE	2"	3"	4"	6"	8"	10"	12"	---	---	---	---	---	---	---	---
L RF/BW	451	578	673	914	1022	1270	1422	---	---	---	---	---	---	---	---
L RTJ	454	584	683	927	1038	1292	1445	---	---	---	---	---	---	---	---
H	270	310	400	440	530	620	720	---	---	---	---	---	---	---	---

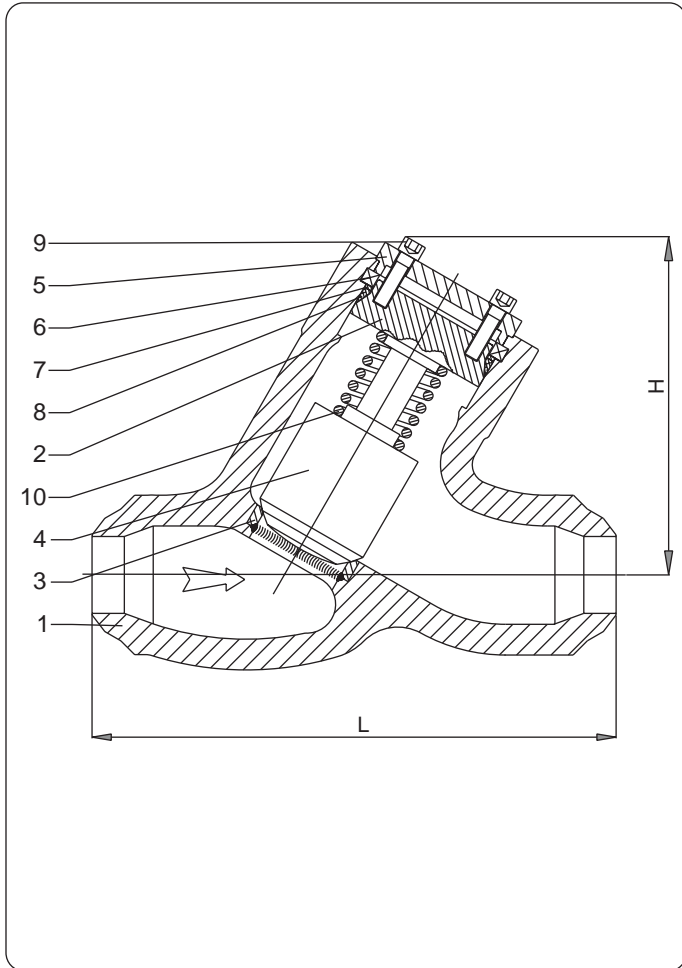
features on request

- | | |
|--|---------------------------------------|
| <input type="radio"/> DISC WITH PTFE OR RUBBER | <input type="radio"/> BY PASS |
| <input type="radio"/> INTEGRAL SEAT | <input type="radio"/> FLANGED ENDS |
| <input type="radio"/> RENEWABLE SEAT | <input type="radio"/> RTJ FLANGES |
| <input type="radio"/> DRAIN PLUG | <input type="radio"/> DIN CONNECTIONS |

All dimensions in mm (except where differently indicated)

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Phone: +39016322991 - Fax: +39016321537 - www.valvosider.com - e-mail: valvo@valvosider.com



standard features

- **Description** PRESSURE SEAL BONNET
LAPPED DISC AND SEAT
INTEGRAL SEAT
- **Design** BS 1873
API 6D
- **Face to face** ASME B16.10
- **Flanges** ASME B16.5
BW ENDS TO ASME B16.25
- **Testing** API 598
API 6D
BS 6755
- **Rating** ASME B16.34
- **Marking** MSS-SP 25
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	WP8xPC	IP8xPC	MP8xPC	WCP8xPC	FP8xPC
1 Body	WCB	WC1	WC6	WC9	CF8M
2 Cover	WCB	WC1	WC6	WC9	CF8M
3 Seat (integral)		← <i>Stellite® (1)</i> →			
4 Disc - seat	A105 + HF (2)	F6A + HF (2)	F6A + HF (2)	F6A + HF (2)	A182 F316 + HF (2)
5 Retaining ring	A105	F6A	F6A	F6A	F316
6 Segmental retaining ring	F6A	F6A	F6A	F6A	F316
7 Spacer ring	F6A	F6A	F6A	F6A	F316
8 Gasket		← <i>S.S. reinforced graphite (3)</i> →			
9 Bolt	B7	B16	B16	B16	B8
10 Spring		← <i>F316</i> →			

(1) On request: faced with Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: Soft iron - Stainless steel

All data, subject to technical changes, are only for information and not for official use.

**LIFT CHECK VALVES - PRESSURE SEAL
'Y' TYPE - ASME 600 - 900 - 1500 - 2500**

VALVOSIDER
MANUFACTURER OF VALVES

FIG. N. P82PC - LIFT CHECK VALVES PRESSURE SEAL - 'Y' TYPE - ASME CLASS 600

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	---	---	---	---	---	---
L RF/BW	292	356	432	559	660	787	838	889	991	---	---	---	---	---	---
L RTJ	295	359	435	562	663	790	841	892	994	---	---	---	---	---	---
H	253	308	363	495	572	660	770	880	990	---	---	---	---	---	---

FIG. N. P83PC - LIFT CHECK VALVES PRESSURE SEAL - 'Y' TYPE - ASME CLASS 900

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	---	---	---	---	---	---
L RF/BW	368	381	457	610	737	838	965	1029	1130	---	---	---	---	---	---
L RTJ	371	384	460	613	740	842	968	1038	1140	---	---	---	---	---	---
H	297	330	429	473	572	660	770	880	990	---	---	---	---	---	---

FIG. N. P84PC - LIFT CHECK VALVES PRESSURE SEAL - 'Y' TYPE - ASME CLASS 1500

SIZE	2"	3"	4"	6"	8"	10"	12"	---	---	---	---	---	---	---	---
L RF/BW	368	470	546	705	832	991	1130	---	---	---	---	---	---	---	---
L RTJ	371	473	549	711	842	1000	1146	---	---	---	---	---	---	---	---
H	297	341	440	484	583	682	792	---	---	---	---	---	---	---	---

FIG. N. P85PC - LIFT CHECK VALVES PRESSURE SEAL - 'Y' TYPE - ASME CLASS 2500

SIZE	2"	3"	4"	6"	8"	10"	12"	---	---	---	---	---	---	---	---
L RF/BW	451	578	673	914	1022	1270	1422	---	---	---	---	---	---	---	---
L RTJ	454	584	683	927	1038	1292	1445	---	---	---	---	---	---	---	---
H	297	341	440	484	583	682	792	---	---	---	---	---	---	---	---

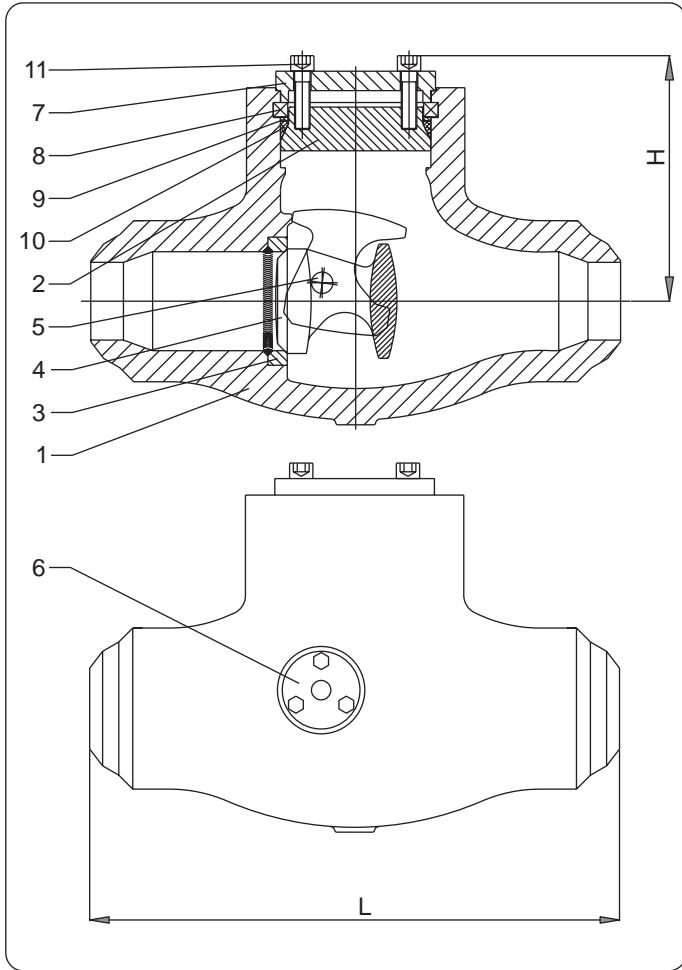
features on request

- | | |
|--|---------------------------------------|
| <input type="radio"/> DISC WITH PTFE OR RUBBER | <input type="radio"/> BY PASS |
| <input type="radio"/> INTEGRAL SEAT | <input type="radio"/> FLANGED ENDS |
| <input type="radio"/> RENEWABLE SEAT | <input type="radio"/> RTJ FLANGES |
| <input type="radio"/> DRAIN PLUG | <input type="radio"/> DIN CONNECTIONS |

All dimensions in mm (except where differently indicated)

All data, subject to technical changes, are only for information and not for official use.

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standard features

- **Description** PRESSURE SEAL BONNET
LAPPED DISC AND SEAT
INTEGRAL SEAT
- **Design** BS 1873
API 6D
- **Face to face** ASME B16.10
- **Flanges** ASME B16.5
BW ENDS TO ASME B16.25
- **Testing** API 598
API 6D
BS 6755
- **Rating** ASME B16.34
- **Marking** MSS-SP 25
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	WP7xT	IP7xT	MP7xT	WCP7xT	FP7xT
1 Body	WCB	WC1	WC6	WC9	CF8M
2 Cover	WCB	WC1	WC6	WC9	CF8M
3 Seat (integral)		← <i>Stellite® (1)</i> →			
4 Disc - seat	A105 + HF (2)	F6A + HF (2)	F6A + HF (2)	F6A + HF (2)	F316 + HF (2)
5 Pin	F6A	F6A	F6A	F6A	F316
6 Plug (externally)	A105	F6A	F6A	F6A	F316
7 Retaining ring	A105	F316	F316	F316	F316
8 Segmental retaining ring	F6A	F6A	F6A	F6A	F316
9 Spacer ring	F6A	F6A	F6A	F6A	F316
10 Gasket		← <i>S.S. reinforced graphite (3)</i> →			
11 Bolt	B7	B16	B16	B16	B8

(1) On request: faced with Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: Soft iron - Stainless steel

All data, subject to technical changes, are only for information and not for official use.

**TILTING DISC CHECK VALVES
PRESSURE SEAL - ASME 600 - 900 - 1500 - 2500**

VALVOSIDER
MANUFACTURER OF VALVES

FIG. N. P72T - TILTING DISC CHECK VALVES PRESSURE SEAL ASME CLASS 600

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---	---	---
L RF	292	356	432	559	660	787	838	889	991	1092	1194	1397	---	---	---
L RTJ	295	359	435	562	663	790	841	892	994	1095	1200	1407	---	---	---
L BW	178	254	305	457	584	711	813	889	991	1092	1194	1397	---	---	---
H	180	215	275	350	390	450	500	555	630	710	800	1000	---	---	---

FIG. N. P73T - TILTING DISC CHECK VALVES PRESSURE SEAL ASME CLASS 900

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---	---	---
L RF	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	---	---	---
L RTJ	371	384	460	613	740	842	968	1038	1140	1232	1334	1568	---	---	---
L BW	216	305	356	508	660	787	914	991	1092	1143	1245	1397	---	---	---
H	245	250	310	390	510	580	620	680	740	800	850	1100	---	---	---

FIG. N. P74T - TILTING DISC CHECK VALVES PRESSURE SEAL ASME CLASS 1500

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---	---	---
L RF	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	---	---	---
L RTJ	371	473	549	711	842	1000	1146	1276	1407	1559	1686	1972	---	---	---
L BW	216	305	406	559	711	864	991	1067	1194	1346	1473	1943	---	---	---
H	245	290	350	420	630	690	750	800	980	1100	1300	1550	---	---	---

FIG. N. P75T - TILTING DISC CHECK VALVES PRESSURE SEAL ASME CLASS 2500

SIZE	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	---	---	---
L RF	451	578	673	914	1022	1270	1422	---	---	---	---	---	---	---	---
L RTJ	454	584	683	927	1038	1292	1445	---	---	---	---	---	---	---	---
L BW	279	368	457	610	762	914	1041	---	---	---	---	---	---	---	---
H	245	300	380	430	650	720	780	---	---	---	---	---	---	---	---

features on request

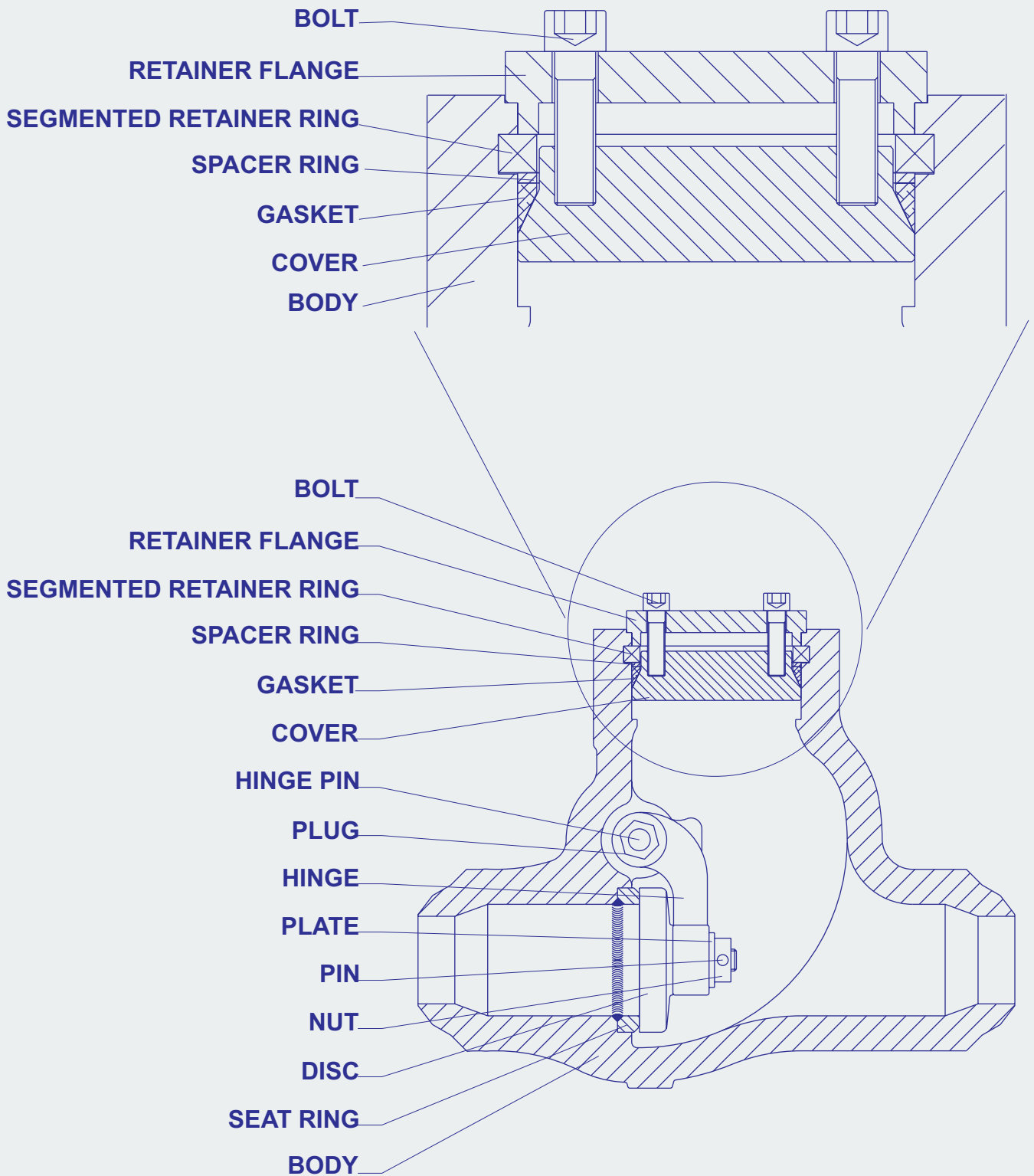
- DISC WITH PTFE OR RUBBER
- LEVER AND WEIGHT
- SHOCK ABSORBER
- LOCKING DEVICE
- INTEGRAL SEAT
- DRAIN PLUG
- BY PASS
- FLANGED ENDS
- RTJ FLANGES
- DIN CONNECTIONS

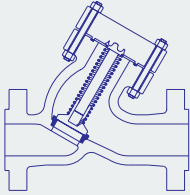
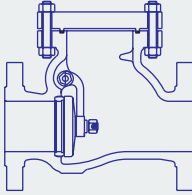
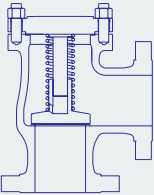
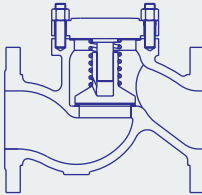
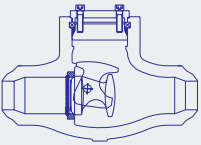
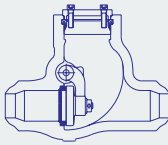
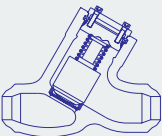
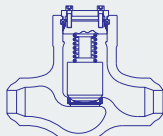
All dimensions in mm (except where differently indicated)

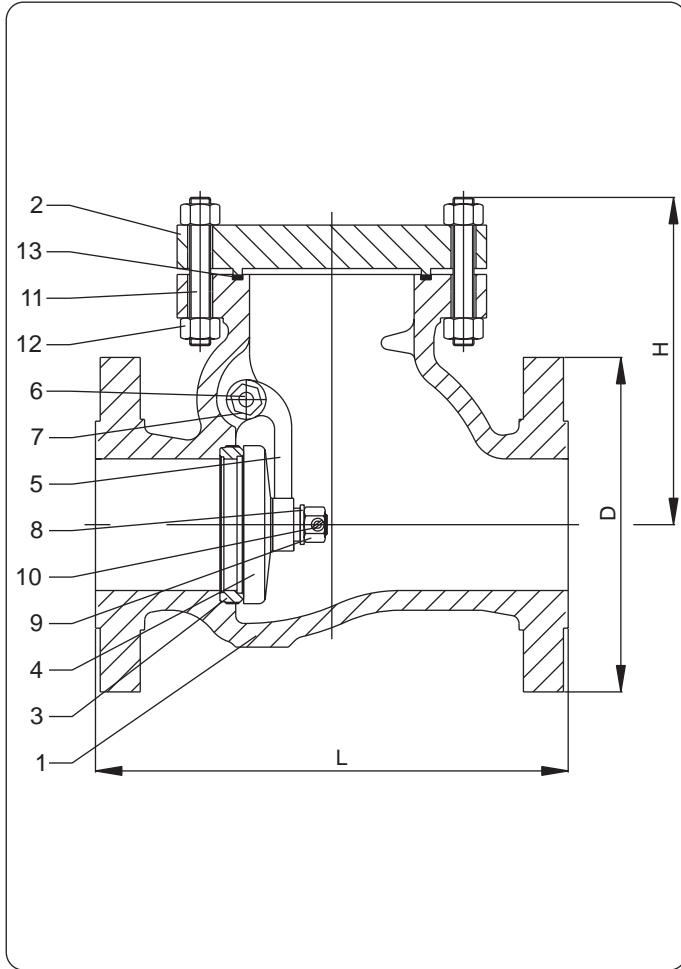
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Phone: +39016322991 - Fax: +39016321537 - www.valvosider.com - e-mail: valvo@valvosider.com

DESCRIPTION OF A TYPICAL SWING CHECK VALVE - PRESSURE SEAL



TYPE	CLASS	SIZE	FIG. N.	TYPE	CLASS	SIZE	FIG. N.
PISTON CHECK VALVES Y TYPE  page 96	PN16	15 - 600	1405	SWING CHECK VALVES  page 92	PN16 - F6	50 - 1000	1311
	PN 25/40	15 - 600	1434		PN16 - F1	50 - 1000	1312
	PN 63	15 - 600	1560YR		PN 25	50 - 1000	1313
	PN 100	15 - 300	1570YR		PN 40	50 - 1000	1314
			PN 63		50 - 600	1315	
			PN 100		50 - 600	1316	
					PN 160	50 - 600	1317
PISTON CHECK VALVES 90° ANGLE  page 98	PN16	15 - 600	1411	PISTON CHECK VALVES  page 94	PN16	15 - 600	1402
	PN 25/40	15 - 600	1441		PN 25/40	15 - 600	1431
	PN 63	15 - 600	1560AR		PN 63	15 - 600	1560R
	PN 100	15 - 300	1570AR		PN 100	15 - 300	1570R
			PN 160		15 - 300	1580R	
TILTING DISC CHECK VALVES PRESSURE SEAL  page 102	PN 100	50 - 600	P172T	SWING CHECK VALVES PRESSURE SEAL  page 100	PN 100	50 - 600	P172
	PN 160	50 - 600	P173T		PN 160	50 - 600	P173
	PN 250	50 - 400	P174T		PN 250	50 - 400	P174
	PN 320	50 - 400	P175T		PN 320	50 - 400	P175
	PN 420	50 - 400	P176T		PN 420	50 - 400	P176
LIFT CHECK VALVES PRESSURE SEAL Y TYPE  page 106	PN 100	50 - 600	P182PC	LIFT CHECK VALVES PRESSURE SEAL STRAIGHT  page 104	PN 100	50 - 600	P162PC
	PN 160	50 - 600	P183PC		PN 160	50 - 600	P163PC
	PN 250	50 - 400	P184PC		PN 250	50 - 400	P164PC
	PN 320	50 - 400	P185PC		PN 320	50 - 400	P165PC
	PN 420	50 - 400	P186PC		PN 420	50 - 400	P166PC



standard features

- **Description** FULL OPENING
BOLTED COVER
LAPPED DISC AND SEAT
RENEWABLE SEAT
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED

PART NAME	A13xx	C13xx	FH13xx	FK13xx
1 Body	1.0619	1.7363	1.4552	1.4581
2 Cover	1.0619	1.7363	1.4552	1.4581
3 Seat ring surface	X20Cr13 (1)	X20Cr13 (1)	X6CrNiTi18-10 (1)	X5CrNiMo17-12-2 (1)
4 Disc seat surface	X20Cr13 (2)	X20Cr13 (2)	X6CrNiTi18-10 (2)	X5CrNiMo17-12-2 (2)
5 Hinge	1.0619 (3)	X5CrNiMo17-12-2 (3)	X6CrNiTi18-10 (3)	GX5CrNiMoNb19-11-2 (3)
6 Inge pin	X20Cr13	X20Cr13	X6CrNiTi18-10	X5CrNiMo17-12-2
7 Plug	1.0460	X5CrNiMo17-12-2	X5CrNiMo17-12-2	X5CrNiMo17-12-2
8 Plate	1.0460	X5CrNiMo17-12-2	X5CrNiMo17-12-2	X5CrNiMo17-12-2
9 Nut	C35	24CrMo5	A2-70	A2-70
10 Pin	X5CrNiMo17-12-2	X5CrNiMo17-12-2	X5CrNiMo17-12-2	X5CrNiMo17-12-2
11 Bolts	CK35	21CrMoV57	A2-70	A2-70
12 Nut	C35	24CrMo5	A2-70	A2-70
13 Gasket	← S.S. spiral wound reinforced graphite (4) →			

(1) On request: faced with Stellite® - MoneI® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - MoneI® - Hastelloy® - other materials
 (3) On request: 17 Cr - Monel® - Hastelloy® - other materials

(4) On request: PTFE - other materials

All data, subject to technical changes, are only for information and not for official use.

