LESER

Type 457, 458

Flanged Safety Relief Valves – spring loaded

Type 458
Packed lever H4
Closed bonnet
Conventional design

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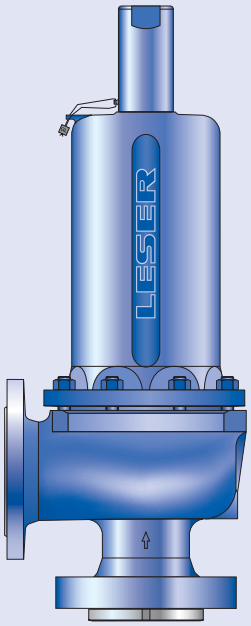
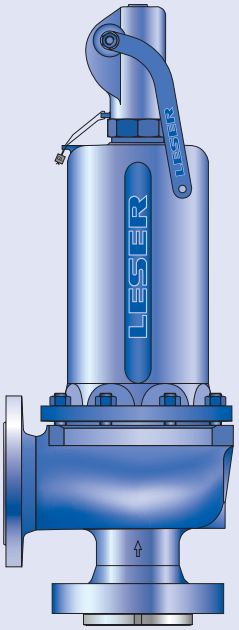
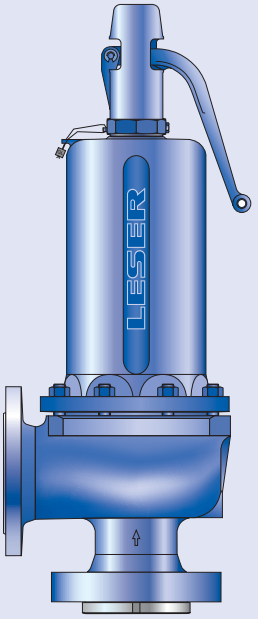
How to order – Article numbers



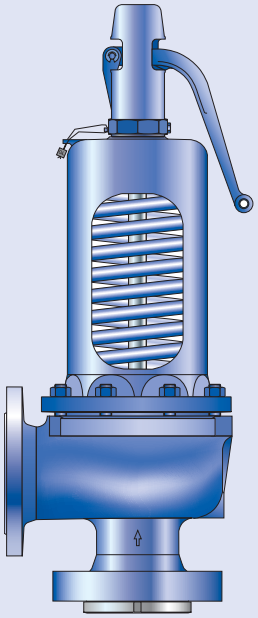
Type 458
Cap H2
Closed bonnet
Conventional design



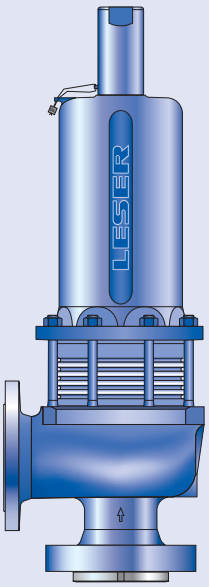
Type 458
Packed lever H4
Closed bonnet
Conventional design