SWING CHECK VALVES

DIN PN 16 - 25 - 40 - 63 - 100 - 160

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MANUFACTURER OF VALVES

FIG. 1311 - SWING CHECK VALVES DIN PN 16 - F6

SIZE DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
L RF/BW	200	240	260	300	350	400	500	600	700	800	900	1100	1300	1500	1700	1900	2100
D	165	185	200	220	250	285	340	405	460	520	580	715	840	910	1025	1125	1255
H	150	180	200	225	270	300	355	390	445	495	530	620	730	--	--	--	--

FIG. 1312 - SWING CHECK VALVES DIN PN 16 - F1

SIZE DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
L RF/BW	230	290	310	350	400	480	600	730	850	980	1100	1250	1450	1650	1850	2050	2250
D	165	185	200	220	250	285	340	405	460	520	580	715	840	910	1025	1125	1255
H	150	180	200	225	270	300	355	390	445	495	530	620	730	--	--	--	--

FIG. 1313 - SWING CHECK VALVES DIN PN 25 - F1

SIZE DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
L RF/BW	230	290	310	350	400	480	600	730	850	980	1100	1250	1450	1650	1850	2050	2250
D	165	185	200	235	270	300	360	425	485	555	620	730	845	960	1085	1185	1320
H	165	180	200	235	270	300	360	425	485	495	530	740	--	--	--	--	--

FIG. 1314 - SWING CHECK VALVES DIN PN 40 - F1

SIZE DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
L RF/BW	230	290	310	350	400	480	600	730	850	980	1100	1250	1450	1650	1850	2050	2250
D	165	185	200	235	270	300	375	450	515	580	660	775	890	995	1140	1250	1360
H	150	180	200	225	270	300	355	390	445	495	530	740	--	--	--	--	--

FIG. 1315 - SWING CHECK VALVES DIN PN 63 - F2

SIZE DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
L RF/BW	300	340	380	430	500	550	650	775	900	1025	1150	1400	1600	--	--	--	--
D	180	205	215	250	295	345	415	470	530	600	670	800	930	--	--	--	--
H	195	210	230	290	305	370	410	470	520	--	--	--	--	--	--	--	--

FIG. 1316 - SWING CHECK VALVES DIN PN 100 - F2

SIZE DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
L RF/BW	300	340	380	430	500	550	650	775	900	1025	1150	1400	1600	--	--	--	--
D	195	220	230	265	315	355	430	505	585	655	715	870	990	--	--	--	--
H	195	210	230	290	305	370	410	470	520	--	--	--	--	--	--	--	--

FIG. 1317 - SWING CHECK VALVES DIN PN 160 - F8

SIZE DN	50	65	80	100	125	150	200	250	300	350	400	500	600	700	800	900	1000
L RF/BW	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--	--	--	--	--
D	195	220	230	265	315	355	430	515	585	--	--	--	--	--	--	--	--
H	195	210	230	290	305	370	410	--	--	--	--	--	--	--	--	--	--

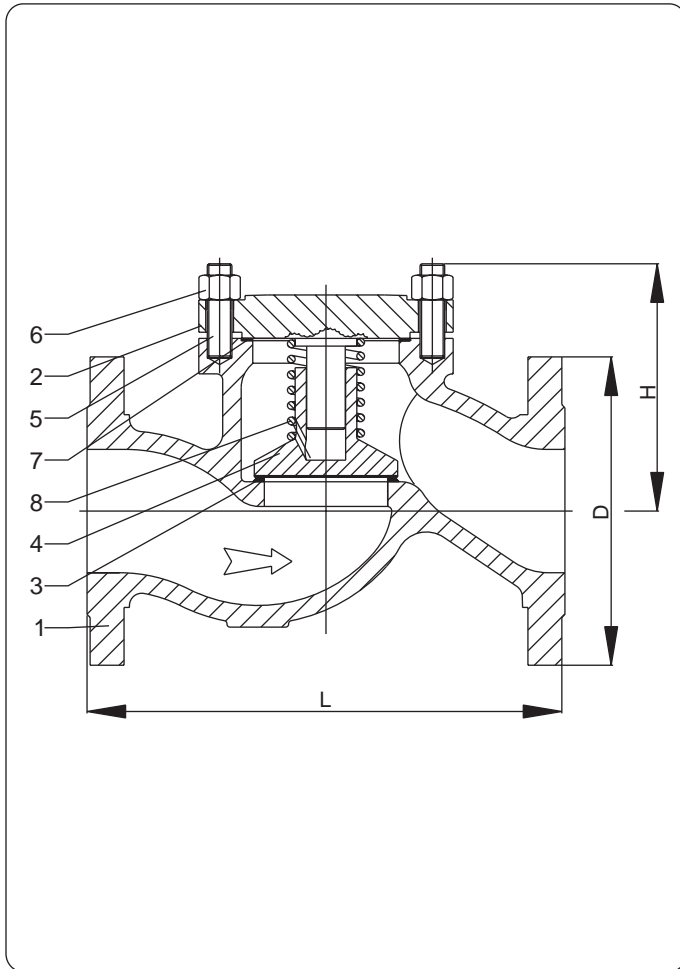
features on request

- | | |
|---|---|
| <ul style="list-style-type: none"> <input type="radio"/> DISK WITH PTFE OR RUBBER <input type="radio"/> LEVER AND WEIGHT <input type="radio"/> SHOCK ABSORBER <input type="radio"/> LOCKING DEVICE <input type="radio"/> INTEGRAL SEAT | <ul style="list-style-type: none"> <input type="radio"/> BY-PASS <input type="radio"/> DRAIN PLUG <input type="radio"/> BW ENDS <input type="radio"/> RTJ FLANGES <input type="radio"/> ANSI CONNECTIONS |
|---|---|

All dimensions in mm (except where differently indicated)

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Phone: +39016322991 - Fax: +39016321537 - www.valvosider.com - e-mail: valvo@valvosider.com



standard features

- **Description** BOLTED COVER
RETURN SPRING
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	G1402 - (CAST IRON)	A1431 A1560R A1570R A1580R	FK1431 FK1560R FK1570R FK1580R
1 Body	EN-GJL-250	1.0619 (A)	1.4581
2 Cover	EN-GJL-250	1.0619 (B)	1.4581
3 Seat ring surface	N/A	X20Cr13 (1)	X5CrNiMo17-12-2 (1)
4 Disc seat surface	X20Cr13 (2)	X20Cr13 (2)	X5CrNiMo17-12-2 (2)
5 Spring	X5CrNiMo17-12-2	X5CrNiMo17-12-2	X5CrNiMo17-12-2
6 Bolts	CK35	CK35	A2-70
7 Nuts	C35	C35	A2-70
8 Gasket	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)

(1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: PTFE - other materials

(A) For PN ≤ 40 and DN ≤ 50 = 1.0460
 For PN ≥ 63 and DN ≤ 25 = 1.0460
 (B) For PN ≤ 40 and DN ≤ 80 = 1.0460
 For PN ≥ 63 and DN ≤ 40 = 1.0460

All data, subject to technical changes, are only for information and not for official use.

PISTON CHECK VALVES

DIN PN 16 - 25 - 40 - 63 - 100 - 160

VALVOSIDER
MANUFACTURER OF VALVES

FIG. 1402 - PISTON CHECK VALVES DIN PN 16 - CAST IRON - F1

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850	980	1100	1200	1250	1450
D	95	105	115	140	150	165	185	200	220	250	285	315	340	405	460	520	580	640	715	840
H	70	80	85	100	110	115	130	145	165	185	205	235	250	300	360	410	460	520	570	--

FIG.1431 - PISTON CHECK VALVES DIN PN 25 / 40 - F1

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850	980	1100	1200	1250	1450
D - PN25	95	105	115	140	150	165	185	200	235	270	300	330	360	425	485	555	620	670	730	845
D - PN40	95	105	115	140	150	165	185	200	235	270	300	350	375	450	515	580	660	685	755	890
H	65	75	85	100	110	125	145	160	190	220	250	295	320	385	450	510	585	610	670	--

FIG. 1560R - PISTON CHECK VALVES DIN PN 63 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	500	600	--
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	1025	1150	1400	1600	--
D	105	130	140	155	170	180	205	215	250	295	345	375	415	470	530	600	670	800	930	--
H	105	120	120	135	150	160	180	200	230	280	310	340	390	430	500	--	--	--	--	--

FIG. 1570R - PISTON CHECK VALVES DIN PN 100 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	--	--	--	--	--
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	--	--	--	--	--
D	105	130	140	155	170	195	220	230	265	315	355	385	430	505	585	--	--	--	--	--
H	105	120	120	135	150	170	200	220	250	300	350	380	410	480	570	--	--	--	--	--

FIG. 1580R - PISTON CHECK VALVES DIN PN 160 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	--	--	--	--	--
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	--	--	--	--	--
D	105	130	140	155	170	195	220	230	265	315	355	390	430	515	585	--	--	--	--	--
H	110	125	125	140	155	180	220	240	270	320	370	400	430	500	600	--	--	--	--	--

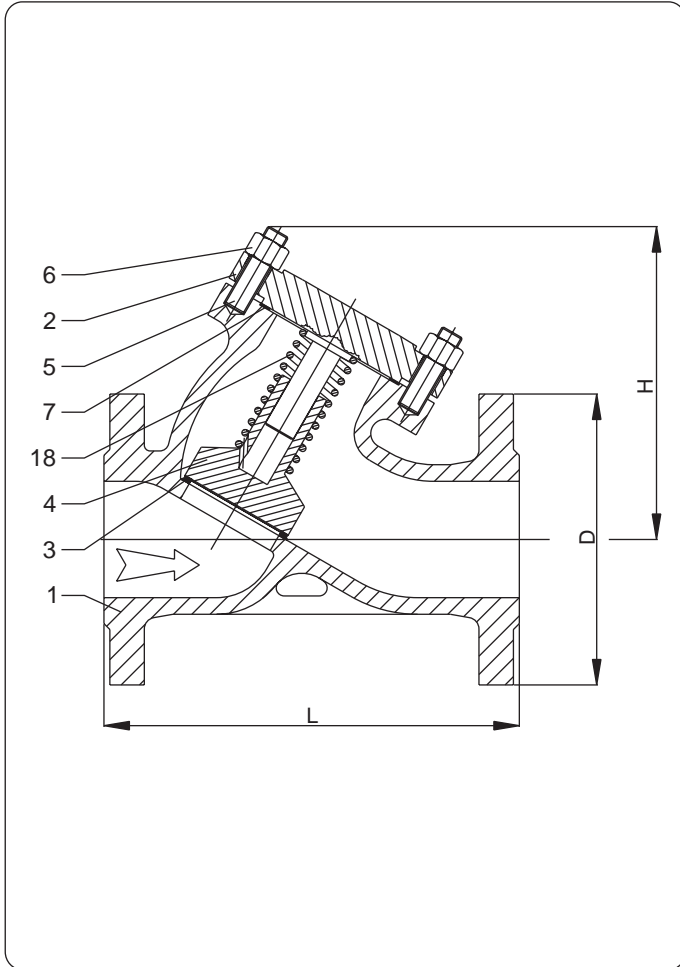
features on request

- | | |
|--|--|
| <input type="radio"/> DISC WITH PTFE OR RUBBER | <input type="radio"/> BW ENDS |
| <input type="radio"/> INTEGRAL SEAT | <input type="radio"/> RTJ FLANGES |
| <input type="radio"/> BY-PASS | <input type="radio"/> ANSI CONNECTIONS |
| <input type="radio"/> DRAIN PLUG | |

All dimensions in mm (except where differently indicated)

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standard features

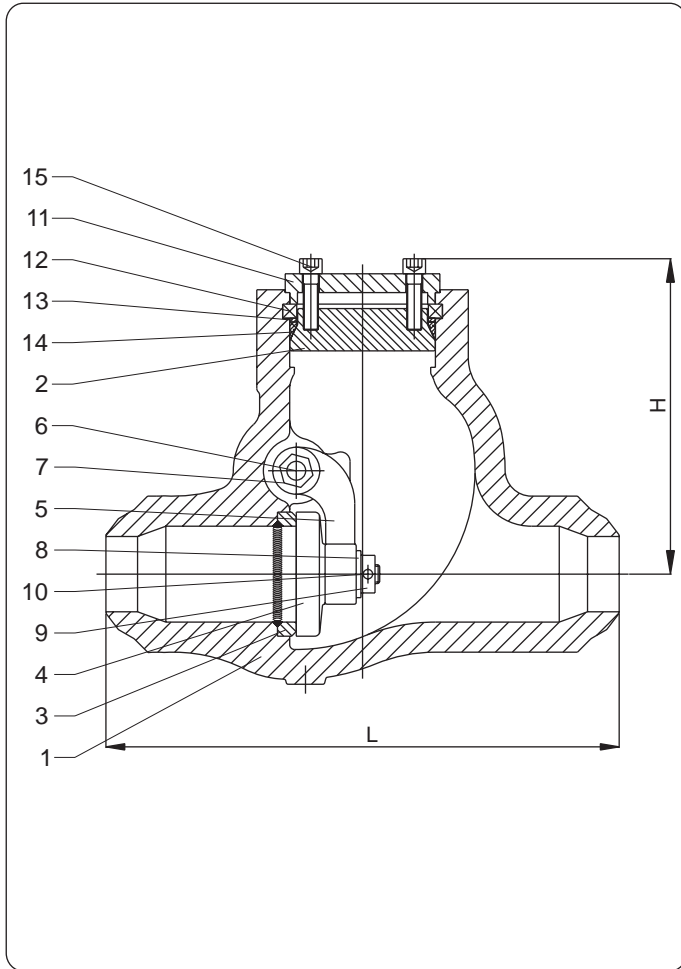
- **Description** BOLTED COVER
RETURN SPRING
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	G1405 - (CAST IRON)	A1434 A1560YR A1570YR	FK1434 FK1560YR FK1570YR
1 Body	EN-GJL-250	1.0619 (A)	1.4581
2 Cover	EN-GJL-250	1.0619 (B)	1.4581
3 Seat ring surface	N/A	X20Cr13 (1)	X5CrNiMo17-12-2 (1)
4 Disc seat surface	X20Cr13 (2)	X20Cr13 (2)	X5CrNiMo17-12-2 (2)
5 Spring	X5CrNiMo17-12-2	X5CrNiMo17-12-2	X5CrNiMo17-12-2
6 Bolts	CK35	CK35	A2-70
7 Nuts	C35	C35	A2-70
8 Gasket	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)

(1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: PTFE - other materials

(A) For PN ≤ 40 and DN ≤ 50 = 1.0460
 For PN ≥ 63 and DN ≤ 25 = 1.0460
 (B) For PN ≤ 40 and DN ≤ 80 = 1.0460
 For PN ≥ 63 and DN ≤ 40 = 1.0460

All data, subject to technical changes, are only for information and not for official use.



standard features

- **Description** PRESSURE SEAL COVER
FULL OPENING
LAPPED DISC AND SEAT
WELDED IN SEATS
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	AP17x	FKP17x
1 Body	1.0619	1.4581
2 Cover	1.0619	1.4581
3 Ring - seat surface	1.0460 + HF (1)	X2CrNiMo17-12-2 + HF (1)
4 Disc - seat surfaces	1.0619 + HF (2)	1.4581 + HF (2)
5 Hinge	1.0619	1.4581
6 Hinge pin	X20Cr13	X5CrNiMo17-12-2
7 Plug (externally)	1.0460	X5CrNiMo17-12-2
8 Plate	1.0460	X5CrNiMo17-12-2
9 Nut	C35	A2-70
10 Pin	X5CrNiMo17-12-2	X5CrNiMo17-12-2
11 Retainer flange	1.0460	1.4401
12 Segmented retainer ring	X20Cr13	1.4401
13 Spacer ring	X20Cr13	1.4401
14 Gasket	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)
15 Bolt	CK35	A2-70

- (1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: Soft iron - Stainless steel

All data, subject to technical changes, are only for information and not for official use.

SWING CHECK VALVES - PRESSURE SEAL DIN PN 100 - 160 - 250 - 320 - 420

VALVOSIDER
MANUFACTURER OF VALVES

FIG. P172 - PRESSURE SEAL SWING CHECK VALVES DIN PN 100 - F2

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	300	340	380	430	500	550	650	775	900	1025	1150	1275	1600
L RF	300	340	380	430	500	550	650	775	900	1025	1150	1275	1600
H	180	205	215	275	300	350	390	450	500	555	630	800	1000

FIG. P173 - PRESSURE SEAL SWING CHECK VALVES DIN PN 160 - F8

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--
L RF	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--
H	245	260	250	310	340	390	510	580	620	680	740	850	--

FIG. P174 - PRESSURE SEAL SWING CHECK VALVES DIN PN 250 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	245	270	290	350	380	420	630	690	750	800	980	--	--

FIG. P175 - PRESSURE SEAL SWING CHECK VALVES DIN PN 320 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	245	280	300	380	405	430	650	720	780	--	--	--	--

FIG. P176 - PRESSURE SEAL SWING CHECK VALVES DIN PN 420 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	245	280	300	380	405	430	650	720	780	--	--	--	--

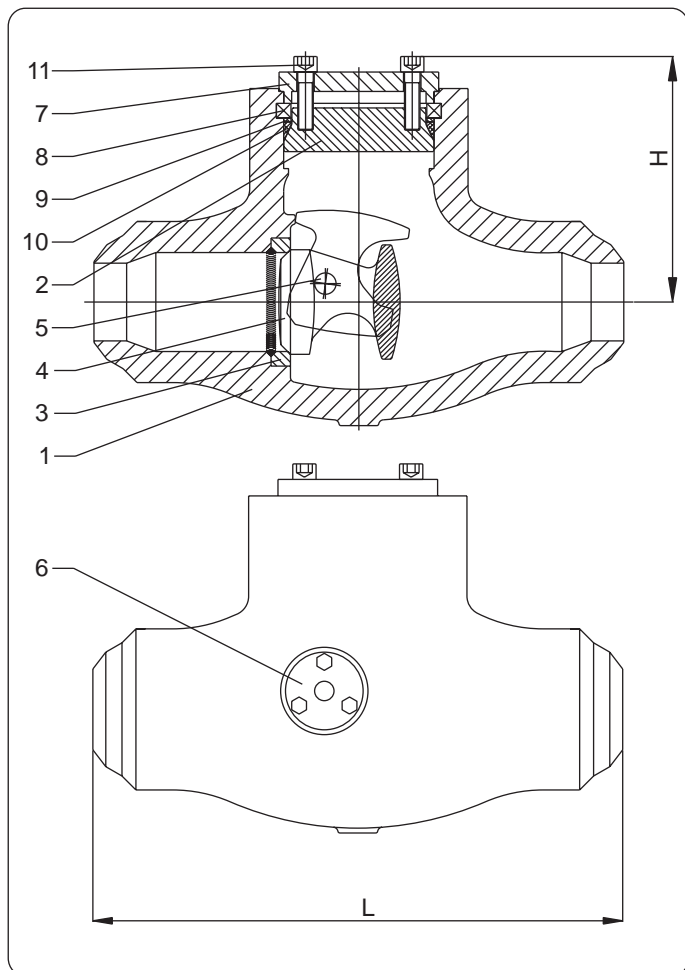
features on request

- DISC WITH PTFE OR RUBBER
- INTEGRAL SEAT
- BY-PASS
- DRAIN PLUG
- FLANGED ENDS
- RTJ FLANGES
- ANSI CONNECTIONS

All dimensions in mm (except where differently indicated)

All data, subject to technical changes, are only for information and not for official use.

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Phone: +39016322991 - Fax: +39016321537 - www.valvosider.com - e-mail: valvo@valvosider.com



standard features

- **Description** PRESSURE SEAL COVER LAPPED DISC AND SEAT WELDED IN SEATS
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	AP17xT	FKP 17xT
1 Body	1.0619	1.4581
2 Cover	1.0619	1.4581
3 Ring - seat surface	1.0460 + HF (1)	X2CrNiMo17-12-2 + HF (1)
4 Disc - seat surfaces	1.0619 + HF (2)	1.4581 + HF (2)
5 Pin	X5CrNiMo17-12-2	X5CrNiMo17-12-2
6 Plug (externally)	1.0460	X5CrNiMo17-12-2
7 Retainer flange	1.0460	1.4401
8 Segmented retainer ring	X20Cr13	1.4401
9 Spacer ring	X20Cr13	1.4401
10 Gasket	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)
11 Bolt	CK35	A2-70

- (1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: Soft iron - Stainless steel

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TILTING DISC CHECK VALVES

PRESSURE SEAL DIN PN 100 - 160 - 250 - 320 - 420

VALVOSIDER
MANUFACTURER OF VALVES

FIG. P172T - PRESSURE SEAL TILTING DISC CHECK VALVES DIN PN 100 - F2

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	300	340	380	430	500	550	650	775	900	1025	1150	1275	1600
L RF	300	340	380	430	500	550	650	775	900	1025	1150	1275	1600
H	180	205	215	275	300	350	390	450	500	555	630	800	1000

FIG. P173T - PRESSURE SEAL TILTING DISC CHECK VALVES DIN PN 160 - F8

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--
L RF	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--
H	245	260	250	310	340	390	510	580	620	680	740	850	--

FIG. P174T - PRESSURE SEAL TILTING DISC CHECK VALVES DIN PN 250 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	245	270	290	350	380	420	630	690	750	800	980	--	--

FIG. P175T - PRESSURE SEAL TILTING DISC CHECK VALVES DIN PN 320 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	245	280	300	380	405	430	650	720	780	840	1010	--	--

FIG. P176T - PRESSURE SEAL TILTING DISC CHECK VALVES DIN PN 420 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	245	280	300	380	405	430	650	720	780	840	1010	--	--

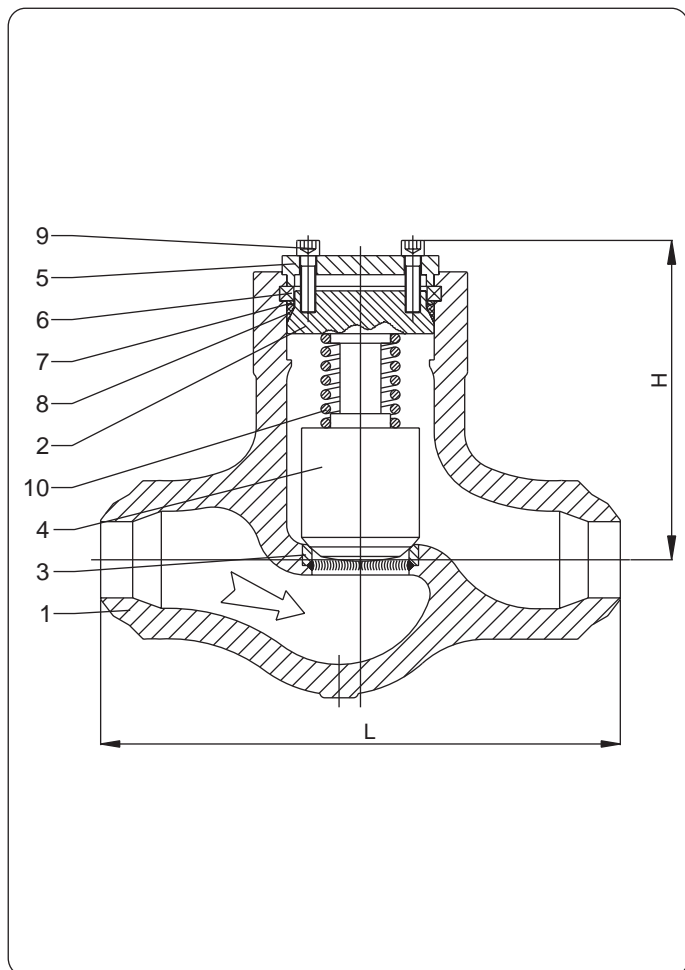
features on request

- | | |
|--|--|
| <input type="radio"/> DISC WITH PTFE OR RUBBER | <input type="radio"/> FLANGED ENDS |
| <input type="radio"/> INTEGRAL SEAT | <input type="radio"/> RTJ FLANGES |
| <input type="radio"/> BY-PASS | <input type="radio"/> ANSI CONNECTIONS |
| <input type="radio"/> DRAIN PLUG | |

All dimensions in mm (except where differently indicated)

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Phone: +39016322991 - Fax: +39016321537 - www.valvosider.com - e-mail: valvo@valvosider.com



standard features

- **Description** PRESSURE SEAL COVER
LAPPED DISC AND SEAT
WELDED IN SEATS
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	AP16xPC	FKP16xPC
1 Body	1.0619	1.4581
2 Cover	1.0619	1.4581
3 Ring - seat surface	1.0460 + HF (1)	X2CrNiMo17-12-2 + HF (1)
4 Disc - seat surfaces	1.0619 + HF (2)	1.4581 + HF (2)
5 Retainer flange	1.0460	1.4401
6 Segmented retainer ring	X20Cr13	1.4401
7 Spacer ring	X20Cr13	1.4401
8 Gasket	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)
9 Bolt	CK35	A2-70
10 Spring	X5CrNiMo17-12-2	X5CrNiMo17-12-2

- (1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: Soft iron - Stainless steel

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**LIFT CHECK VALVES - PRESSURE SEAL
STRAIGHT TYPE - DIN PN 100 - 160 - 250 - 320 - 420**

VALVOSIDER
MANUFACTURER OF VALVES

FIG. P162PC - PRESSURE SEAL LIFT CHECK VALVES DIN PN 100 - F2

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	300	340	380	430	500	550	650	775	900	1025	1150	1275	1600
L RF	300	340	380	430	500	550	650	775	900	1025	1150	1275	1600
H	230	260	280	330	360	450	520	600	700	--	--	--	--

FIG. P163PC - PRESSURE SEAL LIFT CHECK VALVES DIN PN 160 - F8

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--
L RF	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--
H	270	285	300	390	410	430	520	60	700	--	--	--	--

FIG. P164PC - PRESSURE SEAL LIFT CHECK VALVES DIN PN 250 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	270	290	310	400	420	440	530	620	720	--	--	--	--

FIG. P165PC - PRESSURE SEAL LIFT CHECK VALVES DIN PN 320 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	270	290	310	400	420	440	530	620	720	--	--	--	--

FIG. P166PC - PRESSURE SEAL LIFT CHECK VALVES DIN PN 420 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	270	290	310	400	420	440	530	620	720	--	--	--	--

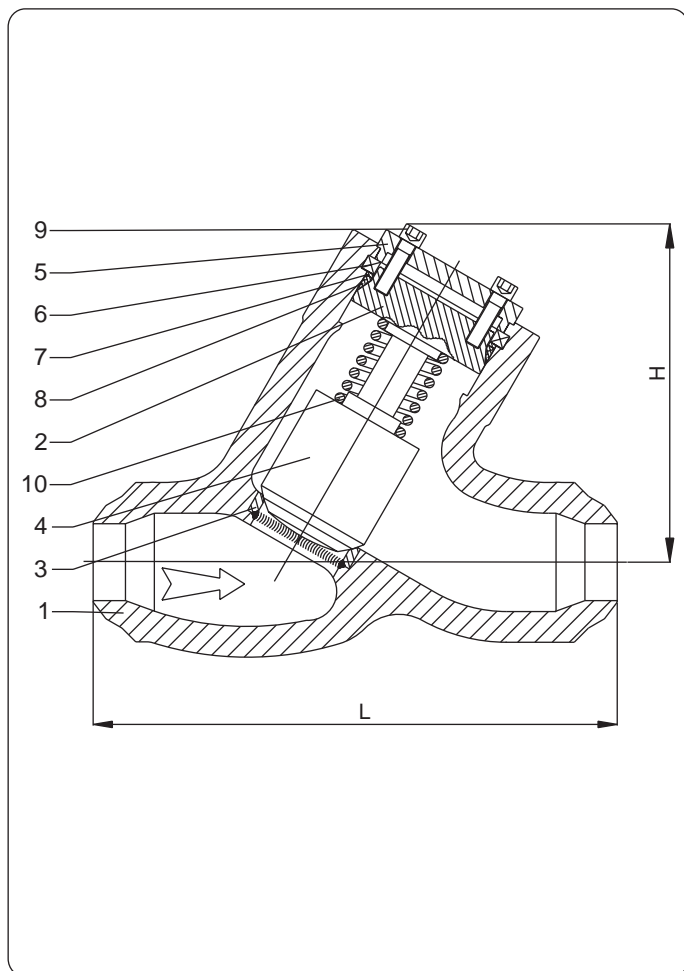
features on request

- | | |
|--|--|
| <input type="radio"/> DISC WITH PTFE OR RUBBER | <input type="radio"/> FLANGED ENDS |
| <input type="radio"/> INTEGRAL SEAT | <input type="radio"/> RTJ FLANGES |
| <input type="radio"/> BY-PASS | <input type="radio"/> ANSI CONNECTIONS |
| <input type="radio"/> DRAIN PLUG | |

All dimensions in mm (except where differently indicated)

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standard features

- **Description** PRESSURE SEAL COVER
LAPPED DISC AND SEAT
WELDED IN SEATS
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	AP18xPC	FKP18xPC
1 Body	1.0619	1.4581
2 Cover	1.0619	1.4581
3 Ring - seat surface	1.0460 + HF (1)	X2CrNiMo17-12-2 + HF (1)
4 Disc - seat surfaces	1.0619 + HF (2)	1.4581 + HF (2)
5 Retainer flange	1.0460	1.4401
6 Segmented retainer ring	X20Cr13	1.4401
7 Spacer ring	X20Cr13	1.4401
8 Gasket	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)
9 Bolt	CK35	A2-70
10 Spring	X5CrNiMo17-12-2	X5CrNiMo17-12-2

- (1) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (2) On request: faced with Stellite® - Monel® - Hastelloy® - other materials
 (3) On request: Soft iron - Stainless steel

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LIFT CHECK VALVES - PRESSURE SEAL
'Y' TYPE - DIN PN 100 - 160 - 250 - 320 - 420

VALVOSIDER
 MANUFACTURER OF VALVES

FIG. P182PC - PRESSURE SEAL LIFT CHECK VALVES - 'Y' TYPE - DIN PN 100 - F2

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	300	340	380	430	500	550	650	775	900	1025	1150	1275	1600
L RF	300	340	380	430	500	550	650	775	900	1025	1150	1275	1600
H	230	260	280	330	360	450	520	600	700	--	--	--	--

FIG. P183PC - PRESSURE SEAL LIFT CHECK VALVES - 'Y' TYPE - DIN PN 160 - F8

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--
L RF	300	360	390	450	525	600	750	900	1050	1200	1350	1650	--
H	270	285	300	390	410	430	520	60	700	--	--	--	--

FIG. P184PC - PRESSURE SEAL LIFT CHECK VALVES - 'Y' TYPE - DIN PN 250 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	270	290	310	400	420	440	530	620	720	--	--	--	--

FIG. P185PC - PRESSURE SEAL LIFT CHECK VALVES - 'Y' TYPE - DIN PN 320 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	270	290	310	400	420	440	530	620	720	--	--	--	--

FIG. P186PC - PRESSURE SEAL LIFT CHECK VALVES - 'Y' TYPE - DIN PN 420 - F9

SIZE	50	65	80	100	125	150	200	250	300	350	400	500	600
L BW	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
L RF	350	425	470	550	650	750	950	1150	1350	1550	1750	--	--
H	270	290	310	400	420	440	530	620	720	--	--	--	--

features on request

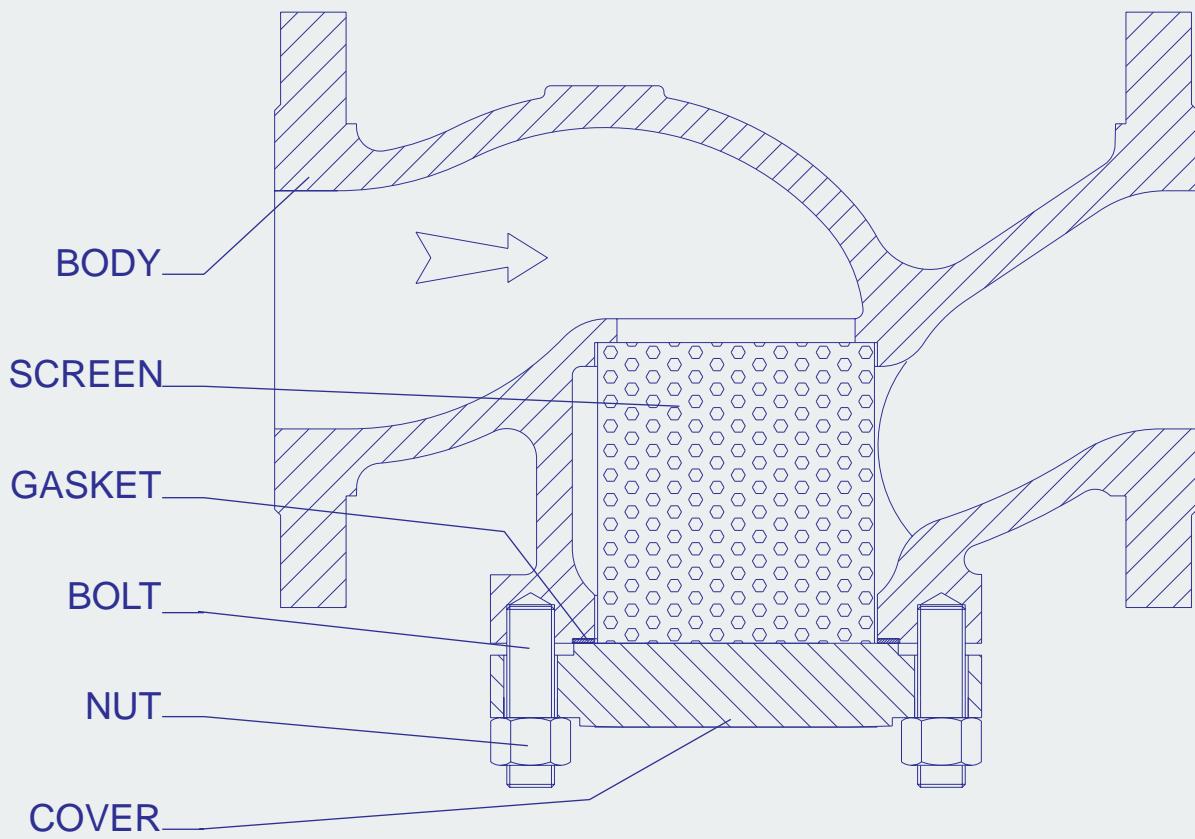
- DISC WITH PTFE OR RUBBER
- INTEGRAL SEAT
- BY-PASS
- DRAIN PLUG
- FLANGED ENDS
- RTJ FLANGES
- ANSI CONNECTIONS

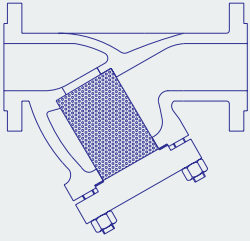
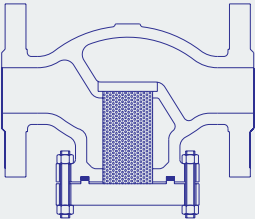
All dimensions in mm (except where differently indicated)

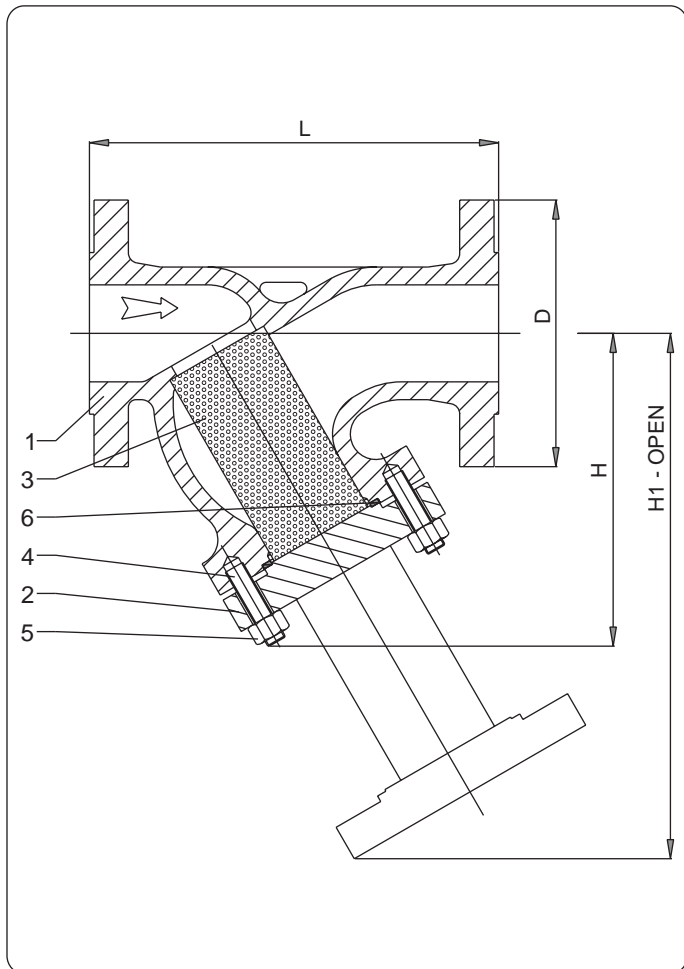
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DESCRIPTION OF A TYPICAL STRAINER BASKET TYPE



	TYPE	CLASS	SIZES	FIG. N.
 <p data-bbox="443 398 662 526">STRAINERS 'Y' TYPE</p> <p data-bbox="635 678 762 712">page 110</p>	<p data-bbox="901 405 981 439">PN16</p> <p data-bbox="874 461 1008 495">PN 25/40</p> <p data-bbox="901 517 981 551">PN 63</p> <p data-bbox="890 573 992 607">PN 100</p> <p data-bbox="890 629 992 663">PN 160</p>	<p data-bbox="1161 405 1295 439">15 - 600</p> <p data-bbox="1161 461 1295 495">15 - 600</p> <p data-bbox="1161 517 1295 551">15 - 600</p> <p data-bbox="1161 573 1295 607">15 - 300</p> <p data-bbox="1161 629 1295 663">15 - 300</p>	<p data-bbox="1439 405 1513 439">1404</p> <p data-bbox="1439 461 1513 495">1433</p> <p data-bbox="1417 517 1535 551">1560YS</p> <p data-bbox="1417 573 1535 607">1570YS</p> <p data-bbox="1417 629 1535 663">1580YS</p>	
 <p data-bbox="427 779 678 907">STRAINERS BASKET TYPE</p> <p data-bbox="635 1059 762 1093">page 112</p>	<p data-bbox="901 786 981 819">PN16</p> <p data-bbox="874 842 1008 875">PN 25/40</p> <p data-bbox="901 898 981 931">PN 63</p> <p data-bbox="890 954 992 987">PN 100</p> <p data-bbox="890 1010 992 1043">PN 160</p>	<p data-bbox="1161 786 1295 819">15 - 600</p> <p data-bbox="1161 842 1295 875">15 - 600</p> <p data-bbox="1161 898 1295 931">15 - 600</p> <p data-bbox="1161 954 1295 987">15 - 300</p> <p data-bbox="1161 1010 1295 1043">15 - 300</p>	<p data-bbox="1417 786 1535 819">1401BS</p> <p data-bbox="1417 842 1535 875">1430BS</p> <p data-bbox="1417 898 1535 931">1560BS</p> <p data-bbox="1417 954 1535 987">1570BS</p> <p data-bbox="1417 1010 1535 1043">1580BS</p>	



standard features

- **Description** BOLTED COVER
REPLACEABLE SCREEN
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	G1404 - (CAST IRON)	A1433 A1560YS A1570YS A1580YS	FK1433 FK1560YS FK1570YS FK1580YS
1 Body	EN-GJL-250	1.0619 (A)	1.4581
2 Cover	EN-GJL-250	1.0619 (B)	1.4581
3 Screen	X5CrNi18-10 (1)	X5CrNi18-10 (1)	X2CrNiMo17-12-2 (1)
4 Bolts	CK35	CK35	A2-70
5 Nuts	C35	C35	A2-70
6 Gasket	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)

(1) On request: other materials

(2) On request: PTFE - other materials

(A) For PN ≤ 40 and DN ≤ 25 = 1.0460

For PN ≥ 63 and DN ≤ 25 = 1.0460

(B) For PN ≤ 40 and DN ≤ 80 = 1.0460

For PN ≥ 63 and DN ≤ 40 = 1.0460

All data, subject to technical changes, are only for information and not for official use.

STRAINERS - 'Y' TYPE

DIN PN 16 - 25 - 40 - 63 - 100 - 160

VALVOSIDER
MANUFACTURER OF VALVES

FIG. 1404 - STRAINERS - 'Y' TYPE DIN PN 16 - CAST IRON - F1

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850	980	1100	1200	1250	1450
D	95	105	115	140	150	165	185	200	220	250	285	315	340	405	460	520	580	640	715	840
H	70	80	85	100	110	115	130	145	165	185	205	235	250	300	360	410	460	520	570	--
H1	130	144	155	172	200	220	265	290	340	390	440	505	520	680	845	870	1000	--	--	--

FIG.1433 - STRAINERS - 'Y' TYPE DIN PN 25 / 40 - F1

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850	980	1100	1200	1250	1450
D - PN25	95	105	115	140	150	165	185	200	235	270	300	330	360	425	485	555	620	670	730	845
D - PN40	95	105	115	140	150	165	185	200	235	270	300	350	375	450	515	580	660	685	755	890
H	70	80	85	100	110	125	145	160	190	220	250	295	320	385	450	510	585	610	670	--
H1	130	144	155	172	200	230	280	305	365	425	485	565	590	765	935	970	1125	--	--	--

FIG. 1560YS - STRAINERS - 'Y' TYPE DIN PN 63 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	1025	1150	--	1400	1600
D	105	130	140	155	170	180	205	215	250	295	345	375	415	470	530	600	670	--	800	930
H	105	120	120	135	150	160	180	200	230	280	310	340	390	430	500	--	--	--	--	--
H1	165	184	190	207	240	265	315	345	405	485	545	610	660	810	985	--	--	--	--	--

FIG. 1570YS - STRAINERS - 'Y' TYPE DIN PN 100 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	--	--	--	--	--
D	105	130	140	155	170	195	220	230	265	315	355	385	430	505	585	--	--	--	--	--
H	105	120	120	135	150	170	200	220	250	300	350	380	410	480	570	--	--	--	--	--
H1	165	184	190	207	240	275	335	365	425	505	585	650	680	860	1055	--	--	--	--	--

FIG. 1580YS - STRAINERS - 'Y' TYPE DIN PN 160 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	--	--	--	--	--
D	105	130	140	155	170	195	220	230	265	315	355	390	430	515	585	--	--	--	--	--
H	110	125	125	140	155	180	220	240	270	320	370	400	430	500	600	--	--	--	--	--
H1	170	189	195	212	245	285	355	385	445	525	605	670	700	880	1085	--	--	--	--	--

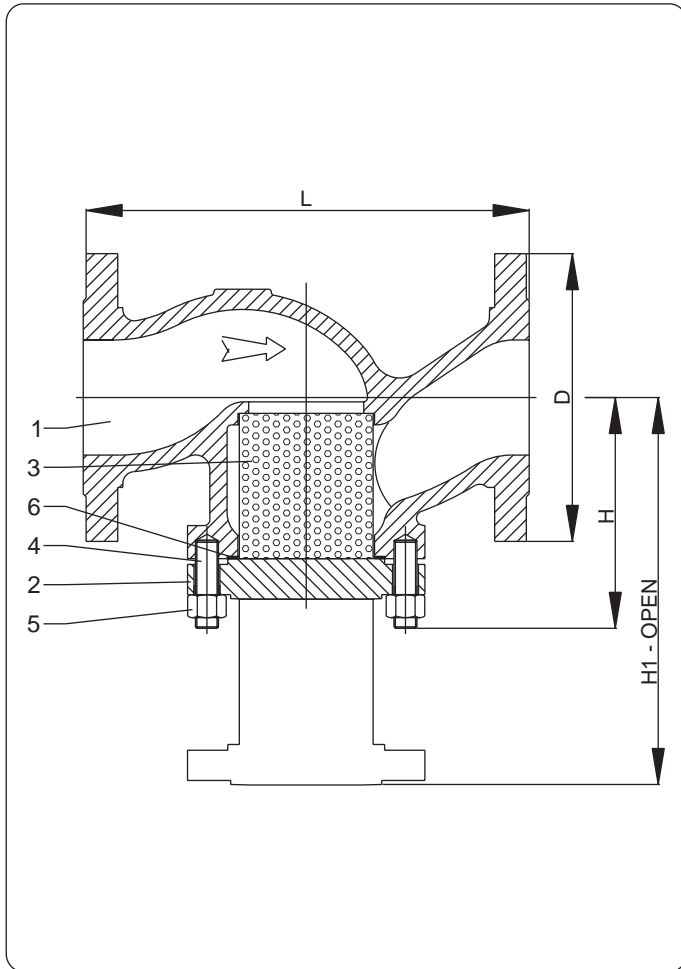
features on request

- | | |
|---|--|
| <input type="radio"/> SCREEN IN SPECIAL MATERIALS | <input type="radio"/> BW ENDS |
| <input type="radio"/> DISCHARGE VALVE | <input type="radio"/> ANSI CONNECTIONS |
| <input type="radio"/> DRAIN PLUG | |

All dimensions in mm (except where differently indicated)

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standard features

- **Description** BOLTED COVER
REPLACEABLE SCREEN
- **Design** DIN 3352
DIN 3840
- **Face to face** DIN 3202
- **Flanges** DIN 2501
DIN 2547
DIN 2526 FORM E
BW TO DIN 3239
- **Testing** DIN 3352 Part 1
DIN 3230 Part 3
- **Rating** DIN 2401
- **Marking** EN 19
CE - PED
- **Certificates** EN 10204 – 3.1 B

PART NAME	FIG. 1401 - (CAST IRON)	A1430BS A1560BS A1570BS A1580BS	FK1430BS FK1560BS FK1570BS FK1580BS
1 Body	EN-GJL-250	1.0619 (A)	1.4581
2 Cover	EN-GJL-250	1.0619 (B)	1.4581
3 Screen	X5CrNi18-10 (1)	X5CrNi18-10 (1)	X2CrNiMo17-12-2 (1)
4 Bolts	CK35	CK35	A2-70
5 Nuts	C35	C35	A2-70
6 Gasket	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)	S. S. reinforced graphite (3)

(1) On request: other materials

(2) On request: PTFE - other materials

(A) For PN ≤ 40 and DN ≤ 25 = 1.0460

For PN ≥ 63 and DN ≤ 25 = 1.0460

(B) For PN ≤ 40 and DN ≤ 80 = 1.0460

For PN ≥ 63 and DN ≤ 40 = 1.0460

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STRAINERS - BASKET TYPE

DIN PN 16 - 25 - 40 - 63 - 100 - 160

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FIG. 1401BS - STRAINERS - BASKET TYPE DIN PN 16 - CAST IRON - F1

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850	980	1100	1200	1250	1450
D	95	105	115	140	150	165	185	200	220	250	285	315	340	405	460	520	580	640	715	840
H	70	80	85	100	110	115	130	145	165	185	205	235	250	300	360	410	460	520	570	--
H1	130	144	155	172	200	220	265	290	340	390	440	505	520	680	845	870	1000	520	570	--

FIG.1430BS - STRAINERS - BASKET TYPE DIN PN 25 / 40 - F1

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	130	150	160	180	200	230	290	310	350	400	480	550	600	730	850	980	1100	1200	1250	1450
D - PN25	95	105	115	140	150	165	185	200	235	270	300	330	360	425	485	555	620	670	730	845
D - PN40	95	105	115	140	150	165	185	200	235	270	300	350	375	450	515	580	660	685	755	890
H	70	80	85	100	110	125	145	160	190	220	250	295	320	385	450	510	585	610	670	--
H1	130	144	155	172	200	230	280	305	365	425	485	565	590	765	935	970	1125	610	670	--

FIG. 1560BS - STRAINERS - BASKET TYPE DIN PN 63 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	1025	1150	--	1400	1600
D	105	130	140	155	170	180	205	215	250	295	345	375	415	470	530	600	670	--	800	930
H	105	120	120	135	150	160	180	200	230	280	310	340	390	430	500	--	--	--	--	--
H1	165	184	190	207	240	265	315	345	405	485	545	610	660	810	985	--	--	--	--	--

FIG. 1570BS - STRAINERS - BASKET TYPE DIN PN 100 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	--	--	--	--	--
D	105	130	140	155	170	195	220	230	265	315	355	385	430	505	585	--	--	--	--	--
H	105	120	120	135	150	170	200	220	250	300	350	380	410	480	570	--	--	--	--	--
H1	165	184	190	207	240	275	335	365	425	505	585	650	680	860	1055	--	--	--	--	--

FIG. 1580BS - STRAINERS - BASKET TYPE DIN PN 160 - F2

SIZE DN	15	20	25	32	40	50	65	80	100	125	150	175	200	250	300	350	400	450	500	600
L RF/BW	210	230	230	260	260	300	340	380	430	500	550	600	650	775	900	--	--	--	--	--
D	105	130	140	155	170	195	220	230	265	315	355	390	430	515	585	--	--	--	--	--
H	110	125	125	140	155	180	220	240	270	320	370	400	430	500	600	--	--	--	--	--
H1	170	189	195	212	245	285	355	385	445	525	605	670	700	880	1085	--	--	--	--	--

features on request

- | | |
|---|--|
| <input type="radio"/> SCREEN IN SPECIAL MATERIALS | <input type="radio"/> BW ENDS |
| <input type="radio"/> DISCHARGE VALVE | <input type="radio"/> ANSI CONNECTIONS |
| <input type="radio"/> DRAIN PLUG | |

All dimensions in mm (except where differently indicated)

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DESIGN AND MANUFACTURE OF VALVES *your partner in valves*