Type 458
Plain lever H3
Closed bonnet
Conventional design



Type 457
Plain lever H3
Open bonnet
Conventional design



Type 458
Cap H2
Closed bonnet
Balanced bellows design

How to order – Article numbers

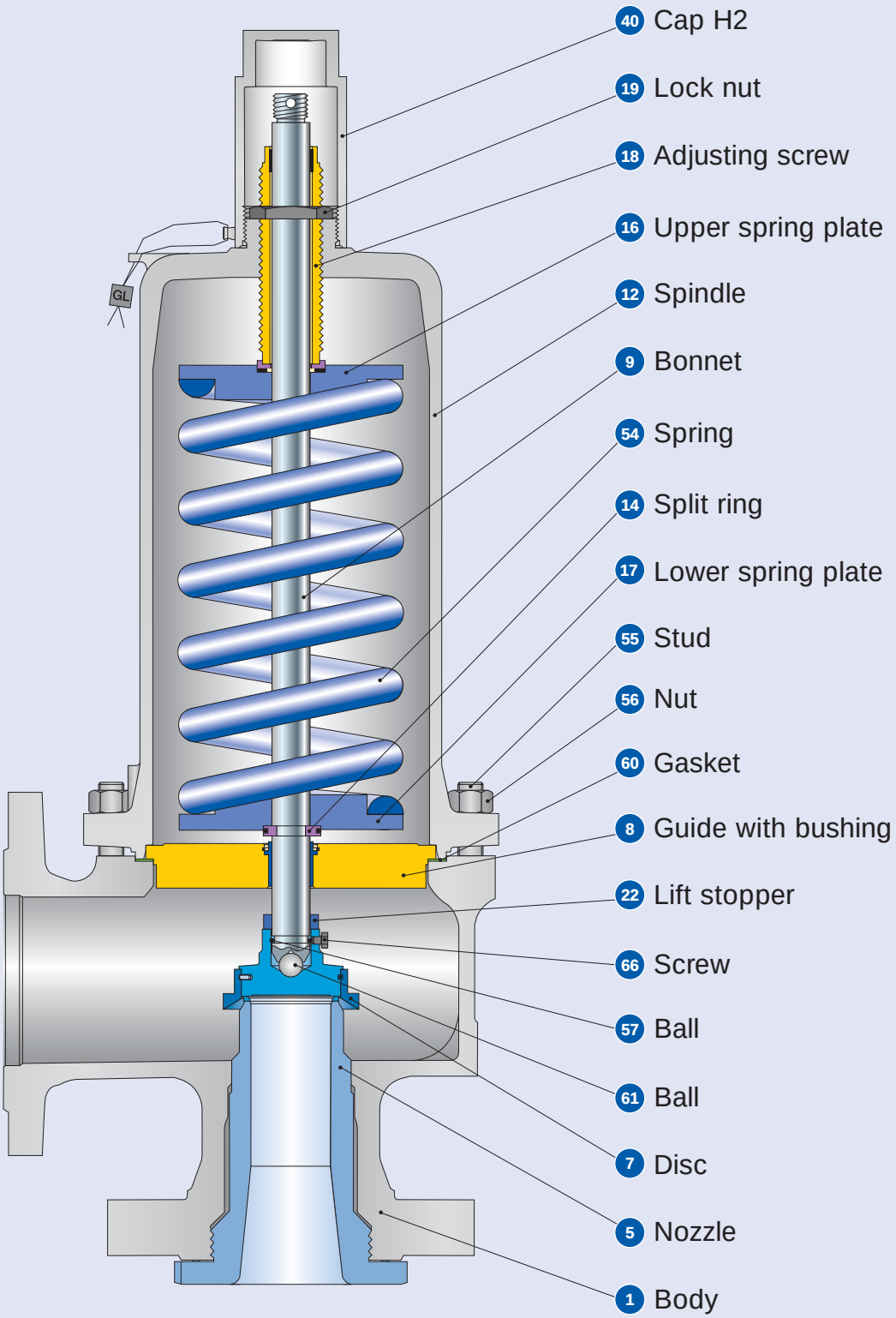
Article numbers

		DN_{I+O}	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100
		Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"
		Actual Orifice diameter d_0 [mm]	15	20	30	40	50	60
		Actual Orifice area A_0 [mm²]	177	314	707	1257	1964	2827
Body material: 1.0619 (WCB)								
Bonnet closed	**H2**	Art.-No. **4582.**	**6102**	**6112**	**6122**	**6132**	**6142**	**6152**
	H3	Art.-No. **4582.**	**6103**	**6113**	**6123**	**6133**	**6143**	**6153**
	H4	Art.-No. **4582.**	**6104**	**6114**	**6124**	**6134**	**6144**	**6154**
open	**H3**	Art.-No. **4572.**	**6105**	**6115**	**6125**	**6135**	**6145**	**6155**
Body material: 1.7357 (WCB)								
Bonnet closed	**H2**	Art.-No. **4587.**	**6302**	**6312**	**6322**	**6332**	**6342**	**6352**
	H3	Art.-No. **4587.**	**6303**	**6313**	**6323**	**6333**	**6343**	**6353**
	H4	Art.-No. **4587.**	**6304**	**6314**	**6324**	**6334**	**6344**	**6354**
open	**H3**	Art.-No. **4577.**	**6305**	**6315**	**6325**	**6335**	**6345**	**6355**
Inlet body material: 1.4581 (CF10M)								
Bonnet closed	**H2**	Art.-No. **4584.**	**6202**	**6212**	**6222**	**6232**	**6242**	**6252**
	H4	Art.-No. **4584.**	**6204**	**6214**	**6224**	**6234**	**6244**	**6254**

Article numbers

		DN_{I+O}	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250	
		Valve size	4" x 6"	4" x 6"	4" x 6"	4" x 6"	6" x 10"	
		Actual Orifice diameter d_0 [mm]	50	60	74	88	110	
		Actual Orifice area A_0 [mm²]	1964	2827	4301	6082	9503	
Body material: 1.0619 (WCB)								
Bonnet closed	**H2**	Art.-No. **4582.**	**6162**	**6172**	**6182**	**6192**	**4602**	
	H3	Art.-No. **4582.**	**–**	**–**	**–**	**–**	**–**	
	H4	Art.-No. **4582.**	**6124**	**6174**	**6184**	**6194**	**4604**	
open	**H3**	Art.-No. **4572.**	**6125**	**6175**	**6185**	**6195**	**4605**	
Body material: 1.7357 (WCB)								
Bonnet closed	**H2**	Art.-No. **4587.**	**6362**	**6372**	**6382**	**6392**	**–**	
	H3	Art.-No. **4587.**	**–**	**–**	**–**	**–**	**–**	
	H4	Art.-No. **4587.**	**6364**	**6374**	**6384**	**6394**	**–**	
open	**H3**	Art.-No. **4577.**	**6365**	**6375**	**6385**	**6395**	**–**	
Body material: 1.4581 (CF10M)							**1.4408 (CF8M)**	
Bonnet closed	**H2**	Art.-No. **4584.**	**6262**	**6272**	**6282**	**6292**	**4732**	
	H4	Art.-No. **4584.**	**6264**	**6274**	**6284**	**6294**	**4734**	