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ASME

3 Materials & Trim

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4 Ratings

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5 Dimensions

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6 Materials

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7 Materials comparison

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8 Ratings

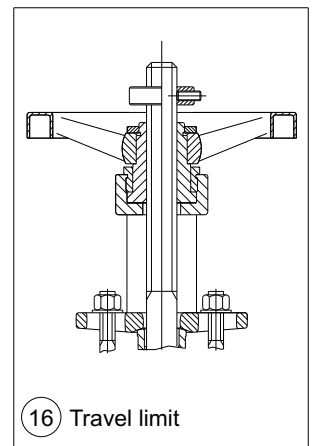
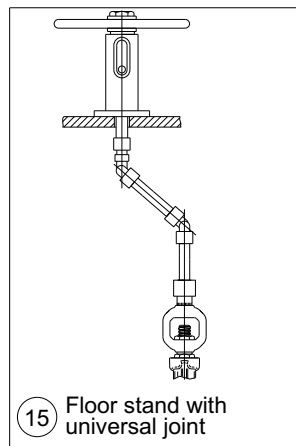
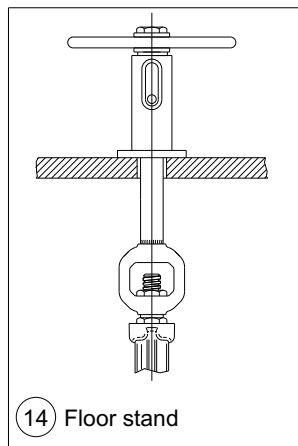
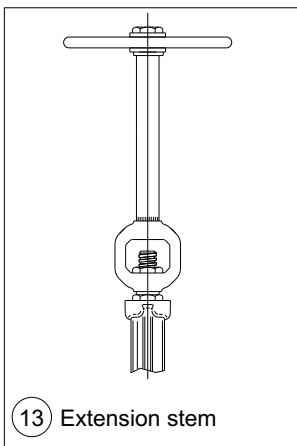
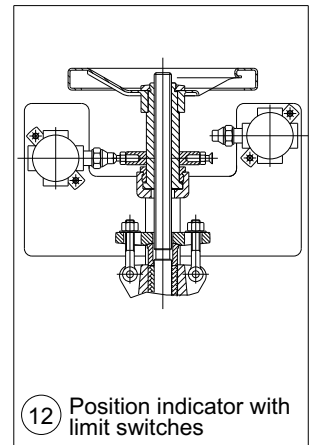
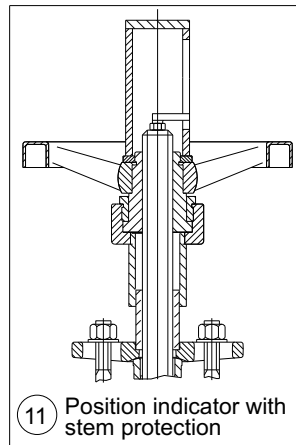
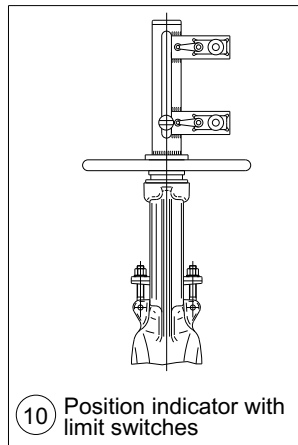
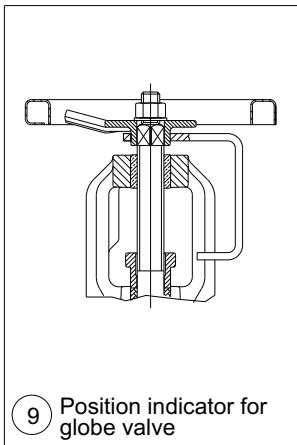
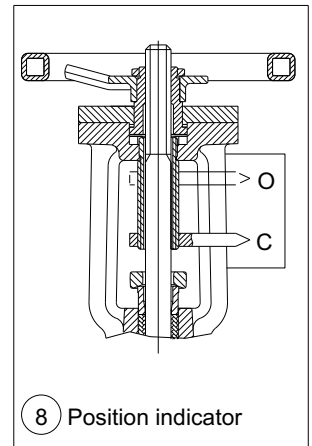
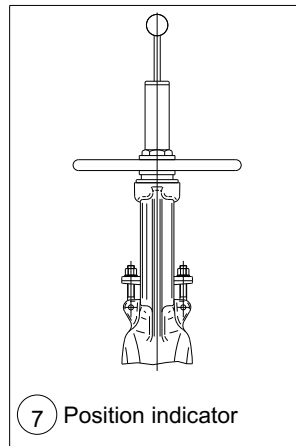
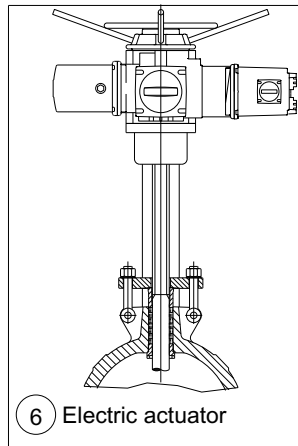
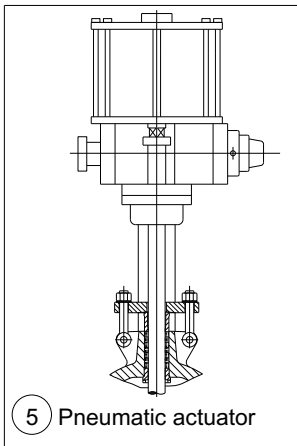
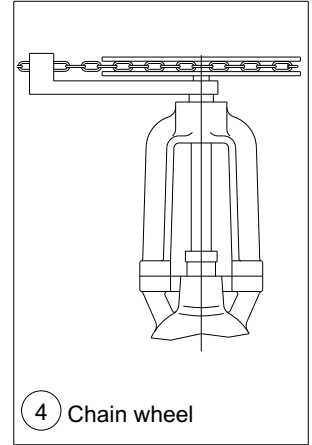
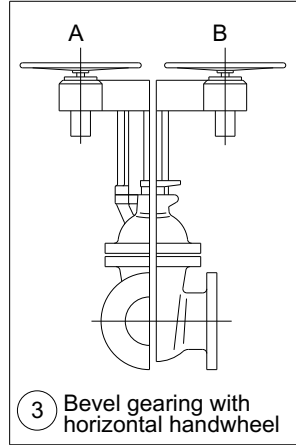
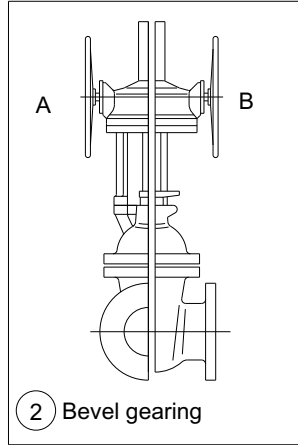
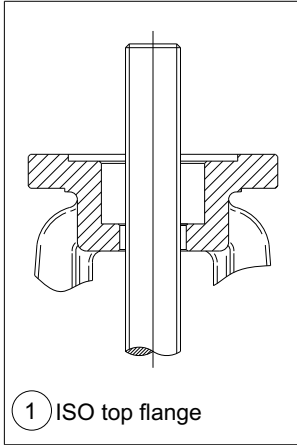
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9 Flow data

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10 Tables

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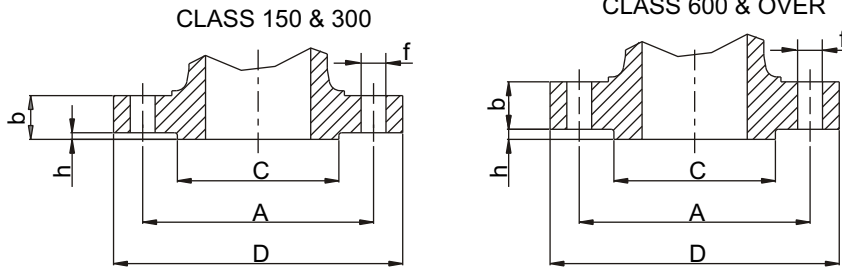
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FLANGES DIMENSIONS - ASME B16.5

SIZES 1/2" ÷ 24" - CLASSES 150 ÷ 2500

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DN = Nominal pipe size (inches)
 D = Outside diameter of flange
 b* = Thickness of flange min.
 C = Diameter of hub
 h = Height of raised face
 N = Number of bolt holes
 f = Diameter of bolt holes
 A = Diameter of bolt circle
 RJ = Groove number

* raised face included for ANSI Class 150-300
 raised face not included for ANSI Class 600-900-1500-2500

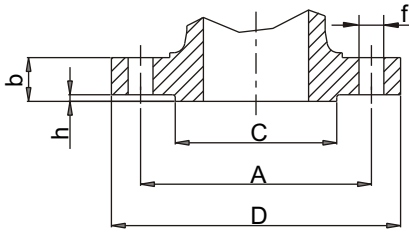
CLASS	DN	D	b	C	h	N	f	A	RJ	CLASS	DN	D	b	C	h	N	f	A	RJ
150	1/2"	89	11,1	34,9	1,60	4	15	60,3	--	150	6"	279	25,4	216	1,6	8	22	241	43
300	1/2"	95	14,3	34,9	1,60	4	15	66,7	11	300	6"	318	36,5	216	1,6	12	22	270	45
600	1/2"	95	14,3	34,9	6,35	4	15	66,7	11	600	6"	356	47,6	216	6,35	12	30	292	45
900-1500	1/2"	121	22,2	34,9	6,35	4	22	82,5	12	900	6"	381	55,6	216	6,35	12	32	318	45
150	3/4"	98,4	12,7	42,9	1,60	4	15	69,8	--	1500	6"	394	82,6	216	6,35	12	39	318	46
300	3/4"	118	15,9	42,9	1,60	4	18	82,5	13	2500	6"	483	108	216	6,35	8	54	368	47
600	3/4"	118	15,9	42,9	6,35	4	18	82,5	13	150	8"	343	28,6	270	1,6	8	22	298	48
900-1500	3/4"	130	25,4	42,9	6,35	4	22	88,9	14	300	8"	381	41,3	270	1,6	12	26	330	49
150	1"	108	14,3	50,8	1,60	4	15	79,4	15	600	8"	419	55,6	270	6,35	12	32	349	49
300	1"	124	17,5	50,8	1,60	4	19	88,9	16	900	8"	470	63,5	270	6,35	12	39	394	49
600	1"	124	17,5	50,8	6,35	4	19	88,9	16	1500	8"	483	92,1	270	6,35	12	45	394	50
900-1500	1"	149	28,6	50,8	6,35	4	25	102	16	2500	8"	552	127	270	6,35	12	54	438	51
150	1 1/4"	118	15,9	63,5	1,60	4	15	88,9	17	150	10"	406	30,2	324	1,6	12	25	362	52
300	1 1/4"	133	19	63,5	1,60	4	18	98,4	18	300	10"	445	47,6	324	1,6	16	28,6	387	53
600	1 1/4"	133	20,6	63,5	6,35	4	18	98,4	18	600	10"	508	63,5	324	6,35	16	36	432	53
900-1500	1 1/4"	159	28,6	63,5	6,35	4	26	111	18	900	10"	546	69,8	324	6,35	16	38,1	470	53
150	1 1/2"	127	17,5	73	1,60	4	15	98,4	19	1500	10"	584	108	324	6,35	12	52	483	54
300	1 1/2"	156	20,6	73	1,60	4	22	114	20	2500	10"	673	165	324	6,35	12	67	540	55
600	1 1/2"	156	22,2	73	6,35	4	22	114	20	150	12"	483	31,7	381	1,6	12	26	432	56
900-1500	1 1/2"	178	31,8	73	6,35	4	30	124	20	300	12"	521	50,8	381	1,6	16	32	451	57
150	2"	152	19	92,1	1,60	4	19	121	22	600	12"	559	66,7	381	6,35	20	36	490	57
300	2"	165	22,2	92,1	1,60	8	18	127	23	900	12"	610	79,4	381	6,35	20	39	533	57
600	2"	165	25,4	92,1	6,35	8	18	127	23	1500	12"	673	124	381	6,35	16	55	572	58
900-1500	2"	216	38,1	92,1	6,35	8	26	165	24	2500	12"	762	184	381	6,35	12	73	619	60
2500	2"	235	50,8	92,1	6,35	8	29	171	26	150	14"	533	34,9	413	1,6	12	29	476	59
150	2 1/2"	178	22,2	105	1,60	4	19	140	25	300	14"	584	54	413	1,6	20	32	514	61
300	2 1/2"	191	25,4	105	1,60	8	22	149	26	600	14"	603	69,8	413	6,35	20	39	527	61
600	2 1/2"	191	28,6	105	6,35	8	22	149	26	900	14"	641	85,7	413	6,35	20	42	559	62
900-1500	2 1/2"	245	41,3	105	6,35	8	30	191	27	1500	14"	749	133	413	6,35	16	60	635	63
2500	2 1/2"	267	57,2	105	6,35	8	32	197	28	150	16"	597	36,5	470	1,6	16	28	540	64
150	3"	191	23,8	127	1,60	4	19	152	29	300	16"	648	57,2	470	1,6	20	36	572	65
300	3"	210	28,6	127	1,60	8	22	168	31	600	16"	686	76,2	470	6,35	20	42	603	65
600	3"	210	31,8	127	6,35	8	22	168	31	900	16"	705	88,9	470	6,35	20	45	616	66
900	3"	241	38,1	127	6,35	8	25	191	31	1500	16"	826	146	470	6,35	16	65	705	67
1500	3"	267	47,6	127	6,35	8	32	203	35	150	18"	635	39,7	533	1,6	16	32	578	68
2500	3"	305	66,7	127	6,35	8	34,9	229	32	300	18"	711	60,3	533	1,6	24	36	629	69
150	4"	229	23,8	157	1,60	8	19	191	36	600	18"	743	82,6	533	6,35	20	45	654	69
300	4"	254	31,7	157	1,60	8	22	200	37	900	18"	787	102	533	6,35	20	52	686	70
600	4"	273	38,1	157	6,35	8	26	216	37	1500	18"	914	162	533	6,35	16	75	775	71
900	4"	292	44,45	157	6,35	8	32	235	37	150	20"	699	42,9	584	1,6	20	32	635	72
1500	4"	311	54	157	6,35	8	35	241	39	300	20"	775	63,5	584	1,6	24	36	686	73
2500	4"	356	76,2	157	6,35	8	41	273	38	600	20"	813	88,9	584	6,35	24	45	724	73
150	5"	254	23,8	186	1,60	8	22	216	40	900	20"	857	108	584	6,35	20	55	749	74
300	5"	279	34,9	186	1,60	8	22	235	41	1500	20"	984	178	584	6,35	16	80	832	75
600	5"	330	44,4	186	6,35	8	28	267	41	150	24"	813	47,6	692	1,6	20	36	749	76
900	5"	349	50,8	186	6,35	8	36	279	41	300	24"	914	69,8	692	1,6	24	42	813	77
1500	5"	375	73	186	6,35	8	42	292	44	600	24"	940	102	692	6,35	24	52	838	77
2500	5"	416	92,1	186	6,35	8	48	324	42	900	24"	1041	140	692	6,35	20	65	902	78
										1500	24"	1168	203	692	6,35	16	93	991	79

All dimensions in mm (except where differently indicated)

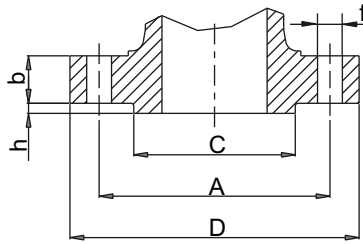
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CLASS 150 & 300



CLASS 600 & OVER



DN = Nominal pipe size (inches)
D = Outside diameter of flange
b* = Thickness of flange min.
C = Diameter of hub
h = Height of raised face
N = Number of bolt holes
f = Diameter of bolt holes
A = Diameter of bolt circle
RJ = Groove number

* raised face included for ANSI Class 150-300
raised face not included for ANSI Class 600-900

CLASS	DN	D	b	C	h	N	f	A	RJ	CLASS	DN	D	b	C	h	N	f	A	RJ
150	26"	870	68,3	749	1,6	24	35	806		150	38"	1238	87,4	1073	1,6	32	41	1149	
300	26"	972	79,2	749	1,6	28	44	876	93	300	38"	1168	108,0	1029	1,6	32	41	1092	
600	26"	1016	108,0	749	6,3	28	51	914	93	600	38"	1270	152,4	1054	6,3	28	60	1162	
900	26"	1086	139,7	953	6,3	20	73	953	100	900	38"	1461	190,5	1289	6,3	20	92	1289	
150	28"	927	71,4	800	1,6	28	35	864		150	40"	1289	90,4	1124	1,6	36	41	1200	
300	28"	1035	85,9	800	1,6	28	44	940	94	300	40"	1238	114,3	1086	1,6	32	44	1156	
600	28"	1073	111,3	800	6,3	28	54	965	94	600	40"	1321	158,8	1111	6,3	32	60	1213	
900	28"	1168	142,7	1022	6,3	20	79	1022	101	900	40"	1511	196,9	1340	6,3	24	92	1340	
150	30"	984	74,7	857	1,6	28	35	914		150	42"	1346	96,8	1194	1,6	36	41	1257	
300	30"	1092	91,9	857	1,6	28	48	997	95	300	42"	1289	119,1	1137	1,6	32	44	1207	
600	30"	1130	114,3	857	6,3	28	54	1022	95	600	42"	1403	168,1	1168	6,3	28	67	1283	
900	30"	1232	149,4	1086	6,3	20	79	1086	102	900	42"	1562	206,2	1391	6,3	24	92	1391	
150	32"	1060	81,0	914	1,6	28	41	978		150	44"	1403	101,6	1245	1,6	40	41	1314	
300	32"	1149	98,6	914	1,6	28	51	1054	96	300	44"	1353	124,0	1194	1,6	32	48	1264	
600	32"	1194	117,3	914	6,3	28	60	1080	96	600	44"	1454	173,0	1226	6,3	32	67	1334	
900	32"	1314	158,8	1156	6,3	20	86	1156	103	900	44"	1648	214,4	1464	6,3	24	99	1464	
150	34"	1111	82,6	965	1,6	32	41	1029		150	46"	1454	103,1	1295	1,6	40	41	1365	
300	34"	1207	101,6	965	1,6	28	51	1105	97	300	46"	1416	128,5	1245	1,6	28	51	1321	
600	34"	1245	120,7	965	6,3	28	60	1130	97	600	46"	1511	179,3	1276	6,3	32	67	1391	
900	34"	1397	165,1	1226	6,3	20	92	1226	104	900	46"	1734	225,6	1537	6,3	24	105	1537	
150	36"	1168	90,4	1022	1,6	32	41	1086		150	48"	1511	108,0	1359	1,6	44	41	1422	
300	36"	1270	104,6	1022	1,6	32	54	1168	98	300	48"	1467	133,4	1302	1,6	32	51	1372	
600	36"	1314	124,0	1022	6,3	28	67	1194	98	600	48"	1594	189,0	1334	6,3	32	73	1461	
900	36"	1461	171,5	1289	6,3	20	92	1289	105	900	48"	1784	233,4	1588	6,3	24	105	1588	

FLANGES FACING FINISH

NOMINAL ROUGHNESS GRADES (R_a) FOR ROUGHNESS COMPARISON SPECIMENS - ASME B46.1

µm	µin.
0.006	0.25
0.0125	0.5
0.025	1
0.05	2
0.1	4
0.2	8
0.4	16
0.8	32
1.6	63
3.2	125
6.3	250
12.5	500
25	1,000
50	2,000
100	4,000
200	8,000
400	16,000

ASME B16.5

TONGUE AND GROOVE - SMALL MALE AND FEMALE

The gasket contact surface shall not exceed 125 microinches (3,2 micrometers) roughness.

RING JOINT

The side wall surface of gasket groove shall not exceed 63 microinches (1,6 micrometers) roughness.

OTHER FLANGE FACINGS

Either a serrated concentric or serrated spiral finish having a resultant surface finish from 125 microinches to 250 microinches (3,2 to 6,3 micrometers) average roughness.

MSS SP-6 - steel

FLAT OR 1/6" (1.6 mm) RAISED FACE AND 1/4" (6.4 mm) RAISED AND LARGE MALE & FEMALE

Serrated: spiral or concentric, 45 to 55 per inch (18 to 21 per cm). Surface finish shall have a 125 to 250 microinches (3.2 to 6.3 micrometers) Ra.

SMALL MALE & FEMALE, LARGE & SMALL TONGUE & GROOVE

Serrated (as above) or non-serrated: 125 microinches (3,2 micrometers) Ra max.

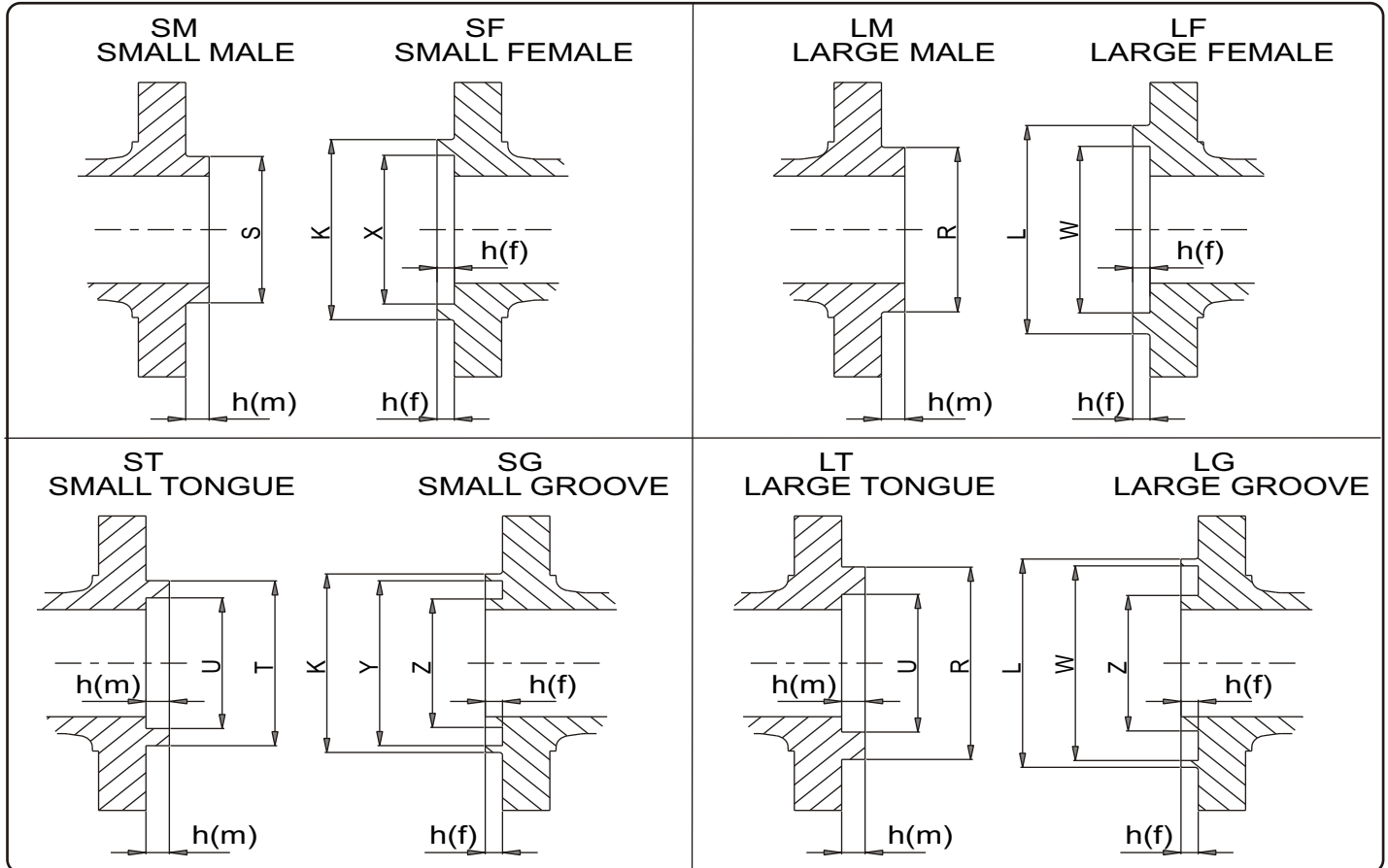
RING JOINT

Non-serrated: 63 microinches (1.6 micrometers) Ra max. according to ASME B46.1.

The finish of contact faces of pipe flanges and connecting end flanges of fittings shall be judged by visual comparison with Ra standards.