Conventional design



Conventional design

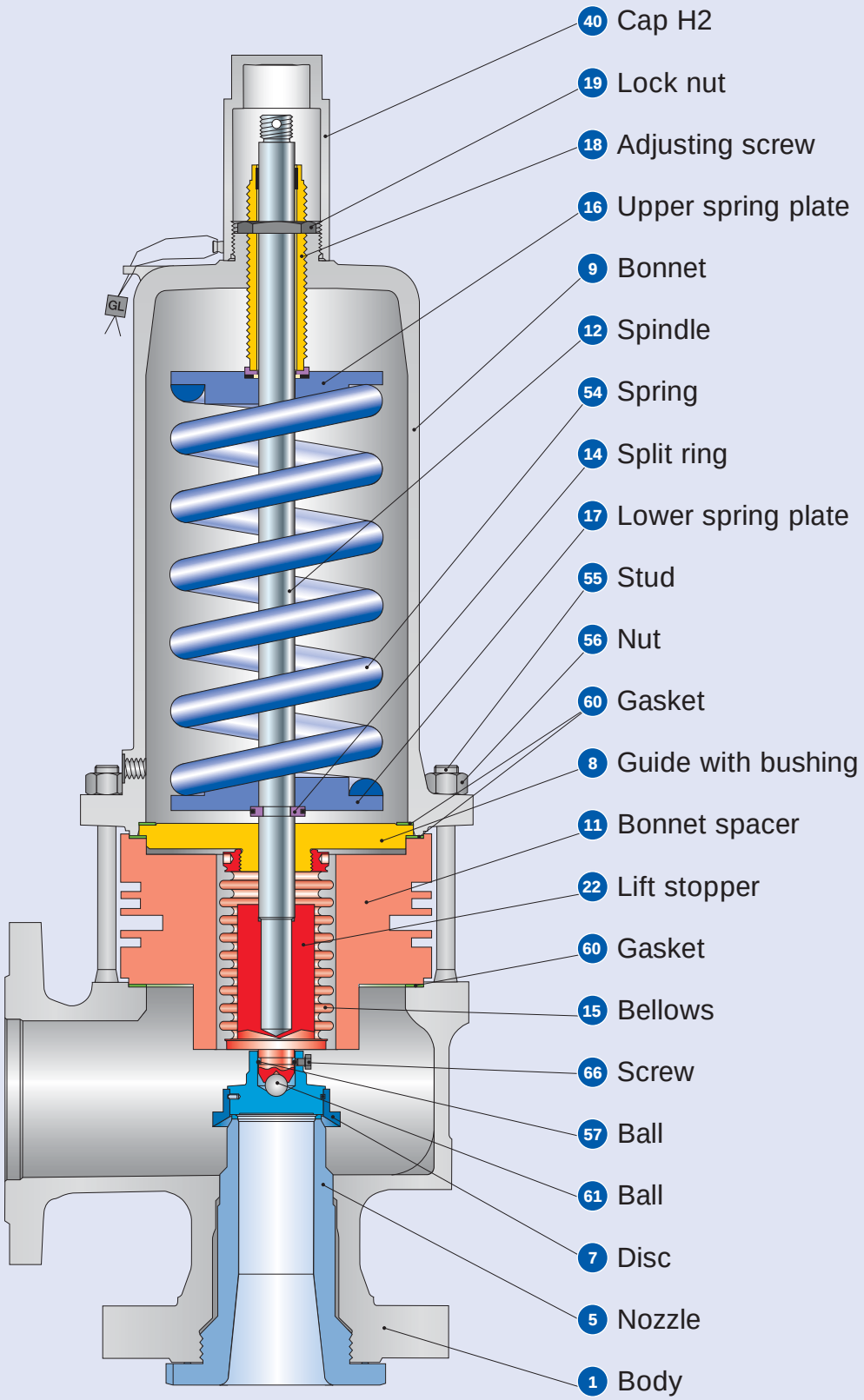
Materials

Item	Component	Type 4572 / 4582	Type 4577 / 4587	Type 4584
1	**Body**	1.0619 SA 216 WCB	1.7357 SA 217 WC6	1.4581 SA 351 CF10M
5	Nozzle	1.4404 316L	1.4404 stellited 316L	1.4404 316L
7	Disc	1.4122 Hardened stainless steel	1.4122 Hardened stainless steel	1.4404 316L
8	Guide with bushing	1.0501, 0.7040 Chrome or carbon steel 1.4104 tenifer Chrome steel	1.0501, 0.7040 Chrome or carbon steel 1.4104 tenifer Chrome steel	1.4404 316L –
9	**Bonnet**	0.7043 (Open bonnet 0.7040), 1.0619 Ductile Gr. 60-40-18, SA 216 WCB	0.7043 (Open bonnet 0.7040), 1.0619 Ductile Gr. 60-40-18, SA 216 WCB	1.4408, 1.4404, 1.4571 SA 351 CF8M, SA 479 316L, 316Ti
12	Spindle	1.4404 316L	1.4404 316L	1.4404 316L
14	Split ring	1.4104 Chrome steel	1.4104 Chrome steel	1.4404 316L
16 / 17	Spring plate	1.0718 Steel	1.0718 Steel	1.4404 316L
18	Adjusting screw with bushing	1.4104 PTFE Chrome steel PTFE	1.4104 PTFE Chrome steel PTFE	1.4404 PTFE 316L PTFE
19	Lock nut	1.0718 Steel	1.0718 Steel	1.4404 316L
22	Lift stopper	1.4404 316L	1.4404 316L	1.4404 316L
40	Cap H2	1.0718 12L13	1.4404 316L	1.4404 316L
54	Spring standard	1.1200, 1.8159, 1.7102 Carbon steel	1.1200, 1.8159, 1.7102 Carbon steel	1.4310 Stainless steel
	Spring optional	1.4310 Stainless steel	1.4310 Stainless steel	– –
55	Stud	1.4401 B8M	1.4401 B8M	1.4401 B8M
56	Nut	1.4401 8M	1.4401 8M	1.4401 8M
57	Ball	1.4401 316	1.4401 316	1.4401 316
60	Gasket	Graphite / 1.4401 Graphite / 316L	Graphite / 1.4401 Graphite / 316L	Graphite / 1.4401 Graphite / 316L
61	Ball	1.3541 Hardened stainless steel	1.3541 Hardened stainless steel	1.4401 316
66	Screw	1.4401 B8M	1.4401 B8M	1.4401 B8M