All dimensions in mm (except where differently indicated)

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FACE TO FACE DIMENSIONS - ASME B16.10

CLASS	RF	MALE	FEMALE
150 / 300	SEE CATALOGUE	RF + 13 mm	RF + 10 mm
600 / 900 / 1500	SEE CATALOGUE	RF	RF - 3 mm

DIMENSIONS OF FACING (mm)

Nominal pipe size (inches)	OUTSIDE DIAMETER			INT. DIAM.	OUTSIDE DIAMETER			INT. DIAM.	RAISED FACE HEIGHT		Depth of groove or female	OUTSIDE DIAMETER OF RAISED PORTION	
	Raised face, lapped, large male and large tongue	Small male **	Small tongue		Large and small tongue	Large female and large groove	Small female		Small groove	Large and small groove **		150 and 300 Lbs. Class	Large and small male and tongue 400/2500 Lbs. Class
	R	S	T	U	W	X	Y	Z	h	h(m)	h(f)	K	L
1 1/2"	73,1	44,4	63,5	53,8	74,6	45,9	65	52,3	1,6	6,35	4,8	73	84,1
2"	91,8	57,1	82,5	73,1	93,7	58,7	84,1	71,4	1,6	6,35	4,8	92	103,1
2 1/2"	104,6	68,3	95,2	85,8	106,4	69,8	96,8	84,1	1,6	6,35	4,8	105	115,8
3"	127,0	84,1	117,3	107,9	128,5	85,8	119,1	106,4	1,6	6,35	4,8	127	138,2
4"	157,2	109,5	144,5	131,8	158,7	111,2	146,0	130,0	1,6	6,35	4,8	157	168,1
5"	185,7	136,6	173,0	160,3	187,4	138,1	174,7	158,7	1,6	6,35	4,8	186	196,8
6"	215,9	162,0	203,2	190,5	217,5	163,5	204,7	188,9	1,6	6,35	4,8	216	227,0
8"	269,7	212,8	254,0	238,2	271,5	214,3	255,5	236,5	1,6	6,35	4,8	270	281,0
10"	323,8	266,7	304,8	285,7	325,4	268,2	306,3	284,2	1,6	6,35	4,8	324	335,0
12"	381,0	317,5	361,9	342,9	382,5	319,0	363,5	341,3	1,6	6,35	4,8	381	392,1
14"	412,7	349,2	393,7	374,6	414,3	350,8	395,3	373,1	1,6	6,35	4,8	413	423,9
16"	469,9	400,0	447,5	425,4	471,4	401,6	449,3	423,9	1,6	6,35	4,8	470	481,0
18"	533,4	450,8	511,0	488,9	535,0	452,4	512,8	487,4	1,6	6,35	4,8	533	544,5
20"	584,2	501,6	558,8	533,4	585,7	503,2	560,3	531,8	1,6	6,35	4,8	584	595,3
24"	692,1	603,2	666,7	641,3	693,7	604,8	668,8	639,8	1,6	6,35	4,8	692	703,3

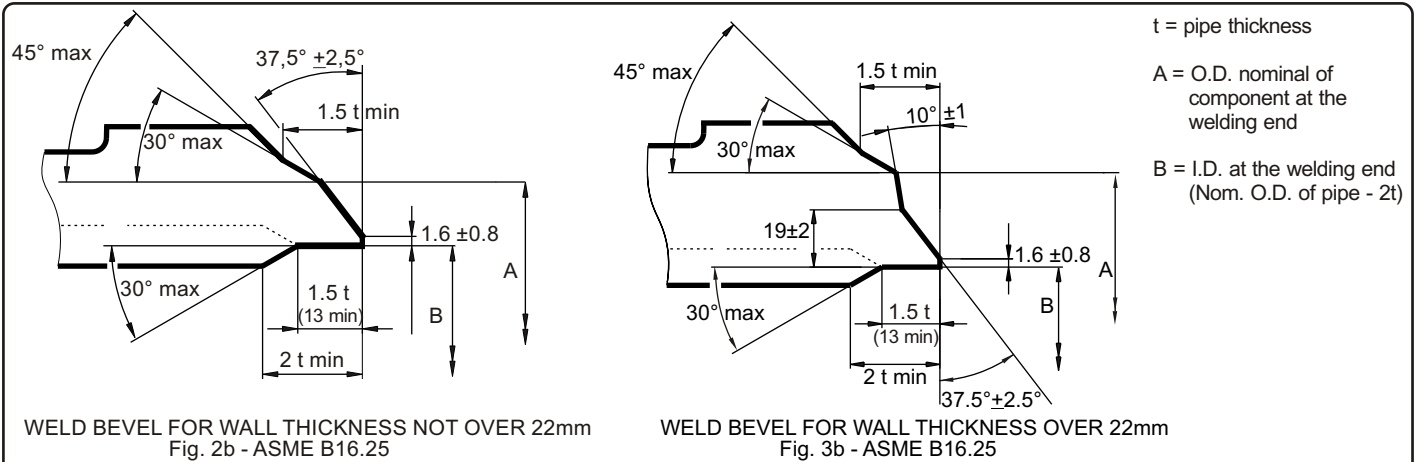
**Large male and female faces and large tongue and groove are not applicable to Class 150 because of potential dimensional conflict.

All dimensions in mm (except where differently indicated)

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BUTT WELDING ENDS - ASME B16.25



DN (inches)	Nom. pipe O.D.	A (1)	Wall thickness of pipe											
			sch. 20	sch. 30	sch. Std	sch. 40	sch. 60	sch. xs	sch. 80	sch. 100	sch. 120	sch. 140	sch. 160	sch. xxs
1" 1/2	48.3	n.a.			3.68	3.68		5.08	5.08				7.14	10.16
2"	60.3	n.a.			3.91	3.91		5.54	5.54				8.74	11.07
2" 1/2	73.0	75			5.16	5.16		7.01	7.01				9.52	14.02
3"	88.9	91			5.49	5.49		7.62	7.62				11.13	15.24
4"	114.3	117			6.02	6.02		8.56	8.56		11.13		13.49	17.12
5"	141.3	144			6.55	6.55		9.52	9.52		12.70		15.88	19.05
6"	168.3	172			7.11	7.11		10.97	10.97		14.27		18.26	21.95
8"	219.1	223	6.35	7.04	8.18	8.18	10.31	12.70	12.70	15.09	18.26	20.62	23.01	22.22
10"	273.0	278	6.35	7.80	9.27	9.27	12.70	12.70	15.09	18.26	21.44	25.40	28.58	25.40
12"	323.8	329	6.35	8.38	9.52	10.31	14.27	12.70	17.48	21.44	25.40	28.57	33.32	
14"	355.6	362	7.92	9.52	9.52	11.12	15.09	12.70	19.05	23.83	27.76	31.75	35.71	
16"	406.4	413	7.92	9.52	9.52	12.70	16.66	12.70	21.44	26.19	30.94	36.52	40.46	
18"	457.2	464	7.92	11.13	9.52	14.27	19.05	12.70	23.83	29.36	34.92	39.67	45.24	
20"	508.0	516	9.52	12.70	9.52	15.06	20.62	12.70	26.19	32.54	38.10	44.45	49.99	
24"	609.6	619	9.52	14.27	9.52	17.45	24.59	12.70	30.94	38.89	46.02	52.37	59.51	

(1) The diameters listed are not requirements

SOCKET WELDING ENDS - ASME B16.11 (not for auxiliary connections - see ASME B16.34)

DN mm	Nominal pipe size (inches)	B mm (min.)	J mm (min.)	Class 3000 Sch. 80		Class 6000 Sch. 160		Class 9000 Wall Des. XXS	
				C mm (min.)	D mm (min.)	C mm (min.)	D mm (min.)	C mm (min.)	D mm (min.)
6	1/8"	10,8	9,5	3,18	6,1	3,43	3,2	--	--
8	1/4"	14,2	9,5	3,30	8,5	4,01	5,6	--	--
10	3/8"	17,6	9,5	3,50	11,8	4,37	8,4	--	--
15	1/2"	21,8	9,5	4,09	15,0	5,18	11,0	5,94	5,6
20	3/4"	27,2	12,5	4,27	20,2	6,04	14,8	6,93	10,3
25	1"	33,9	12,5	4,98	25,9	6,93	19,9	7,95	14,4
32	1" 1/4	42,7	12,5	5,28	34,3	9,93	28,7	7,95	22,0
40	1" 1/2	48,8	12,5	5,54	40,1	7,80	33,2	8,91	27,2
50	2"	61,2	16,0	6,04	51,7	9,50	42,1	10,89	37,4
65	2" 1/2	73,9	16,0	7,67	61,2	--	--	--	--
80	3"	89,8	16,0	8,30	76,4	--	--	--	--
100	4"	115,2	16,0	9,35	100,7	--	--	--	--

All dimensions in mm (except where differently indicated)

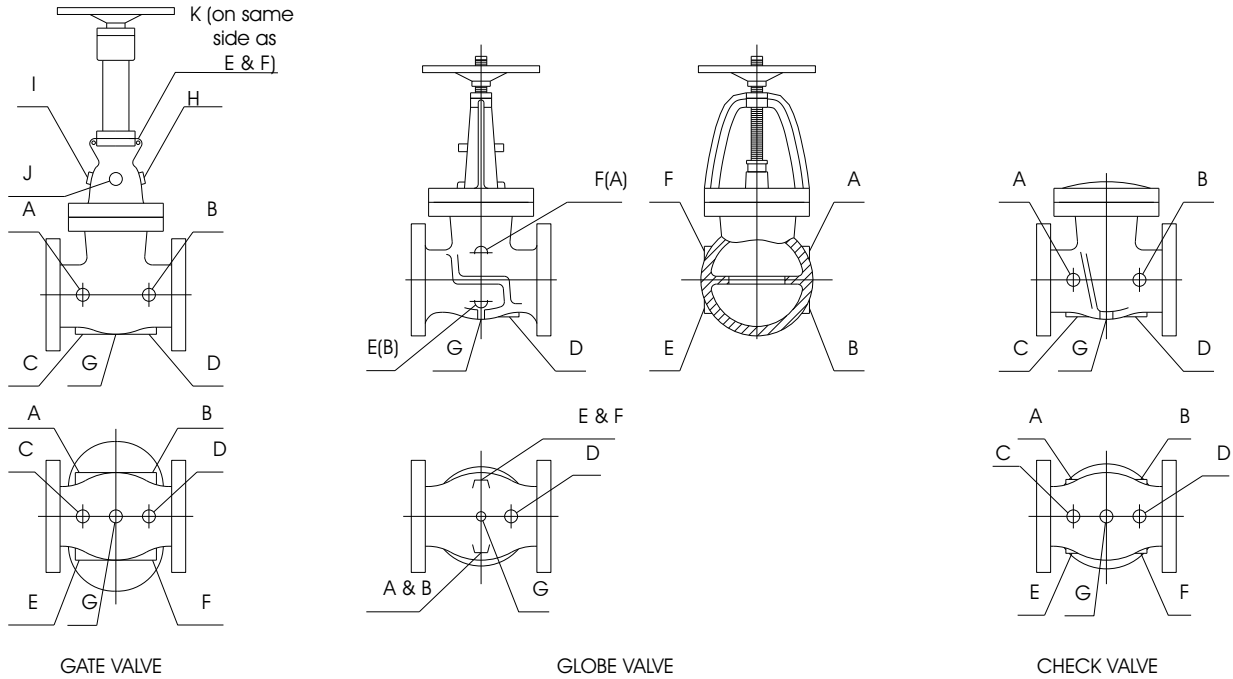
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AUXILIARY CONNECTIONS - ASME B16.34

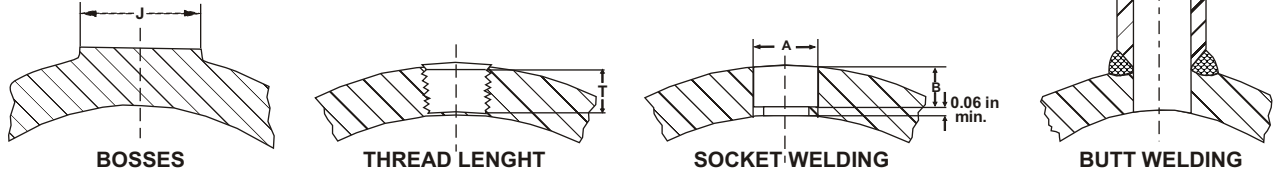
NPT - THREADS - ASME B1.20.1

VALVOSIDER
MANUFACTURER OF VALVES

AUXILIARY CONNECTION - TAPS - DRAINS - BY PASSES



AUXILIARY CONNECTIONS - BYPASS AND DRAIN CONNECTIONS



Size of Valve	2" to 4"	5" to 8"	10" to 24"
Size of Connections	1/2"	3/4"	1"
Length of Thread T	14	14	18
Min.Diam. of Socket A	22	27	34
Min.Depth. of Socket B	5	6.5	6.5
Diameter of Boss J	38	44	54
Size of Tapping	1/2"	3/4"	1"

NPT THREAD STANDARDS - ASME B1.20.1

$p = \text{Pitch}$
Depth of thread = $0.80p$
 $E0 = D - (0.050d + 1.1)p$
 $E1 = E0 + 0.0625L1$
 $L2 = (0.80D + 6.8)p$

NOMINAL PIPE SIZE (INCH)	OUTSIDE DIAMETER OF PIPE	THREADS PER INCH	PITCH OF THREAD	HANDTIGHT ENGAGEMENT	LENGTH OF EFFECTIVE THREAD (EXTERNAL)	WRENCH MAKEUP LENGTH FOR INTERNAL THREAD	OVERALL LENGTH EXTERNAL THREAD	PITCH DIAM. AT BEGINNING OF EXTERNAL THREAD
DN	D	(n)	P	L1	L2	L3	L4	E0
1/8	10,29	27	0,940	4,572	6,703	2,822	9,967	9,233
1/4	13,72	18	1,412	5,080	10,206	4,234	15,103	12,126
3/8	17,14	18	1,412	6,096	10,358	4,234	15,255	15,545
1/2	21,34	14	1,814	8,128	13,556	5,443	19,850	19,263
3/4	26,67	14	1,814	8,611	13,861	5,443	20,155	24,58
1	33,40	11,5	2,210	10,160	17,343	6,627	25,006	30,825
1 1/4	42,16	11,5	2,210	10,668	17,953	6,627	25,616	39,55
1 1/2	48,26	11,5	2,210	10,668	18,377	6,627	26,040	45,621
2	60,32	11,5	2,210	11,074	19,215	6,627	26,878	57,633

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	ASTM		chemical composition %									mechanical properties				
	Number	Grade	C	Mn	P	S	Si	Cr	Mo	Ni	others	Mpa		% Ap.	% C	
CASTINGS	A 216	WCB	max. 0,30	max. 1,00	max. 0,04	max. 0,045	max. 0,60	--	--	--	--	485	250	22	35	
	A 352	LCB	max. 0,30	max. 1,00	max. 0,04	max. 0,045	max. 0,60	--	--	--	--	450	240	24	35	
	A 352	LC 2	max. 0,25	0,50 - 0,80	max. 0,04	max. 0,045	max. 0,60	--	--	2,00 - 3,00	--	485	275	24	35	
	A 352	LC 3	max. 0,15	0,50 - 0,80	max. 0,04	max. 0,045	max. 0,60	--	--	3,00 - 4,00	--	485	275	24	35	
	A 217	WC 1	max. 0,25	0,50 - 0,80	max. 0,04	max. 0,045	max. 0,60	--	0,45 - 0,65	--	--	450	240	24	35	
	A 217	WC 5	max. 0,20	0,40 - 0,70	max. 0,04	max. 0,045	max. 0,60	0,50 - 0,90	0,90 - 1,20	0,60 - 1,00	--	485	275	20	35	
	A 217	WC 6	max. 0,20	0,50 - 0,80	max. 0,04	max. 0,045	max. 0,60	1,00 - 1,50	0,45 - 0,65	--	--	485	275	20	35	
	A 217	WC 9	max. 0,18	0,40 - 0,70	max. 0,04	max. 0,045	max. 0,60	2,00 - 2,75	0,90 - 1,20	--	--	485	275	20	35	
	A 217	C 5	max. 0,20	0,40 - 0,70	max. 0,04	max. 0,045	max. 0,75	4,00 - 6,50	0,45 - 0,65	--	--	620	415	18	35	
	A 217	C 12	max. 0,20	0,35 - 0,65	max. 0,04	max. 0,045	max. 1,00	8,00 - 10,00	0,90 - 1,20	--	--	620	515	18	35	
	A 217	CA 15	max. 0,15	max. 1,00	max. 0,04	max. 0,04	max. 1,50	11,50 - 14,00	max. 0,50	max. 1,00	--	620	450	18	30	
	A 351	CF 3	max. 0,03	max. 1,50	max. 0,04	max. 0,04	max. 2,00	17,00 - 21,00	max. 0,50	8,00 - 12,00	--	485	205	35	--	
	A 351	CF 8	max. 0,08	max. 1,50	max. 0,04	max. 0,04	max. 2,00	18,00 - 21,00	max. 0,50	8,00 - 11,00	--	485	205	35	--	
	A 351	CF 8 C	max. 0,08	max. 1,50	max. 0,04	max. 0,04	max. 2,00	18,00 - 21,00	--	9,00 - 12,00	Cb min. 8xC max. 1,00	485	205	30	--	
	A 351	CF 3 M	max. 0,03	max. 1,50	max. 0,04	max. 0,04	max. 1,50	17,00 - 21,00	2,00 - 3,00	9,00 - 13,00	--	485	205	30	--	
	A 351	CF 8 M	max. 0,08	max. 1,50	max. 0,04	max. 0,04	max. 1,50	18,00 - 21,00	2,00 - 3,00	9,00 - 12,00	--	485	205	30	--	
	A 351	CG 8M	max. 0,08	max. 1,50	max. 0,04	max. 0,04	max. 1,50	18,00 - 21,00	3,00 - 4,00	9,00 - 13,00	--	515	240	25	--	
	A 351	CK3MCuN	max. 0,025	max. 1,20	max. 0,045	max. 0,01	max. 1,00	19,50 - 20,50	6,00 - 7,00	17,50 - 19,50	Cu 0,5 - 1,00 N 0,18-0,24	550	260	35	--	
	A 351	CN7M	max. 0,07	max. 1,50	max. 0,04	max. 0,04	max. 1,50	19,00 - 22,00	2,00 - 3,00	27,50 - 30,50	Cu 3,0 - 4,0	425	170	35	--	
	A 890	4A	max. 0,03	max. 1,50	max. 0,04	max. 0,02	max. 1,0	21,00 - 23,50	2,50 - 3,50	4,50 - 6,50	Cu max 1,00 N 0,10-0,30	620	415	25	--	
A 890	5A	max. 0,03	max. 1,50	max. 0,04	max. 0,04	max. 1,0	24,00 - 26,00	4,00 - 5,00	6,00 - 8,00	N 0,10-0,30	690	515	18	--		
A 890	6A	max. 0,03	max. 1,00	max. 0,03	max. 0,025	max. 1,0	24,00 - 26,00	3,00 - 4,00	6,50 - 8,50	Cu&W 0,5-1,0 N 0,20-0,30	700	450	25	--		
FORGINGS	A 105	II	max. 0,35	max. 0,90	max. 0,05	max. 0,05	max. 0,35	--	--	--	--	485	250	22	30	
	A 181	CL 60	max. 0,35	max. 0,90	max. 0,05	max. 0,05	max. 0,35	--	--	--	--	415	205	22	35	
	A 181	CL 70	max. 0,35	max. 0,90	max. 0,05	max. 0,05	max. 0,35	--	--	--	--	485	250	18	24	
	A 350	LF 2	max. 0,35	0,60 - 1,35	max. 0,35	max. 0,04	0,15 - 0,30	max. 0,30	max. 0,12	max. 0,40	Cu max 0,40	485	250	22	30	
	A 350	LF 3	max. 0,20	max. 0,90	max. 0,035	max. 0,04	0,20 - 0,35	--	--	3,30 - 3,70	--	485	260	22	35	
	A 182	F 1	max. 0,28	0,60 - 0,90	max. 0,045	max. 0,045	0,15 - 0,35	--	0,44 - 0,65	--	--	485	275	20	30	
	A 182	F 5	max. 0,15	0,30 - 0,60	max. 0,03	max. 0,03	max. 0,50	4,00 - 6,00	0,44 - 0,65	max. 0,50	--	485	275	20	35	
	A 182	F 6a CL.2	max. 0,12	max. 1,00	max. 0,04	max. 0,03	max. 1,00	11,50 - 13,50	--	max. 0,50	--	585	380	18	35	
	A 182	F 9	max. 0,15	0,30 - 0,60	max. 0,03	max. 0,03	0,50 - 1,00	8,00 - 10,00	0,90 - 1,10	--	--	585	380	20	40	
	A 182	F 10	0,01 - 0,20	0,50 - 0,80	max. 0,03	max. 0,03	1,00 - 1,40	7,00 - 9,00	--	19,00 - 22,00	--	550	205	30	50	
	A 182	F 11 CL.2	0,05 - 0,15	0,30 - 0,60	max. 0,03	max. 0,03	0,50 - 1,00	1,00 - 1,50	0,44 - 0,65	--	--	485	275	20	30	
	A 182	F 12 CL.2	0,10 - 0,20	0,30 - 0,80	max. 0,04	max. 0,04	0,10 - 0,60	0,80 - 1,25	0,44 - 0,65	--	--	485	275	20	30	
	A 182	F 20	max. 0,07	max. 2,00	max. 0,045	max. 0,035	max. 1,00	19,00 - 21,00	2,00 - 3,00	32,00 - 38,00	--	550	240	30	50	
	A 182	F 22	0,05 - 0,15	0,30 - 0,60	max. 0,04	max. 0,04	max. 0,50	2,00 - 2,50	0,87 - 1,13	--	--	415	205	20	35	
	A 182	F 44	max. 0,02	max. 1,00	max. 0,03	max. 0,01	max. 0,80	19,5 - 20,5	6,0 6,5	17,5 - 18,5	Cu 0,50-1,00 N 0,18-0,22	650	300	35	50	
	A 182	F 51	max. 0,03	max. 2,00	max. 0,03	max. 0,02	max. 1,00	21,0 - 23,0	2,5 3,5	4,5 - 6,5	N min 0,08 max 0,20	620	450	25	45	
	A 182	F 53	max. 0,03	max. 1,20	max. 0,035	max. 0,02	max. 0,80	24,0 - 26,0	3,0 5,0	6,0 - 8,0	Cu max 0,50 N 0,24-0,32	750	515	15	--	
	A 182	F 304	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	18,00 - 20,00	--	8,00 - 11,00	--	515	205	30	50	
	A 182	F 310	max. 0,15	max. 2,00	max. 0,045	max. 0,03	max. 1,00	24,00 - 26,00	--	19,00 - 22,00	--	515	205	30	50	
	A 182	F 316	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	16,00 - 18,00	2,00 - 3,00	10,00 - 14,00	--	515	205	30	50	
	A 182	F 316L	max. 0,035	max. 2,00	max. 0,045	max. 0,03	max. 1,00	16,00 - 18,00	2,00 - 3,00	10,00 - 15,00	--	485	170	30	50	
	A 182	F 321	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	min. 17,00	--	9,00 - 12,00	Ti min. 5xC max. 0,70	515	205	30	50	
	A 182	F 347	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	17,00 - 20,00	--	9,00 - 13,00	Cb min. 10xC max. 1,00	515	205	30	50	
	AISI	431	max. 0,20	max. 1,00	max. 0,04	max. 0,03	max. 1,00	15,00 - 17,00	--	1,25 - 2,50	--	--	--	--	--	
	17.4 PH	®	max. 0,07	max. 1,00	max. 0,04	max. 0,03	max. 1,00	15,00 - 17,50	max. 0,50	3,00 - 5,00	Cb min. 8xC/max. 1 Cu 0,5 - 1,0	860	725	16	50	
	BOLTINGS	A 193	B 7	0,37 - 0,49	0,65 - 1,10	max. 0,035	max. 0,04	0,15 - 0,35	0,75 - 1,20	0,15 - 0,25	--	--	860	720	16	50
		A 193	B 16	0,36 - 0,47	0,45 - 0,70	max. 0,035	max. 0,04	0,15 - 0,35	0,80 - 1,15	0,50 - 0,65	--	Va 0,25-0,35	860	725	18	50
		A 193	B 8	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	18,00 - 20,00	--	8,00 - 10,50	--	*	*	*	*
		A 193	B 8M	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	16,00 - 18,00	2,00 - 3,00	10,00 - 14,00	--	*	*	*	*
A 320		B 8	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	18,00 - 20,00	--	8,00 - 10,50	--	*	*	*	*	
A 320		L 7	0,38 - 0,48	0,75 - 1,00	max. 0,035	max. 0,04	0,15 - 0,35	0,80 - 1,10	0,15 - 0,25	--	--	860	725	16	50	
A 194		2 H	min. 0,40	max. 1,00	max. 0,04	max. 0,05	max. 0,4	--	--	--	--	--	--	--	--	
A 194		3	max. 0,10	max. 1,00	max. 0,04	max. 0,03	max. 1,00	4,00 - 6,00	0,40 - 0,65	--	--	--	--	--	--	
A 194		4	0,40 - 0,50	0,70 - 0,90	max. 0,035	max. 0,04	0,15 - 0,35	--	0,20 - 0,30	--	--	--	--	--	--	
A 194		8	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	18,00 - 20,00	--	8,00 - 10,50	--	--	--	--	--	
A 194	8M	max. 0,08	max. 2,00	max. 0,045	max. 0,03	max. 1,00	16,00 - 18,00	2,00 - 3,00	10,00 - 14,00	--	--	--	--	--		

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TRIM MATERIALS API STANDARD 600

VALVOSIDER
MANUFACTURER OF VALVES

API 600 TRIM No.	MATERIAL TYPE					SERVICE
	DISC / WEDGE SEAT SURFACES (1)	SEAT RING SURFACES (1)	STEM HINGE PIN (2)	BACK SEAT	SMALL INTERNAL PARTS	
1	13Cr	13Cr	13Cr	13Cr	13Cr	General erosive or non-corrosive service between -100 °C and 400 °C
2	18Cr - 8Ni	18Cr - 8Ni	18Cr - 8Ni	18Cr - 8Ni	18Cr - 8Ni	For moderate pressure in non-erosive, corrosive service between -265 °C and 320 °C
3	25Cr - 20Ni	25Cr - 20Ni	25Cr - 20Ni	25Cr - 20Ni	25Cr - 20Ni	For moderate pressure in corrosive or non corrosive service between -265 °C and 450 °C
4	Hard 13Cr	Hard 13Cr	13Cr	13Cr	13Cr	As trim No. 1 but for medium pressure
5	HF	HF	13Cr	13Cr	13Cr	High pressure slightly erosive and corrosive service between -265 °C and 650 °C
5A	HF (A)	HF (A)	13Cr	13Cr	13Cr	As trim No. 5 where Co is not allowed
6	13Cr	NiCu alloy	13Cr	13Cr	13Cr	As trim No. 1
7	13Cr	Hard 13Cr	13Cr	13Cr	13Cr	As trim No. 1 for moderate pressure
8	13Cr	HF	13Cr	13Cr	13Cr	As trim No. 5 for moderate pressure
8A	13Cr	HF (A)	13Cr	13Cr	13Cr	As trim No. 5A for moderate pressure
9	NiCu alloy	NiCu alloy	NiCu alloy	NiCu alloy	NiCu alloy	Very corrosive fluids, erosive-corrosive service between -240 °C and 480 °C
10	18Cr - 8Ni - Mo	18Cr - 8Ni - Mo	18Cr - 8Ni - Mo	18Cr - 8Ni - Mo	18Cr - 8Ni - Mo	As trim No. 2
11	NiCu alloy	HF	NiCu alloy	NiCu alloy	NiCu alloy	As trim No. 9 but for medium pressure
12	18Cr - 8Ni - Mo	HF	18Cr - 8Ni - Mo	18Cr - 8Ni - Mo	18Cr - 8Ni - Mo	As trim No. 10 but for medium pressure
13	19Cr - 29Ni	19Cr - 29Ni	19Cr - 29Ni	19Cr - 29Ni	19Cr - 29Ni	Very corrosive service, for moderate pressure between -45 °C and 320 °C
14	19Cr - 29Ni	HF	19Cr - 29Ni	19Cr - 29Ni	19Cr - 29Ni	As trim No. 13 but for medium pressure
15	HF	HF	18Cr - 8Ni	18Cr - 8Ni	18Cr - 8Ni	As trim No. 2
16	HF	HF	18Cr - 8Ni - Mo	18Cr - 8Ni - Mo	18Cr - 8Ni - Mo	As trim No. 10
17	HF	HF	18Cr - 10Ni	18Cr - 10Ni	18Cr - 10Ni	As trim No. 2
18	HF	HF	19Cr - 29Ni	19Cr - 29Ni	19Cr - 29Ni	As trim No. 13

NOTES:

1) The base materials of disc, wedge and seat ring shall be, at least, equal in corrosion resistance to that of the body material. (Acc. to API Standard 600)

2) Stem shall be wrought material.

Cr = chromium; Ni = nickel; Co = cobalt; Mo = molybdenum. Ni-Cu alloy = Monel

HF = Hard Facing using CoCr (commercial name Stellite®) welding wire or electrode AWS a 5.13 "E-Co-Cr-A" hb >= 350; thickness 1.6 mm NiCr welding alloy. The suffix A applies to NiCr (5A..8A..)

CHEMICAL COMPOSITION AND MECHANICAL PROPERTIES OF OTHER MATERIALS

ASTM designation	chemical composition %													mechanical properties		
	Ni	Cu	Fe	Mo	Mn	C	Cr	Si	S	Ti	W	Co	Al	Mpa		%
														R	S	Ap.
Hastelloy B ®	61	--	5	28	--	0,05	1	--	--	--	--	2,5	--	588-902	343-392	15 - 50
Hastelloy C ®	54	--	6	16	--	0,08	15,1	--	--	--	4	2,5	--	549-892	353-471	10 - 49
Monel 8 400 ®	63 - 68	remaining	3,0	--	0,5 - 1,5	0,12	--	3,5 - 4,0	0,05	--	--	--	--	618-696	--	--
Monel K 500 ®	63 - 70	27 - 33	2,0	--	1,5	0,25	--	1,0	0,01	--	--	--	2,0 - 4,0	892-1049	559-755	30 - 20
Stellite N. 6 ®	--	--	--	--	0,25	1,40	29	1,20	--	--	8	60	--	--	--	--
Inconel 625 ®	min. 58	--	max. 5,0	8.0 - 10.0	max. 0,5	max. 0,1	22.0 - 23.0	max. 0,5	max. 0,015	max. 0,4		max. 1.0	max. 0,4	896	483	50

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MATERIALS		WCB(a)	WCC(a) LCC(b) LC2(b) LC3(b)	LCB(b)	WC1(h) LC1(b)	WC4(j) WC5	WC6(m)	WC9(m)	C5	C12	CF3(e) CF8(g)	CF8M(g) CF3M(f)	CF8C(g)
CLASS	TEMPERATURE °C	Working pressure (bars)											
150 (PN 20)	- 29 to 38	19,6	20,0	18,4	18,4	20,0	20,0	20,0	20,0	20,0	19,0	19,0	19,0
	50	19,2	19,2	18,1	18,3	19,3	19,2	19,2	19,2	19,2	18,4	18,4	18,5
	100	17,7	17,7	17,3	17,7	17,7	17,7	17,7	17,7	17,7	15,7	16,2	16,7
	150	15,8	15,8	15,8	15,8	15,8	15,8	15,8	15,8	15,8	13,9	14,8	15,5
	200	14,0	14,0	14,0	14,0	14,0	14,0	14,0	14,0	14,0	12,6	13,7	14,0
	250	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	12,1	11,7	12,1	12,1
	300	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,1	10,2	10,2	10,2
	350	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4	8,4
	400	6,5			6,5		6,5	6,5	6,5	6,5	6,5	6,5	6,5
	425	5,6			5,6		5,6	5,6	5,6	5,6	5,6	5,6	5,6
	450	4,7			4,7		4,7	4,7	4,7	4,7	4,7	4,7	4,7
	500	2,8			2,8		2,8	2,8	2,8	2,8	2,8	2,8	2,8
	525	1,9			1,9		1,9	1,9	1,9	1,9	1,9	1,9	1,9
	540												
600													
650													
700													
750													
800													
	SHELL TEST	29,4	30,0	27,6	27,6	30,0	30,0	30,0	30,0	30,0	28,5	28,5	28,5
	SEAT TEST	21,6	22,0	20,2	20,2	22,0	22,0	22,0	22,0	22,0	20,9	20,9	20,9
300 (PN 50)	- 29 to 38	51,1	51,7	47,9	47,9	51,7	51,7	51,7	51,7	51,7	49,6	49,6	49,6
	50	50,1	51,7	47,3	47,6	51,7	51,1	51,2	51,7	51,7	47,8	48,1	48,4
	100	46,4	51,5	45,1	46,6	51,5	48,8	49,0	51,5	51,5	40,9	42,2	43,5
	150	45,2	50,2	44,0	45,0	50,2	46,4	46,6	50,2	50,2	36,3	38,5	40,5
	200	43,8	48,8	42,7	44,2	48,8	45,5	44,8	48,8	48,8	32,8	35,7	38,4
	250	41,7	46,3	40,6	43,1	46,3	44,5	44,2	46,3	46,3	30,5	33,4	36,2
	300	38,7	42,4	37,7	42,0	42,4	42,4	42,4	42,4	42,4	29,1	31,6	34,4
	350	37,0	40,2	36,0	40,2	40,2	40,2	40,2	40,2	40,2	28,1	30,4	32,9
	400	34,5	34,5		36,6	36,6	36,6	36,6	36,6	36,6	27,7	29,1	31,8
	425	28,8	28,8		35,1	35,1	35,1	35,1	34,5	35,1	27,2	28,7	31,5
	450	20,0	20,0		33,8	33,8	33,8	33,8	30,9	33,8	26,9	28,1	30,8
	500	8,8	8,8		24,1	27,1	27,8	27,8	20,3	27,5	26,1	26,8	27,8
	525	5,2	5,2		15,0	18,8	23,0	21,9	15,4	22,6	23,9	26,3	25,8
	540				10,7	13,9	12,8	16,4	11,7	17,0	21,8	25,0	25,0
600						5,9	7,6	6,5	7,2	16,7	21,4	21,4	
650								3,0	3,5	10,5	14,1	11,6	
700										6,0	9,9	6,7	
750										3,7	5,9	4,0	
800										2,1	3,5	2,6	
	SHELL TEST	76,7	77,6	71,9	71,9	77,6	77,6	77,6	77,6	77,6	74,4	74,4	74,4
	SEAT TEST	56,2	56,9	52,7	52,7	56,9	56,9	56,9	56,9	56,9	54,6	54,6	54,6
600 (PN 100)	- 29 to 38	102,1	103,4	95,7	95,8	103,4	103,4	103,4	103,4	103,4	99,2	99,3	99,3
	50	100,2	103,4	94,6	95,3	103,4	102,3	102,4	103,4	103,4	95,7	96,3	96,8
	100	92,8	103,1	90,2	93,2	103,1	97,5	98,1	103,1	103,1	81,8	84,4	86,9
	150	90,5	100,4	87,9	89,8	100,4	92,7	93,3	100,4	100,4	72,7	77,0	81,0
	200	87,6	97,6	85,4	88,4	97,6	91,0	89,7	97,6	97,6	65,5	71,3	76,8
	250	83,4	92,7	81,2	86,2	92,7	88,9	88,4	92,7	92,7	61,1	66,8	72,4
	300	77,5	84,9	75,4	84,1	84,9	84,9	84,9	84,9	84,9	58,1	63,3	68,9
	350	73,9	80,5	71,9	80,5	80,5	80,5	80,5	80,5	80,5	56,1	60,8	65,8
	400	69,0	69,0		73,2	73,2	73,2	73,2	73,2	73,2	54,9	58,2	63,5
	425	57,5	57,5		70,2	70,2	70,2	70,2	69,0	70,2	54,3	57,3	62,9
	450	40,1	40,1		67,6	67,6	67,6	67,6	61,8	67,6	53,7	56,2	61,5
	500	17,6	17,6		48,1	54,1	55,6	55,6	40,5	55,0	52,1	53,7	55,6
	525	10,4	10,4		30,1	37,6	40,5	43,8	30,8	45,2	47,8	52,6	51,6
	540	6,5	6,5		21,4	27,9	25,5	32,7	23,4	34,0	43,6	49,9	49,9
600						11,8	15,3	13,1	14,4	33,4	42,9	42,9	
650						4,6	7,3	6,0	7,0	21,0	28,2	23,2	
700										12,0	19,9	13,5	
750										7,3	11,0	8,0	
800										4,1	7,0	5,2	
	SHELL TEST	153,2	155,1	143,6	143,7	155,1	155,1	155,1	155,1	155,1	148,8	149,0	149,0
	SEAT TEST	112,3	113,7	105,3	105,4	113,7	113,7	113,7	113,7	113,7	109,1	109,2	109,2

NOTES

- (a) Permissible, but not recommended for prolonged usage above 427 °C (800 °F)
- (b) Not to be used over 343 °C (650 °F)
- (c) Permissible, but not recommended for prolonged usage above 454 °C (850 °F)
- (d) Permissible, but not recommended for prolonged usage above 593 °C (1100 °F)
- (e) Not to be used over 427 °C (800 °F)

- (f) Not to be used over 454 °C (850 °F)
- (g) At temperature over 538 °C (1000 °F), use only when carbon content is 0,04 or higher
- (h) Permissible, but not recommended for prolonged usage above 468 °C (875 °F)
- (j) Not to be used over 538 °C (1000 °F)
- (m) Not to be used over 593 °C (1100 °F)

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PRESSURE-TEMPERATURE RATINGS ASME B16.34

VALVOSIDER

MANUFACTURER OF VALVES

MATERIALS		WCB(a)	WCC(a) LCC(b) LC2(b) LC3(b)	LCB(b)	WC1(h) LC1(b)	WC4(j) WC5	WC6(m)	WC9(m)	C5	C12	CF3(e) CF8(g)	CF8M(g) CF3M(f)	CF8C(g)
CLASS	TEMPERATURE °C	Working pressure (bars)											
900 (PN 150)	- 29 to 38	153,2	155,2	143,6	143,6	155,2	155,1	155,1	155,2	155,2	148,9	148,9	148,9
	50	150,2	155,2	141,9	142,9	155,2	153,4	153,6	155,2	155,2	143,5	144,4	144,4
	100	139,1	154,6	135,3	139,8	154,6	146,3	147,1	154,6	154,6	122,6	126,6	130,4
	150	135,7	150,6	131,9	134,9	150,6	139,1	139,9	150,6	150,6	109,0	115,5	121,5
	200	131,5	146,4	128,0	132,6	146,4	136,4	134,5	146,4	146,4	98,3	107,0	115,3
	250	125,2	139,0	121,8	129,2	139,0	133,4	132,7	139,0	139,0	91,6	100,2	108,6
	300	116,2	127,3	113,1	126,1	127,3	127,3	127,3	127,3	127,3	87,2	94,9	103,3
	350	110,9	120,7	107,9	120,7	120,7	120,7	120,7	120,7	120,7	84,2	91,3	98,7
	400	103,5	103,5		109,8	109,8	109,8	109,8	109,8	109,8	82,4	87,3	95,3
	425	86,3	86,3		105,3	105,3	105,3	105,3	105,3	105,3	81,5	86,0	94,4
	450	60,1	60,1		101,4	101,4	101,4	101,4	92,7	101,4	80,6	84,2	92,3
	500	26,4	26,4		72,2	81,2	83,4	83,4	60,8	82,5	78,2	80,5	83,4
	525	15,5	15,5		45,1	56,4	60,8	65,8	46,3	67,8	71,6	78,9	77,4
	540	9,8	9,8		32,1	41,8	38,3	49,1	35	50,9	65,4	74,9	74,9
	600						17,6	22,9	19,6	21,5	50,1	64,3	64,3
	650						7,0	11,0	9,0	10,4	31,6	42,4	34,7
	700										17,9	29,8	20,2
	750										11,0	17,6	12,1
	800										6,2	10,5	7,5
		SHELL TEST	229,8	232,8	215,4	215,4	232,8	232,7	232,7	232,8	232,8	223,4	223,4
	SEAT TEST	168,5	170,7	158,0	158,0	170,7	170,6	170,6	170,7	170,7	163,8	163,8	163,8
1500 (PN 250)	- 29 to 38	255,3	258,6	239,4	239,4	258,6	258,6	258,6	258,6	258,6	248,1	248,1	248,2
	50	250,4	258,6	236,5	238,2	258,6	255,7	256	258,6	258,6	239,2	240,6	241,9
	100	231,9	257,7	225,5	233,0	257,7	243,8	242,2	257,7	257,7	204,4	211,0	217,3
	150	226,1	251,0	219,8	224,8	251,0	231,9	233,2	251,0	251,0	181,7	192,5	202,5
	200	219,1	243,9	213,4	221,0	243,9	227,4	224,2	243,9	243,9	163,8	178,4	192,1
	250	208,6	231,7	202,9	215,4	231,7	222,3	221,1	231,7	231,7	152,7	166,9	181,0
	300	193,7	212,1	188,5	210,1	212,1	212,1	212,1	212,1	212,1	145,3	158,1	172,2
	350	184,8	201,2	179,8	201,1	201,2	201,2	201,2	201,2	201,2	140,3	152,1	164,5
	400	172,5	172,5		182,9	182,9	182,9	182,9	182,9	182,9	137,3	145,6	158,8
	425	143,8	100,2		175,5	175,5	175,5	175,5	172,5	175,5	135,8	143,3	157,3
	450	100,2	100,2		169,0	169,0	169,0	169,0	154,5	169,9	134,3	140,4	153,8
	500	44,0	44,0		120,3	135,3	139,0	139,0	101,3	137,5	130,3	134,1	139,0
	525	16,3	25,9		75,2	94,0	101,3	109,6	77,1	113	119,4	131,5	129,0
	540	16,3	16,3		53,5	69,7	63,8	81,8	58,4	84,9	109,1	124,8	124,8
	600						29,4	38,2	32,6	35,9	83,6	107,2	107,2
	650						11,6	18,3	15,0	17,4	52,6	70,6	57,9
	700										29,9	49,7	33,7
	750										18,3	29,4	20,1
	800										10,3	17,5	13,1
		SHELL TEST	383,0	387,9	359,1	359,1	387,9	387,9	387,9	387,9	387,9	372,2	372,2
	SEAT TEST	280,8	284,5	263,3	263,3	284,5	284,5	284,5	284,5	284,5	272,9	272,9	273,0
2500 (PN 420)	- 29 to 38	425,5	431,0	398,9	399,0	431,0	431,0	431,0	431,0	431,0	413,5	413,6	413,6
	50	417,3	431,0	393,7	397,1	431,0	426,2	426,7	430,9	430,9	398,6	401,0	403,2
	100	386,5	429,5	388,3	429,5	429,5	406,4	109,7	429,5	429,5	374,7	351,7	362,2
	150	376,9	419,3	366,3	374,6	418,3	386,4	388,6	418,3	418,3	302,8	320,9	337,5
	200	365,2	406,6	355,6	368,3	406,6	379,0	373,7	406,6	406,6	273,0	297,3	320,2
	250	347,7	386,1	338,2	359,0	386,1	370,6	368,5	386,1	386,1	254,5	278,2	301,7
	300	322,8	353,5	314,2	350,2	353,5	353,5	353,5	353,5	353,5	242,1	263,6	287,0
	350	308,0	335,3	299,7	335,2	335,3	335,3	335,3	335,3	335,3	233,8	253,8	274,2
	400	287,5	287,5		304,9	304,9	304,9	304,9	304,9	304,9	228,9	242,6	264,7
	425	239,6	239,6		292,5	292,5	292,5	292,5	287,5	292,5	226,4	238,9	262,2
	450	166,9	166,9		281,7	281,7	281,7	281,7	257,6	281,7	223,9	234,0	256,3
	500	73,3	73,3		200,6	225,4	231,6	231,6	168,9	229,1	217,2	223,6	231,6
	525	43,2	43,2		125,4	156,6	168,9	182,7	128,5	188,3	199,0	214,9	214,9
	540	27,2	27,2		89,2	116,1	106,4	136,4	97,3	141,5	181,8	208,0	208,0
	600						49,0	63,6	54,4	59,8	139,3	178,6	178,6
	650						19,3	30,4	25,1	29,0	87,6	117,1	96,5
	700										49,8	82,9	56,1
	750										30,4	49,0	33,5
	800										17,1	29,2	21,9
		SHELL TEST	638,3	646,5	598,4	398,5	646,5	646,5	646,5	646,5	646,5	620,3	620,4
	SEAT TEST	468,1	474,1	438,8	438,1	474,1	474,1	474,1	474,1	474,1	454,9	455,0	455,0

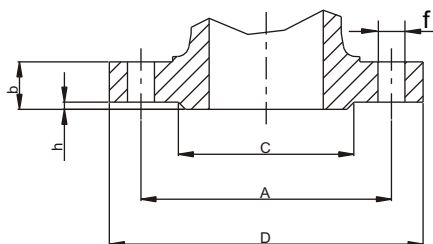
NOTES

- (a) Permissible, but not recommended for prolonged usage above 427 °C (800 °F)
- (b) Not to be used over 343 °C (650 °F)
- (c) Permissible, but not recommended for prolonged usage above 454 °C (850 °F)
- (d) Permissible, but not recommended for prolonged usage above 593 °C (1100 °F)
- (e) Not to be used over 427 °C (800 °F)

- (f) Not to be used over 454 °C (850 °F)
- (g) At temperature over 538 °C (1000 °F), use only when carbon content is 0,04 or higher
- (h) Permissible, but not recommended for prolonged usage above 468 °C (875 °F)
- (j) Not to be used over 538 °C (1000 °F)
- (m) Not to be used over 593 °C (1100 °F)

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DN = Nominal pipe size
 D = Outside diameter of flange
 b = Thickness of flange min.
 C = Diameter of hub
 h = Height of raised face
 N = Number of bolt holes
 f = Diameter of bolt holes
 A = Diameter of bolt circle

PN	DN	D	b	C	h	N°	f	A		PN	DN	D	b	C	h	N°	f	A
6	10	75	12	35	2	4	11	50		6	100	210	16	148	3	4	18	170
10-16	10	90	14	40	2	4	14	60		10-16	100	220	20	158	3	8	18	180
25-40	10	90	16	40	2	4	14	60		25-40	100	235	24	162	3	8	22	190
64-100	10	100	20	40	2	4	14	70		64	100	250	30	162	3	8	26	200
160	10	100	20	40	2	4	15	70		160	100	265	40	162	3	8	30	210
250	10	125	24	40	2	4	18	85		250	100	300	54	162	3	8	34	235
6	15	80	12	40	2	4	11	55		100	125	265	36	162	3	8	30	210
10-16	15	95	14	45	2	4	14	65		6	125	240	18	178	3	8	18	200
25-40	15	95	16	45	2	4	14	65		10-16	125	250	22	188	3	8	18	210
64-100	15	105	20	45	2	4	14	75		25-40	125	270	26	188	3	8	26	220
160	15	105	20	45	2	4	15	75		64	125	295	34	188	3	8	30	240
250	15	130	26	45	2	4	18,5	90		100	125	315	40	188	3	8	33	250
6	20	90	14	50	2	4	11	65		160	125	315	44	188	3	8	33	250
10-16	20	105	16	58	2	4	14	75		250	125	340	60	188	3	12	41	275
25-40	20	105	18	58	2	4	14	75		6	150	265	18	202	3	8	18	225
64-100	20	130	24	58	2	4	18	90		10-16	150	285	22	212	3	8	22	240
6	25	100	14	60	2	4	11	75		25-40	150	300	28	218	3	8	26	250
10-16	25	115	16	68	2	4	14	85		64	150	345	36	218	3	8	33	280
25-40	25	115	18	68	2	4	14	85		100	150	355	44	218	3	12	33	290
64-100	25	140	24	68	2	4	18	100		160	150	355	50	218	3	12	33	290
160	25	140	24	68	2	4	18	100		250	150	390	68	218	3	12	48	320
250	25	150	28	68	2	4	19	105		6	175	295	20	232	3	8	18	255
6	32	120	14	70	2	4	14	90		10-16	175	315	24	242	3	8	22	270
10-16	32	140	16	78	2	4	18	100		25	175	330	28	248	3	12	26	280
25-40	32	140	18	78	2	4	18	100		40	175	350	32	260	3	12	30	295
64-100	32	155	24	78	2	4	22	110		64	175	375	40	260	3	12	33	310
6	40	130	14	80	3	4	14	100		100	175	385	48	260	3	12	33	320
10-16	40	150	16	88	3	4	18	110		160	175	390	54	260	3	12	36	320
25-40	40	150	18	88	3	4	18	110		250	175	430	74	260	3	12	50	355
64-100	40	170	26	85	3	4	22	125		6	200	320	20	258	3	8	18	280
160	40	170	28	88	3	4	22	125		10	200	340	24	268	3	8	22	295
250	40	185	34	88	3	4	25	135		16	200	340	24	268	3	12	22	295
6	50	140	14	90	3	4	14	110		25	200	360	30	278	3	12	26	310
10-16	50	165	18	102	3	4	18	125		40	200	375	34	285	3	12	30	320
25-40	50	165	20	102	3	4	18	125		64	200	415	42	285	3	12	36	345
64	50	180	26	102	3	4	22	135		100	200	430	52	285	3	12	36	360
100	50	195	28	102	3	4	26	145		160	200	430	60	285	3	12	36	360
160	50	195	30	102	3	4	26	145		250	200	485	82	285	3	12	57	400
250	50	200	38	102	3	5	26	150		6	250	375	22	312	3	12	18	335
6	65	160	14	110	3	4	14	130		10	250	395	26	320	3	12	22	350
10-16	65	185	18	122	3	4	18	145		16	250	405	26	320	3	12	26	355
25-40	65	185	22	122	3	8	18	145		25	250	425	32	335	3	12	30	370
64	65	205	26	120	3	8	22	160		40	250	450	38	345	3	12	33	385
100	65	220	30	120	3	8	26	170		64	250	470	46	345	3	12	36	400
160	65	220	34	122	3	8	26	180		100	250	505	60	345	3	12	39	430
250	65	230	42	122	3	8	30	180		160	250	515	68	345	3	12	42	430
6	80	190	16	128	3	4	18	150		250	250	585	100	345	3	16	72	490
10	80	200	20	138	3	8	18	160		6	300	440	22	365	4	12	22	395
16	80	200	20	138	3	8	18	160		10	300	445	26	370	4	12	22	400
25-40	80	200	24	138	3	8	18	160		16	300	460	28	378	4	12	26	410
64	80	215	28	138	3	8	22	170		25	300	485	34	390	4	16	30	430
100	80	230	32	138	3	8	24	180		40	300	515	42	410	4	16	33	450
160	80	230	36	138	3	8	40	180		64	300	530	52	410	4	16	36	460
250	80	255	46	138	3	8	31	200		100	300	585	68	410	4	16	42	500
										160	300	585	78	410	4	16	42	500
										250	300	690	120	410	4	16	90	590

All dimensions in mm (except where differently indicated)

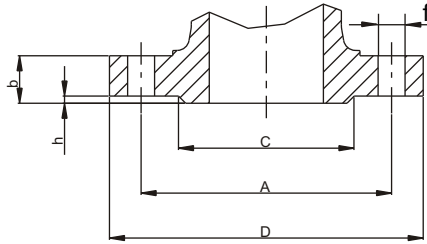
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DIN FLANGES DIMENSIONS

DN 350 ÷ DN 1200

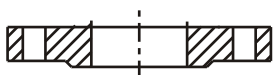
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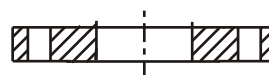
DN = Nominal pipe size
D = Outside diameter of flange
b = Thickness of flange min.
C = Diameter of hub
h = Height of raised face
N = Number of bolt holes
f = Diameter of bolt holes
A = Diameter of bolt circle

PN	DN	D	b	C	h	N°	f	A		PN	DN	D	b	C	h	N°	f	A
6	350	490	22	415	4	12	22	445		6	700	860	24	775	5	24	25	810
10	350	505	26	430	4	16	22	460		10	700	895	30	800	5	24	30	840
16	350	520	30	438	4	16	26	470		16	700	910	42	795	5	24	36	840
25	350	555	38	450	4	16	33	490		25	700	960	50	820	5	24	42	875
40	350	580	46	465	4	16	36	510		40	700	995	64	840	5	24	48	900
64	350	600	56	465	4	16	39	525		64	700	1045	84	840	5	24	56	935
100	350	655	74	465	4	16	48	560		100	700	1145	120	840	5	24	70	1020
6	400	540	22	465	4	16	22	495		6	800	975	24	880	5	24	30	920
10	400	565	26	482	4	16	26	515		10	800	1015	32	905	5	24	33	950
16	400	580	32	490	4	16	30	525		16	800	1025	42	900	5	24	39	950
25	400	620	40	505	4	16	36	550		25	800	1085	64	930	5	24	48	990
40	400	660	50	535	4	16	39	585		40	800	1165	72	960	5	24	62	1050
64	400	670	60	535	4	16	42	585		64	800	1165	92	960	5	24	62	1050
100	400	715	78	535	4	16	48	620		100	800	n.a	n.a	n.a	n.a	n.a	n.a	n.a
6	450	595	22	520	4	16	22	550		6	900	1075	26	980	5	24	30	1020
10	450	615	26	532	4	20	26	565		10	900	1115	34	1005	5	28	33	1050
16	450	640	32	550	4	20	30	585		16	900	1125	44	1000	5	28	39	1050
25	450	670	40	555	4	20	36	600		25	900	1185	68	1030	5	28	48	1090
40	450	685	50	560	4	20	39	610		40	900	1250	78	1070	5	28	56	1140
64	450	715	64	560	4	20	42	630		64	900	1285	98	1070	5	28	62	1170
100	450	770	86	560	4	20	48	675		100	900	n.a	n.a	n.a	n.a	n.a	n.a	n.a
6	500	645	24	570	4	20	22	600		6	1000	1175	26	1080	5	28	30	1120
10	500	670	28	585	4	20	26	620		10	1000	1230	34	1110	5	28	36	1160
16	500	715	36	610	4	20	33	650		16	1000	1255	46	1115	5	28	42	1170
25	500	730	44	615	4	20	36	660		25	1000	1320	62	1140	5	28	56	1210
40	500	755	52	615	4	20	42	670		40	1000	1360	80	1180	5	28	56	1250
64	500	800	68	615	4	20	48	705		64	1000	1415	108	1180	5	28	70	1290
100	500	870	94	615	4	20	56	760		100	1000	n.a	n.a	n.a	n.a	n.a	n.a	n.a
6	600	755	24	670	5	20	26	705		6	1200	1405	28	1295	5	32	33	1340
10	600	780	28	685	5	20	30	725		10	1200	1455	38	1330	5	32	39	1380
16	600	840	40	725	5	20	36	770		16	1200	1485	52	1330	5	32	48	1390
25	600	845	46	720	5	20	39	770		25	1200	1530	70	1350	5	32	56	1420
40	600	890	54	735	5	20	48	795		40	1200	1575	88	1380	5	32	62	1460
64	600	930	76	735	5	20	56	820		64	1200	1665	126	1380	5	32	78	1530
100	600	990	104	735	5	20	62	875		100	1200	n.a	n.a	n.a	n.a	n.a	n.a	n.a

FLANGES - TYPES OF CONTACT SURFACES - DIN 2526



FLANGES WITH RAISED FACE



FLANGES WITHOUT RAISED FACE

Type A - Contact face without stipulation

Type B - Contact face $R_z = 160$, turned (not finer than 40 micron)

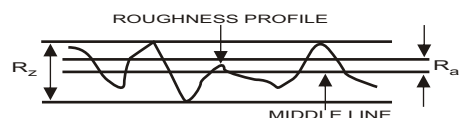
Type C - Raised face $R_z = 160$ (not finer than 40 micron), turned

Type D - Raised face $R_z = 40$, turned

Type E - Raised face $R_z = 16$, turned

NOMINAL ROUGHNESS GRADES (R_a)

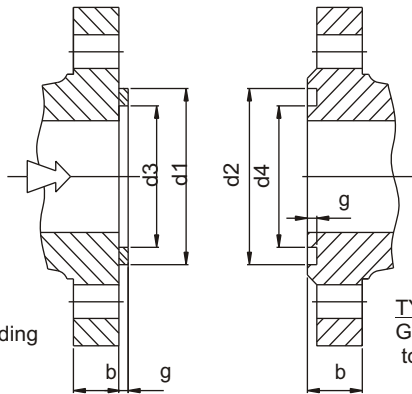
R_a (μm)	R_z (μm)
1.6	16
3.2	25
6.3	40
12.5	100
25	160



All dimensions in mm (except where differently indicated)

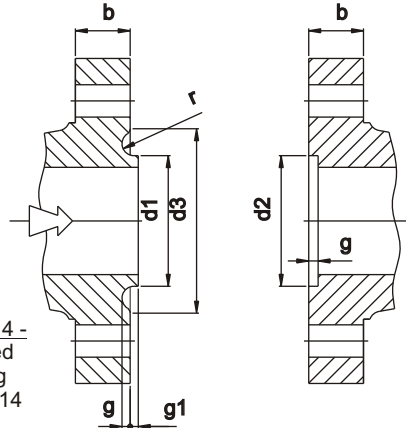
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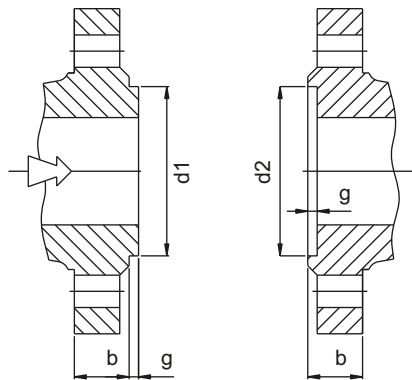
TYPE F -
Tongue according
to DIN 2512

TYPE N -
Groove according
to DIN 2512



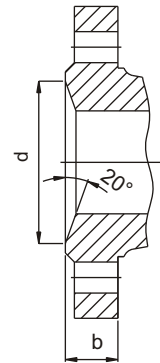
TYPE V 14 -
Male-facing
according
to DIN 2514

TYPE R 14 -
Female-facing
according
to DIN 2514

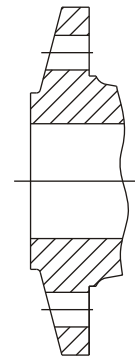


TYPE V 13 -
Male-facing
according
to DIN 2513

TYPE R 13 -
Female-facing
according
to DIN 2513



TYPE L - Recess for lenticular seal
according to DIN 2696



TYPE M - Bevel for diaphragm
seal welding according to
DIN 2695

DIMENSIONS OF FACING

DN	DIN 2513					DIN 2512									DN	DIN 2514							LENTICULAR SEAL DIN 2696		DN
	PN ≤ 6		PN ≥ 10			g	PN ≤ 6				PN ≥ 10					g	PN 10 ÷ 40					PN 64 : 250			
	d ₁	d ₂	d ₁	d ₂	d ₃		d ₄	d ₁	d ₂	d ₃	d ₄	d ₁	d ₂	d ₃			g	g ₁	r	d					
10	30	31	34	35	4	30	31	22	21	34	35	24	23	4	10	-	-	-	-	-	-	18	10		
15	35	36	39	40	4	35	36	27	26	39	40	29	28	4	15	-	-	-	-	-	-	24	15		
20	42	43	50	51	4	42	43	32	31	50	51	36	35	4	20	35	36	51	4	2	2,5	30	20		
25	49	50	57	58	4	49	50	39	38	57	58	43	42	4	25	42	43	58	4	2	2,5	35	25		
32	61	62	65	66	4	61	62	49	48	65	66	51	50	4	32	50	51	66	4	2	2,5	43	32		
40	68	69	75	76	4	68	69	56	55	75	76	61	60	4	40	60	61	76	4	2	2,5	51	40		
50	81	82	87	88	4	81	82	69	68	87	88	73	72	4	50	72	73	88	4	2	2,5	63	50		
65	101	102	109	110	4	101	102	89	88	109	110	95	94	4	65	94	95	110	4	2	2,5	85	65		
80	117	118	120	121	4	117	118	103	102	120	121	106	105	4	80	105	106	121	4	2	2,5	97	80		
100	137	138	149	150	4,5	137	138	123	122	149	150	129	128	4,5	100	128	129	150	4,5	2,5	3	124	100		
125	165	166	175	176	4,5	165	166	149	148	175	176	155	154	4,5	125	154	155	176	4,5	2,5	3	153	125		
150	192	193	203	204	4,5	192	193	176	175	203	204	183	182	4,5	150	182	183	204	4,5	2,5	3	181	150		
175	222	223	233	234	4,5	222	223	206	205	233	234	213	212	4,5	175	212	213	234	4,5	2,5	3	218	175		
200	249	250	259	260	4,5	249	250	231	230	259	260	239	238	4,5	200	238	239	260	4,5	2,5	3	243	200		
250	304	305	312	313	4,5	304	305	286	285	312	313	292	291	4,5	250	291	292	313	4,5	2,5	3	298	250		
300	354	355	363	364	4,5	354	355	336	335	363	364	343	342	4,5	300	342	343	364	4,5	2,5	3	345	300		
350	401	402	421	422	5	401	402	381	380	421	422	395	394	5	350	394	395	422	5	3	3,5	394	350		
400	451	452	473	474	5	451	452	431	430	473	474	447	446	5	400	446	447	474	5	3	3,5	445	400		
450	505	506	523	524	5	505	506	481	480	523	524	497	496	5	450	496	497	524	5	3	3,5		450		
500	555	556	575	576	5	555	556	531	530	575	576	549	548	5	500	548	549	576	5	3	3,5		500		
600	655	656	675	676	5	655	656	631	630	675	676	649	648	5	600	648	649	676	5	3	3,5		600		
700	760	761	777	778	5	760	761	736	735	777	778	751	750	5	700	750	751	778	5	3	3,5		700		
800	865	866	882	883	5	865	866	841	840	882	883	856	855	5	800	855	856	883	5	3	3,5		800		
900	965	966	987	988	5	965	966	941	940	987	988	961	960	5	900	960	961	988	5	3	3,5		900		
1000	1062	1063	1091	1092	6	1062	1063	1036	1035	1091	1092	1061	1060	6	1000	1060	1061	1092	6	3	4		1000		

All dimensions in mm (except where differently indicated)

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VALVE WELDING ENDS - DIN 3239

Part 1 - Butt ends | Part 2 - Socket ends

VALVOSIDER

MANUFACTURER OF VALVES

Nominal size DN	Butt Welding ends for pipes of							
	series 1 (up to PN 40)	series 2 (PN 63)	series 3 (PN 100)	series 4 (PN 160)	series 5 (PN 250)	series 6 *) (PN 320)	series 7 (PN 400)	series 8 (PN 630)
10	d1	Use series 4 welding ends		20	Use series 6 welding ends	20	20	24
	d2			18		18	18	22
	d3			17,2		17,2	17,2	21,3
	d _p			13		12	10	11,5
	s			2,0		2,6	3,6	5,0
15	d1	Use series 4 welding ends		24	24	24	31	37
	d2			22	22	22	28	34
	d3			21,3	21,3	21,3	26,9	33,7
	d _p			17	16	15	17	18,5
	s			2,0	2,6	3,2	5,0	8,0
20	d1	31	--	--	--	--	--	--
	d2	28	--	--	--	--	--	--
	d3	26,9	--	--	--	--	--	--
	d _p	22	--	--	--	--	--	--
	s	2,3	--	--	--	--	--	--
25	d1	Use series 3 welding ends		37	39	39	48	54
	d2			34	35	35	44	49
	d3			33,7	33,7	33,7	42,4	48,3
	d _p			28,5	27	20,5	29	25
	s			2,6	3,2	3,6	7,1	12,5
40	d1	Use series 3 welding ends		54	54	54	67	67
	d2			49	49	49	61	77
	d3			48,3	48,3	48,3	60,3	76,1
	d _p			43	41	38,5	40	43,5
	s			2,6	3,6	5,0	6,3	11,0
50	d1	Use series 3 welding ends		67	67	67	83	96
	d2			61	61	61	77	90
	d3			60,3	60,3	60,3	76,1	88,9
	d _p			54	52,5	45	59,5	51,5
	s			3,2	4,0	8,0	8,8	14,2
65	d1	Use series 3 welding ends		83	83	83	96	121
	d2			77	77	77	90	115
	d3			76,1	76,1	76,1	88,9	114,3
	d _p			69	85	59,5	68	81
	s			3,6	5,6	8,8	11,0	17,5
80	d1	Use series 3 welding ends		96	96	121	121	121
	d2			90	90	115	115	115
	d3			88,9	88,9	114,3	114,3	114,3
	d _p			81	76,5	93	87,5	81
	s			4,0	6,3	11,0	14,2	17,5
100	d1	Use series 3 welding ends		121	121	121	121	121
	d2			115	115	115	115	115
	d3			114,3	114,3	114,3	114,3	114,3
	d _p			104	96,5	104	96,5	104
	s			5,0	8,0	10,0	10,0	10,0
125	d1	Use series 2 welding ends	147	147	147	147	147	147
	d2		141	141	141	141	141	
	d3		139,7	139,7	139,7	139,7	139,7	
	d _p		130,5	127	120,5	130,5	127	
	s		4,5	6,3	10,0	4,5	6,3	
150	d1	Use series 2 welding ends	176	176	176	176	176	
	d2		170	170	170	170	170	
	d3		168,3	168,3	168,3	168,3	168,3	
	d _p		156,5	154	144,5	156,5	154	
	s		5,6	7,1	12,5	5,6	7,1	
200	d1	Use series 2 welding ends	228	228	228	228	228	
	d2		222	222	222	222	222	
	d3		219,1	219,1	219,1	219,1	219,1	
	d _p		204,5	199,5	169	204,5	199,5	
	s		7,1	10	16,0	7,1	10	
250	d1	282	282	282	282	282	282	
	d2	276	276	276	276	276		
	d3	273	273	273	273	273		
	d _p	256,5	255	248,5	256,5	255		
	s	8,0	8,8	12,5	8,0	8,8		
300	d1	331	331	331	331	331		
	d2	325	325	325	325	325		
	d3	323,9	323,9	323,9	323,9	323,9		
	d _p	306,5	301	295,5	306,5	301		
	s	8,0	11,0	14,2	8,0	11,0		
350	d1	365	365	365	365	365		
	d2	359	359	359	359	359		
	d3	355,6	355,6	355,6	355,6	355,6		
	d _p	336,5	330	324	336,5	330		
	s	8,8	12,5	16,0	8,8	12,5		
400	d1	417	417	417	417	417		
	d2	411	411	411	411	411		
	d3	406,4	406,4	406,4	406,4	406,4		
	d _p	383	377	371	383	377		
	s	11	14,2	17,5	11	14,2		
500	d1	518	518	518	518	518		
	d2	512	512	512	512	512		
	d3	508	508	508	508	508		
	d _p	478	472	466	478	472		
	s	14,2	17,5	20,8	14,2	17,5		

WELDING SOCKET CONNECTIONS

DIN 3239 - Part 2

permissible deviation from end face

d_a = min. socket ext. diameter
 d_1 = socket bore diameter
 t = depth of socket

DIN 3239 - Part 1

Type 1

S = wall thickness
 d_2 = pipe external diameter
 d_p = $d_2 - 2S$ (pipe int. diameter)

1) d_1 is the maximum permissible major diameter, generally applicable for steel castings or malleable cast iron components suitable for welding.
 2) d_3 is the major diameter of the associated series 1 steel pipe as specified in ISO 4200 - 1985.
 *) Welding neck flanges are not suitable for use with piping systems rated for PN 320 and PN 630.

Nominal width DN	d_a min. Series			d_i	Associated outside diameter of pipe	t
	4	5	6			
6	17	17	17	11	10,2	10
8	21	21	22	14	13,5	10
10	24	24	26	18	17,2	10
15	29	32	34	22	21,3	10
20	35	38	41	27,5	26,9	13
25	42	46	50	34,5	33,7	13
32	52	55	59	43	42,4	13
40	57	62	68	49	48,3	13
50	71	75	83	61,5	60,3	16
65	90	100	110	77	76,1	16
80	100	120	130	90	88,9	16
100	135	150	165	115,5	114,3	20

All dimensions in mm (except where differently indicated)

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Designation		Chemical composition (cast analysis) (% min.)								
Name	Number	C	Si max	Mn	P max	S max	Cr	Mo	Ni	others
GP240GH	1.0619	0,18 to 0,23	0,60	0,50 to 1,20	0,030	0,020 ¹⁾	--	--	--	--
G20Mo5	1.5419	0,18 to 0,23	0,60	0,50 to 1,00	0,025	0,020 ¹⁾	--	0,40 to 0,60	--	--
G17CrMo5-5	1.7357	0,15 to 0,20	0,60	0,50 to 1,00	0,020	0,020 ¹⁾	1,00 to 1,50	0,45 to 0,65	--	--
G17CrMo9-10	1.7379	0,13 to 0,20	0,60	0,50 to 0,90	0,020	0,020 ¹⁾	2,00 to 2,50	0,90 to 1,20	--	--
GX15CrMo5	1.7365	0,12 to 0,19	0,80	0,50 to 0,80	0,025	0,025	4,00 to 6,00	0,45 to 0,65	--	--
G20Mn5	1.6220	0,17 to 0,23	0,60	1,00 to 1,60	0,020	0,020 ¹⁾	--	--	0,80 max	--
G9Ni10	1.5636	0,06 to 0,12	0,60	0,50 to 0,80	0,020	0,015	--	--	2,00 to 3,00	--
G9Ni14	1.5638	0,06 to 0,12	0,60	0,50 to 0,80	0,020	0,015	--	--	3,00 to 4,00	--
GX5CrNi19-10 2)	1.4308 2)	0,07 max	1,50	1,50	0,040	0,030	18,00 to 20,00	--	8,00 to 11,00	--
GX5CrNiNb19-11 2)	1.4552 2)	0,07 max	1,50	1,50	0,040	0,030	18,00 to 20,00	--	9,00 to 12,00	Nb: 8 x C, max: 1,00
GX5CrNiMo19-11-2 2)	1.4408 2)	0,07 max	1,50	1,50	0,040	0,030	18,00 to 20,00	2,00 to 2,50	9,00 to 12,00	--
GX5CrNiMoNb19-11-2 2)	1.4581 2)	0,07 max	1,50	1,50	0,040	0,030	18,00 to 20,00	2,00 to 2,50	9,00 to 12,00	Nb: 8 x C, max: 1,00
GX2CrNiMoN22-5-3	1.4470	0,03 max	1,00	2,00	0,035	0,025	21,00 to 23,00	2,50 to 3,50	4,50 to 6,50	N: 0,12 to 0,20

1) For castings of ruling thickness <28 mm, % 0,030 S is permitted

2) It should be pointed out that the suggested chemical composition ranges of these alloyed corrosion resistant steel grades are rather large. According to the final destination (high temperature/low temperature, etc...) it may be advisable for the founder to aim for narrower ranges for different elements in order to achieve the most suitable structures.

MECHANICAL PROPERTIES

Designation		Heat treatment °C		Test at room temperature				Test at elevated temperature									
Name	Number	Symbol 2)	Normalizing (+ N) or Quenching (+ Q) 1)	Tempering (+T)	Tensile test			Impact test	Tensile test								
					Rp _{0,2} Mpa *) min	Rm Mpa *)	A % min		KV J min.	Rp _{0,2} Mpa *) min at °C							
					100°	200°	300°	350°	400°	450°	500°	550°					
GP240GH	1.0619	+ N + QT	900 to 980 890 to 980	-- 600 to 700	240	420 to 600	22	27	210	175	145	135	130	125	--	--	
G20Mo5	1.5419	+ QT	920 to 980	650 to 730	245	440 to 590	22	27	--	190	165	155	150	145	135	--	
G17CrMo5-5	1.7357	+ QT	920 to 960	680 to 730	315	490 to 690	20	27	--	250	230	215	200	190	175	160	
G17CrMo9-10	1.7379	+ QT	930 to 970	680 to 740	400	590 to 740	18	40	--	355	345	330	315	305	280	240	
GX15CrMo5	1.7365	+ QT	930 to 990	680 to 730	420	630 to 760	16	27	--	390	380	--	370	--	305	250	

1) +Q means quenching media: air or liquid. +T = tempering. +N = normalizing

2) If there are alternative specifications for heat treatment, the requested alternative shall be indicated on the order, e.g.: GP240GH +QT1 or 1.0619 +QT1

*) 1 Mpa = 1N/mm²

Designation		Heat treatment °C		Test at room temperature			Impact test		
Name	Number	Symbol 1)	Quenching	Tempering	Tensile strength			KV J min.	At °C
					Rp _{0,2} Mpa *) min	Rm Mpa *)	A % min		
G20Mn5	1.6220	+ N + QT	900 to 980 900 to 940	-- 610 to 660	300	480 to 620	20	27	-30
G9Ni10	1.5636	+ QT	830 to 890	600 to 650	280	480 to 630	24	27	-70
G9Ni14	1.5638	+ QT	820 to 900	590 to 650	360	500 to 650	20	27	-90

1) +Q: quenching in water. +T = tempering. +N = normalizing.

*) 1 Mpa = 1 N/mm²

Designation		Heat treatment		Test at room temperature				Test at elevated temperature								
Name	Number	+ AT 1)	°C	Tensile test			Impact test	Tensile test								
				Rp _{1,0} 5) Mpa *) min	Rm Mpa *)	A % min		KV J min.	°C 8)	Rp _{1,0} 5) Mpa *) min. at °C						
					100°	200°	300°	350°	400°	500°	550°					
GX5CrNi19-10	1.4308		1050 to 1150	200	440 to 640	30	60 7)	RT 7)	160	125	110	--	--	--	--	
GX5CrNiNb19-11	1.4552		1050 to 1150	200	440 to 640	25	40	RT	165	145	130	--	120	110	100	
GX5CrNiMo19-11-2	1.4408		1080 to 1150	210	440 to 640	30	60 7)	RT 7)	170	135	115	--	105	--	--	
GX5CrNiMoNb19-11-2	1.4581		1080 to 1150	210	440 to 640	25	40	RT	185	160	145	--	130	120	115	
GX2CrNiMoN22-5-3	1.4470		1120 to 1150 2) 3)	420 6)	600 to 800	20	30	RT	330 6)	280 6)	4)	--	--	--	--	

1) The heat treatment for all the steel grades is +AT +QW (solution annealing + water quenching).

2) After solution annealing at high temperature, castings may be cooled down to 1040 °C to 1010 °C prior to water quenching in order to improve corrosion resistance and prevent cracks in complex shapes.

3) As far as steel castings for pressure vessel are concerned the austenitic-ferritic steel are not considered in their age hardened condition.

4) For similar reasons as those concerning note 3) the austenitic-ferritic steel have not to be used for temperatures higher than 250 °C in pressure vessel applications.

5) Rp_{0,2} may be estimated by lowering Rp_{1,0} by 25 Mpa.

6) Rp_{0,2}

7) For use at low temperature impact properties may be agreed and the following applies: Steel number 1.4308 KV J min. 60 at -196 °C.

8) RT = Room temperature. *) 1 Mpa = 1 N/mm²

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MATERIALS EQUIVALENCE AND COMPARISON

VALVOSIDER
MANUFACTURER OF VALVES

MATERIALS EQUIVALENCE

ASTM	EN 10213	EN No.	UNS	JIS	TRADE MARK
A48-40B	EN-GJL-250	0.6025			
	EN-GJS-400-18	0.7043			
A216 WCB	GP240GH	1.0619	J03002	SCPH2	
A352 LCB	G20Mn5	1.6220	J03003	SCPL1	
A352 LC2					
A352 LC3	G9Ni14	1.5638	J31550	SCPL31	
A217 WC1	G20Mo5	1.5419	J12524	SCPH11	
A217 WC6	G17CrMo5-5	1.7357	J12072	SCPH21	
A217 WC9	GS12CrMo9-10	1.7379	J21890	SCPH32-CF	
A217 C5	GX15CrMo5	1.7365 (1.7363)	J42045	SCPH61	
A217 C12	(GX12CrMo10-1)	(1.7389)	J82090		
A351 CF3	X2CrNi19-11	1.4306	J92500	SCS19	
A351 CF3M	X2CrNiMo17-12-2	1.4409	J92800	SCS16	
A351 CF8	GX5CrNiMo19-10	1.4308	J92600	SCS13	
A351 CF8C	GX5CrNiNb19-11	1.4552	J92710		
A351 CF8M	GX5CrNiMo19-11-2	1.4408	J92900	SCS14	
A351 CF8MC	GX5CrNiMoNb19-11-2	1.4581			
A351 CG8M					
	GX2CrNiMoN22-5-3	1.4470			
A351 CK3MCuN					
A351 CN7M			N08007	SCS23	
A494 N-12MV			N10001		HASTELLOY B ®
A494 CW-12MW			N10002		HASTELLOY C ®
A494 M35-1			N04400		MONEL 400 ®
A494 CW-6MC			N06625		INCONEL 625 ®
			N08825		INCOLOY 825 ®
			S31803		SAF 2205 ®
			S31254		254 SMO ®
			S32550		FERRALIUM 255 ®

MATERIALS COMPARISON

CASTINGS			FORGINGS		
ASTM	EN 10213	EN No.	ASTM	EN 10213	EN No.
A216 WCB	GP240GH (GS-C 25N)	1.0619	A105	(C22.8)	1.0460
A352 LCB	G20Mn5	1.6220	A350 LF2		1.0437
A352 LC2					
A352 LC3	G9Ni14	1.5638	A350 LF3		1.5637
A217 WC1	G20Mo5	1.5419	A182 F1		1.5415
A217 WC6	G17CrMo5-5	1.7357	A182 F11	14CrMo4-5	1.7335
A217 WC9	GS12CrMo9-10	1.7379	A182 F22		1.7380
A217 C5	GX15CrMo5	1.7365 (1.7363)	A182 F5		1.7362
A217 CA15			A182 F6	(X20Cr13)	1.4021
A217 C12	(GX12CrMo10-1)	(1.7389)	A182 F9	(15CrMo12.1)	1.4920
A351 CF3	GX2CrNi19-11	1.4309	A182 F304L	X2CrNi19-11	1.4306
A351 CF3M	GX2CrNiMo19-11-2	1.4409	A182 F316L	X2CrNiMo17-12-2	1.4404
A351 CF8	GX5CrNi19-10	1.4308	A182 F304	X5CrNi18-10	1.4301
A351 CF8C	GX5CrNiNb19-11	1.4552	A182 F321	X6CrNiTi18-10	1.4541
A351 CF8C	GX5CrNiNb19-11	1.4552	A182 F347	X6CrNiNb18-10	1.4550
A351 CF8M	GX5CrNiMo19-11-2	1.4408	A182 F316	X5CrNiMo17-12-2	1.4401
A351 CF8MC	GX5CrNiMoNb19-11-2	1.4581	A182 F348	X6CrNiMoNb17-12-2	1.4580
A351 CG8M			A182 F317		
A351 CK3MCuN			A182 F44		
A351 CN7M			A182 F20		

BOLTS - ASME MATERIALS

BOLTS		NUTS	
B7	ASTM A193 B7	2H	ASTM A194 Gr.2H
B16	ASTM A193 B16	Gr.4	ASTM A194 Gr.4
L7	ASTM A320 L7	Gr.4	ASTM A194 Gr.4
B8M	ASTM A193 B8M	Gr.8M	ASTM A193 Gr.8M
B8	ASTM A193 B8 CL. 1	Gr.8 A	ASTM A194 Gr.8A
320 B8	ASTM A320 B8 CL.1	Gr.8 A	ASTM A194 Gr.8A
307 B	ASTM A307 Gr.B		
B8	ASTM A193 B8 CL. 1	2H	ASTM A194 Gr.2H

BOLTS - DIN MATERIALS

MATERIALS		BOLTS		NUTS	
Y	C35	1.0501	C35	C35	C35
YK	CK35	1.1181	CK35	CK35	C35
G	24CrMo5	1.7258	24CrMo5	CK35	CK35
GA	21CrMoV57	1.7709	21CrMoV57	24CrMo5	24CrMo5
	A2-70		A2-70	A2-70	A2-70
	A4-70		A4-70	A4-70	A4-70

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RATING FOR GROUP 3E0 MATERIALS - GP240GH - 1.0619

TEMP. °C	GAUGE WORKING PRESSURE IN BAR				
	PN 16	PN 25	PN 40	PN 63	PN 100
RT	16,0	25,0	40,0	63,0	100,0
100	14,8	23,2	37,1	58,5	92,8
150	14,0	22,0	35,2	55,5	88,0
200	13,3	20,8	33,3	52,5	83,3
250	12,1	19,0	30,4	48,0	76,1
300	11,0	17,2	27,6	43,5	69,0
350	10,2	16,0	25,7	40,5	64,2
400	9,5	14,8	23,8	37,5	59,5
450					
460					
470					
480					
490					
500					

RATING FOR GROUP 4E0 MATERIALS - G20Mo5 - 1.5419

TEMP. °C	GAUGE WORKING PRESSURE IN BAR				
	PN 16	PN 25	PN 40	PN 63	PN 100
RT	16,0	25,0	40,0	63,0	100,0
100	16,0	25,0	40,0	63,0	100,0
150	16,0	25,0	40,0	63,0	100,0
200	16,0	25,0	40,0	63,0	100,0
250	15,6	24,4	39,0	61,5	97,6
300	13,7	21,4	34,2	54,0	85,7
350	12,9	20,2	32,3	51,0	80,9
400	11,9	18,6	29,9	47,1	74,7
450	11,0	17,2	27,6	43,5	69,0
460	10,2	16,0	25,6	40,3	64,0
470	9,4	14,7	23,6	37,2	59,1
480	8,6	13,5	21,6	34,1	54,2
490	7,8	12,3	19,7	31,0	49,2
500					

RATING FOR GROUP 5E0 MATERIALS - G17CrMo5-5 - 1.7357

TEMP. °C	GAUGE WORKING PRESSURE IN BAR				
	PN 16	PN 25	PN 40	PN 63	PN 100
RT	16,0	25,0	40,0	63,0	100,0
100	16,0	25,0	40,0	63,0	100,0
150	16,0	25,0	40,0	63,0	100,0
200	16,0	25,0	40,0	63,0	100,0
250	16,0	25,0	40,0	63,0	100,0
300	16,0	25,0	40,0	63,0	100,0
350	15,2	23,8	38,0	60,0	95,2
400	14,4	22,5	36,0	56,7	90,0
450	13,4	21,0	33,7	53,1	84,2
460	12,8	20,0	32,0	50,5	80,2
470	12,1	19,0	30,4	47,9	76,1
480	11,5	18,0	28,8	45,4	72,0
490	10,8	17,0	27,2	42,8	68,0
500					

RATING FOR GROUP 6E1 MATERIALS - GX15CrMo5 - 1.7365

TEMP. °C	GAUGE WORKING PRESSURE IN BAR				
	PN 16	PN 25	PN 40	PN 63	PN 100
RT	16,0	25,0	40,0	63,0	100,0
100	16,0	25,0	40,0	63,0	100,0
150	16,0	25,0	40,0	63,0	100,0
200	16,0	25,0	40,0	63,0	100,0
250	16,0	25,0	40,0	63,0	100,0
300	16,0	25,0	40,0	63,0	100,0
350	16,0	25,0	40,0	63,0	100,0
400	16,0	25,0	40,0	63,0	100,0
450	16,0	25,0	40,0	63,0	100,0
460					
470					
480					
490					
500					

RATING FOR GROUP 12E0 MATERIALS - GX5CrNiNb 19-11 - 1.4552

TEMP. °C	GAUGE WORKING PRESSURE IN BAR				
	PN 16	PN 25	PN 40	PN 63	PN 100
RT	16,0	25,0	40,0	63,0	100,0
100	15,8	24,7	39,6	62,4	99,0
150	14,9	23,3	37,3	58,8	93,3
200	14,1	22,1	35,4	55,8	88,5
250	13,4	21,0	33,7	53,1	84,2
300	12,7	19,8	31,8	50,1	79,5
350	12,2	19,1	30,6	48,3	76,6
400	11,8	18,5	29,7	46,8	74,2
450	11,6	18,1	29,0	45,7	72,6
500	11,3	17,7	28,3	44,7	70,9
550					
560					

RATING FOR GROUP 15E0 MATERIALS - GX5CrNiMoNb 19-11-2 - 1.4581

TEMP. °C	GAUGE WORKING PRESSURE IN BAR				
	PN 16	PN 25	PN 40	PN 63	PN 100
RT	16,0	25,0	40,0	63,0	100,0
100	16,0	25,0	40,0	63,0	100,0
150	15,6	24,5	39,2	61,8	98,0
200	14,9	23,3	37,3	58,8	93,3
250	14,1	22,1	35,4	55,8	88,5
300	13,3	20,8	33,3	52,5	83,3
350	12,8	20,1	32,1	50,7	80,4
400	12,4	19,5	31,2	49,2	78,0
450	12,2	19,1	30,6	48,3	76,6
500	12,0	18,8	30,0	47,4	75,2
550	11,9	18,6	29,9	47,1	74,7
560	11,8	18,5	29,6	46,6	74,0

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FLOW COEFFICIENT, K_v

may be defined as the rate of flow of water in cubic metres per hour, that will generate a pressure drop of one bar across the valve.

FLOW COEFFICIENT, C_v

may be defined as the rate of flow of water in US gallons per minute, at 60 °F (15,6 °C), that will generate a pressure drop of one pound-force per square inch across the valve.

BASIC FORMULAS

Liquid flow:

$$K_v = \frac{Q\sqrt{G}}{\sqrt{(\Delta P)}} \quad ; \quad \Delta P = G \left(\frac{Q}{K_v} \right)^2$$

where
 Q = flow rate in cubic metres per hour;
 G = specific gravity of liquid (water = 1);
 ΔP = pressure drop across valve in bar.

$$C_v = \frac{Q\sqrt{G}}{\sqrt{(\Delta P)}} \quad ; \quad \Delta P = G \left(\frac{Q}{C_v} \right)^2$$

where
 Q = flow rate in US gal/min;
 G = specific gravity of liquid (water = 1);
 ΔP = pressure drop across valve in lbf/in²

Gases flow :

$$\Delta P = P_1 - \sqrt{P_1^2 - 2S_G T \left(\frac{W_G}{1360 \frac{K_v}{0.86}} \right)^2}$$

where
 P_1 = inlet pressure (PSIA);
 S_G = specific gravity of gas at standard conditions (air = 1);
 T = absolute temperature of gas (-460 °F)
 W_G = Volumetric flow of gas

Steam flow:

$$\Delta P = P_1 - \sqrt{P_1^2 - \left(\frac{1 + 0.0007 T_s}{2.1 \frac{K_v}{0.86}} \cdot W \right)^2}$$

where
 W = pound per hour of Steam;
 T_s = degree of superheat (°F);
 P_1 = inlet pressure
 ΔP = pressure drop across valve in lbf/in²

Each type and size of valve has a particular flow coefficient and the general formulas indicate how a knowledge of this can be used to establish the pressure drop across a valve for a given flow rate or, alternatively, to determinate the flow rate through a valve which will generate a given pressure drop.

Flow coefficient values are determined by testing and may not be valid for all conditions of flow.

CAST STEEL VALVES - FLOW COEFFICIENT K_v (m³/h) (C_v (US gal/minute) = $K_v/0.86$)

Type	Class	Nominal dimension											
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
GATE VALVES	150	204	510	893	2074	3808	6035	8840	12325	16320	20825	23290	37060
	300	204	510	893	2074	3808	6035	8840	11339	15014	19159	21427	34095
	600	204	510	893	2074	3808	6035	10880	13065	17145	22330	27319	39704
	900	188	469	821	1908	3504	5552	10010	12019	15773	20543	25134	36527
	1500	173	432	756	1755	3223	5108	9209	11058	14511	18900	23123	33605
	2500	159	432	756	1755	3223	5108	9209	11058	--	--	--	--
GLOBE VALVES	150	38	102	174	400	740	1190	1700	2380	3188	4080	5015	7225
	300	38	102	174	400	740	1190	1700	2380	3188	3754	4614	6647
	600	35	86	149	352	633	985	1415	2190	2268	--	--	--
	900	32	79	137	324	582	906	1302	2015	2087	--	--	--
	1500	30	73	126	298	536	834	1198	1853	1920	--	--	--
	2500	27	67	116	275	493	768	1102	1705	1766	--	--	--
SWING CHECK VALVES F.B.	150	80	204	349	799	1479	2380	3400	4760	6375	8160	9350	14875
	300	77	198	338	775	1435	2309	3298	4617	6184	7915	9070	14429
	600	73	188	321	736	1363	2193	3133	4386	5874	7519	8616	13707
	900	70	179	305	700	1295	2083	2977	4167	5580	7143	8186	--
	1500	66	170	290	665	1231	1979	2828	3958	5301	6786	7777	--
	2500	63	162	275	632	1170	1880	2687	3760	5036	6447	7388	--
STRAINERS	150	56	127	200	494	675	944	1378	1916	2874	4311	6467	9700
	300	56	127	200	494	675	944	1378	1916	2874	4311	6467	9700
	600	49	111	176	434	594	830	1213	1686	2529	3794	5691	8536
	900	48	109	172	426	582	814	1188	1652	2479	3718	5577	8365
	1500	47	107	169	417	570	797	1165	1619	2429	3643	5466	8198
	2500	46	105	165	409	559	781	1141	1587	2380	3571	5356	8034

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	Multiply →	by	→ to obtain		Multiply →	by	→ to obtain	
Length	mil	25,4	μ (micron)	Velocity	ft/s (foot per second)	3,281	m/s (metre per second)	
	in (inch)	25,4	mm		m/min (metre per minute)	60	m/s (metre per second)	
	ft (foot)	0,3048	m		ft/min (foot per minute)	196,85	m/s (metre per second)	
	yd (yard)	0,9144	m		mile/h (mile per hour)	1,6093	km/h (kilometre per hour)	
	miles (nautical)	1,853	km		m/s (metre per second)	3,6	km/h (kilometre per hour)	
	miles (statute)	1,609	km					
Area	sq.in. (square inch)	6,4516	cm ²	Dynamic viscosity	g/ (cm s) (Poise)	0,1	Pa s = kg / (m s)	
	sq.ft. (square foot)	0,0929	cm ²		centipoise	0,001	Pa s	
	sq.yd. (square yard)	0,8361	cm ²		lb/ (ft s)	1,48819	Pa s	
Volume	cu.in (cubic inch)	16,387	cm ³	Kinematic viscosity	cm ² (Stokes)	0,0001	m ² /s	
	cu.ft. (cubic foot)	28,317	dm ³		centistokes	0,000001	m ² /s	
	UK gal (UK gallon)	4,5461	dm ³		ft ² / s	0,09290	m ² /s	
	US gal (US gallon)	3,7854	dm ³	Moment of force	N m (newton metre)	0,001	kN m (kilonewton metre)	
	bushel	35,24	dm ³			kN m	101,972	kgf m (kilogram-force metre)
	US gal (US gallon)	42	Us barrel			kgf m	86,8	lbf in (Pound-force inch)
	UK pint	1,76	l (litre)			lbf ft (Pound-force foot)	12	lbf in (Pound-force inch)
	l (litre)	1000	cm ³			lbf ft (Pound-force foot)	1,356	N m (newton metre)
	l (litre)	1	dm ³	Mass per unit length	kg/m	0,672	lb/ft	
	m3 (cubic metre)	1000	l (litre)			lb/ft	1,488	kg/m
Mass	grains	0,0648	g	Mass per unit area	kg/m ²	0,2048	lb/ft ²	
	lb (pound)	0,4536	kg		lb/ft ²	4,882	kg/m ²	
	oz (ounce)	28,3495	g	Thermal conductivity	W/(m °C)	6,934	Btu in/(ft ² h °F)	
	ton (UK ton)	1016,05	kg		Btu in/ft ² °F	0,1442	W/(m °C)	
	sh ton (US ton)	907,2	kg	Entalpy	Btu (British Thermal Unit)	1055	J (Joule)	
	t (tonne)	1000	kg			Btu	0,252	kcal = Cal
					J	0,73560	ft lb	
					kWh	3600	kJ	
Pressure and Stress	kgf/cm ² = ate	0,980556	bar	Power	Btu	0,252	kcal = Cal	
	Pa (Pascal) = N/m ²	0,00001	bar		kcal	4186,8	J	
	MPa (Megapascal)	10	bar	Energy	kJ/kg	0,239	kcal/kg	
	mm H ₂ O	9,80665	Pa		kW	1,34102	hp	
	Torr (mm Hg)	133,322	Pa		hp	746	watt	
psi (lbs per square inch)	0,068941	bar	Density	Calorific value (volume basis)	MJ/m ³	26,84	Btu/ft ³	
UK tonf/in ²	15,44	Mpa				Btu/ft ³	0,03726	MJ/m ³
						Btu/ft ³	37,26	kJ7m ³
				Force	N (Newton)	0,102	kgf = kp (unità in disuso)	
					lbf (pound-force)	4,4483	N	
					kgf = kp	2,205	lbf	
	to obtain ←	by	← Divide		to obtain ←	by	← Divide	
To →			add	→ to obtain				
psig (psi at gauge)			14,70	psia (psi absolute)				
bar (at gauge)			1,01325	bar absolute				
°C (degrees Celsius)			273,15	K (degees Kelvin)				
°F (degrees Fahrenheit)			459,4	°R (degrees Rankine)				
to obtain ←			subtract	← To				

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TEMPERATURE CONVERSION

FAHRENHEIT AND CENTIGRADE

VALVOSIDER

MANUFACTURER OF VALVES

°C	(a)		°C	(a)		°C	(a)		°C	(a)		°C	(a)	
	°C → °F	← °F		°C → °F	← °F		°C → °F	← °F		°C → °F	← °F		°C → °F	← °F
			-17,2	1	33,8	16,1	61	141,8	149	300	572	482	900	1652
			-16,7	2	35,6	16,7	62	143,6	154	310	590	488	910	1670
			-16,1	3	37,4	17,2	63	145,4	160	320	608	493	920	1688
			-15,6	4	39,2	17,8	64	147,2	166	330	626	499	930	1706
			-15,0	5	41,0	18,3	65	149,0	171	340	644	504	940	1724
			-14,4	6	42,8	18,9	66	150,8	177	350	662	510	950	1742
			-13,9	7	44,6	19,4	67	152,6	182	360	680	516	960	1760
			-13,3	8	46,4	20,0	68	154,4	188	370	698	521	970	1778
			-12,8	9	48,2	20,6	69	156,2	193	380	716	527	980	1796
			-12,2	10	50,0	21,1	70	158,0	199	390	734	532	990	1814
			-11,7	11	51,8	21,7	71	159,8	204	400	752	538	1000	1832
-273	-459,4		-11,1	12	53,6	22,2	72	161,6	210	410	770	549	1020	1868
-268	-450		-10,6	13	55,4	22,8	73	163,4	216	420	788	560	1040	1904
-262	-440		-10,0	14	57,2	23,3	74	165,2	221	430	806	571	1060	1940
-257	-430		-9,4	15	59,0	23,9	75	167,0	227	440	824	582	1080	1976
-251	-420		-8,9	16	60,8	24,4	76	168,8	232	450	842	593	1100	2012
-246	-410		-8,3	17	62,6	25,0	77	170,6	238	460	860	604	1120	2048
-240	-400		-7,8	18	64,4	25,6	78	172,4	243	470	878	616	1140	2084
-234	-390		-7,2	19	66,2	26,1	79	174,2	249	480	896	627	1160	2120
-229	-380		-6,7	20	68,0	26,7	80	176,0	254	490	914	638	1180	2156
-223	-370		-6,1	21	69,8	27,2	81	177,8	260	500	932	649	1200	2192
-218	-360		-5,6	22	71,6	27,8	82	179,6	266	510	950	660	1220	2228
-212	-350		-5,0	23	73,4	28,3	83	181,4	271	520	968	671	1240	2264
-207	-340		-4,4	24	75,2	28,9	84	183,2	277	530	986	682	1260	2300
-201	-330		-3,9	25	77,0	29,4	85	185,0	282	540	1004	693	1280	2336
-196	-320		-3,3	26	78,8	30,0	86	186,8	288	550	1022	704	1300	2372
-190	-310		-2,8	27	80,6	30,6	87	188,6	293	560	1040	732	1350	2462
-184	-300		-2,2	28	82,4	31,1	88	190,4	299	570	1058	760	1400	2552
-179	-290		-1,7	29	84,2	31,7	89	192,2	304	580	1076	788	1450	2642
-173	-280		-1,1	30	86,0	32,2	90	194,0	310	590	1094	816	1500	2732
-169	-273	-459,4	-0,6	31	87,8	32,8	91	195,8	316	600	1112	843	1550	2822
-168	-270	-454	0,0	32	89,6	33,3	92	197,6	321	610	1130	871	1600	2912
-162	-260	-436	0,6	33	91,4	33,9	93	199,4	327	620	1148	899	1650	3002
-157	-250	-418	1,1	34	93,2	34,4	94	201,2	332	630	1166	927	1700	3092
-151	-240	-400	1,7	35	95,0	35,0	95	203,0	338	640	1184	954	1750	3182
-146	-230	-382	2,2	36	96,8	35,6	96	204,8	343	650	1202	982	1800	3272
-140	-220	-364	2,8	37	98,6	36,1	97	206,6	349	660	1220	1010	1850	3362
-134	-210	-346	3,3	38	100,4	36,7	98	208,4	354	670	1238	1038	1900	3452
-129	-200	-328	3,9	39	102,2	37,2	99	210,2	360	680	1256	1066	1950	3542
-123	-190	-310	4,4	40	104,0	37,8	100	212,0	366	690	1274	1093	2000	3632
-118	-180	-292	5,0	41	105,8	43	110	230	371	700	1292	1121	2050	3722
-112	-170	-274	5,6	42	107,6	49	120	248	377	710	1310	1149	2100	3812
-107	-160	-256	6,1	43	109,4	54	130	266	382	720	1328	1177	2150	3902
-101	-150	-238	6,7	44	111,2	60	140	284	388	730	1346	1204	2200	3992
-96	-140	-220	7,2	45	113,0	66	150	302	393	740	1364	1232	2250	4082
-90	-130	-202	7,8	46	114,8	71	160	320	399	750	1382	1260	2300	4172
-84	-120	-184	8,3	47	116,6	77	170	338	404	760	1400	1288	2350	4262
-79	-110	-166	8,9	48	118,4	82	180	356	410	770	1418	1316	2400	4352
-73	-100	-148	9,4	49	120,2	88	190	374	416	780	1436	1343	2450	4442
-68	-90	-130	10,0	50	122,0	93	200	392	421	790	1454	1371	2500	4532
-62	-80	-112	10,6	51	123,8	99	210	410	427	800	1472	1399	2550	4622
-57	-70	-94	11,1	52	125,6	100	212	414	432	810	1490	1427	2600	4712
-51	-60	-76	11,7	53	127,4	104	220	428	438	820	1508	1454	2650	4802
-46	-50	-58	12,2	54	129,2	110	230	446	443	830	1526	1482	2700	4892
-40	-40	-40	12,8	55	131,0	116	240	464	449	840	1544	1510	2750	4982
-34	-30	-22	13,3	56	132,8	121	250	482	454	850	1562	1538	2800	5072
-29	-20	-4	13,9	57	134,6	127	260	500	460	860	1580	1566	2850	5162
-28	-18	0	14,4	58	136,4	132	270	518	466	870	1598	1593	2900	5252
-23	-10	14	15,0	59	138,2	138	280	536	471	880	1616	1621	2950	5342
-18	0	32	15,6	60	140,0	143	290	554	477	890	1634	1649	3000	5432

The central column (a) represent the know temperature in °C or in °F.
 The equivalent temperature in °F or in °C is then read from the column to the right or the left.
 General Formula °C = (°F - 32) x 5/9
 °F = (°C x 9/5) + 32

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TERMS AND CONDITIONS

Quotes are made without any obligation. An order is considered accepted when our order acknowledgement is received.

Orders are non-cancellable unless approved by management and cancellation charges may apply.

Prices are quoted "ex works" Borgosesia. All transportation charges, insurance, customs charges, special packing, any other fees will be the customer's (buyer's) responsibility, as well as any delays on delivery of goods.

Valvosider will not be responsible for any interruption or setback on delivery or delays in completing the contract due to strikes, work stoppages, fires, floods, accidents, inability to obtain materials, fuel, transportation or any other causes beyond our control. Penalty will not apply if not written in the contract.

All complaints and claims about shortages, corrections and/or reductions should be made within 30 days after receipt of goods. Damages and/or loss of goods in transit will be the sole responsibility of the carrier and all claims should be filed directly with them.

All amount of invoice due to Valvosider must be paid without rebate, deductions or set-off of any kind. The customer (buyer) should never have the right to suspend his obligation.

The customer (buyer) will have an interest bearing debt equal to the statutory rate of interest in Italy at the time of all or any unpaid portion on the last day of the payment term.

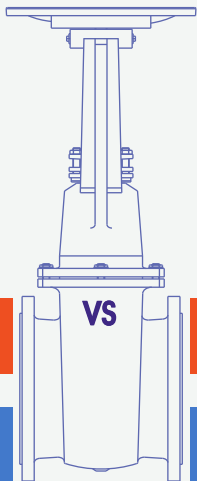
Valvosider reserves the right to change or modify the design and construction of any product without incurring any obligation to supply, substitute or modify goods previously sold.

Before shipment all goods are carefully tested. Valvosider guarantees its products against any defective material and workmanship for a period of up to one year from shipping date as long as goods are used for its intended and recommended purpose. Valvosider's obligation under warranty is limited to repair of the product or replacement of any part or parts having defects in material or workmanship. The customer (buyer) shall permit Valvosider to inspect the product to determine if indeed is warranty work.

Valvosider is not responsible to damages done to the product during repairs and/or replacement, said obligations and remedies to be sole warranty given hereunder. No warranty will apply to any product which has been modified, altered or changed in design or function after leaving the Valvosider factory.

Catalog pictures are only shown as a reference of the different products made by Valvosider. The actual product may vary in its design as changes are made for improvement to the product.

In case of controversy only the judicial authorities of Vercelli, Italy law court are competent.



ASME

DIN

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