Please notice:

- Modifications reserved by LESER.
- LESER can upgrade materials without notice.
- Every part can be replaced by other material acc. to customer specification.

Balanced bellows design



Balanced bellows design

Materials

Item	Component	Type 4572 / 4582	Type 4577 / 4587	Type 4584
1	**Body**	1.0619 SA 216 WCB	1.7357 SA 217 WC6	1.4581 SA 351 CF10M
5	Nozzle	1.4404 316L	1.4404 stellited 316L	1.4404 316L
7	Disc	1.4122 Hardened stainless steel	1.4122 Hardened stainless steel	1.4404 316L
8	Guide with bushing	1.0501, 0.7040 Chrome or carbon steel 1.4104 tenifer Chrome steel	1.0501, 0.7040 Chrome or carbon steel 1.4104 tenifer Chrome steel	1.4404 316L –
9	**Bonnet**	0.7043 or 1.0619 Ductile Gr. 60-40-18 or SA 216 WCB	0.7043 or 1.0619 Ductile Gr. 60-40-18 or SA 216 WCB	1.4408, 1.4404, 1.4571 SA 351 CF8M, SA 479 316L, 316Ti
11	Bonnet spacer	1.0460 Carbon steel	1.0460 Carbon steel	1.4404 316L
12	Spindle	1.4404 316L	1.4404 316L	1.4404 316L
14	Split ring	1.4104 Chrome steel	1.4104 Chrome steel	1.4404 316L
15	Bellows	1.4571 316Ti	1.4571 316Ti	1.4571 316Ti
16 / 17	Spring plate	1.0718 Steel	1.0718 Steel	1.4404 316L
18	Adjusting screw with bushing	1.4104 PTFE Chrome steel PTFE	1.4104 PTFE Chrome steel PTFE	1.4404 PTFE 316L PTFE
19	Lock nut	1.0718 Steel	1.0718 Steel	1.4404 316L
22	Lift stopper	1.4404 316L	1.4404 316L	1.4404 316L
40	Cap H2	1.0718 12L13	1.4404 316L	1.4404 316L
54	Spring standard Spring optional	1.1200, 1.8159, 1.7102 Carbon steel 1.4310 Stainless steel	1.1200, 1.8159, 1.7102 Carbon steel 1.4310 Stainless steel	1.4310 Stainless steel – –
55	Stud	1.4401 B8M	1.4401 B8M	1.4401 B8M
56	Nut	1.4401 8M	1.4401 8M	1.4401 8M
57	Ball	1.4401 316	1.4401 316	1.4401 316
60	Gasket	Graphite / 1.4401 Graphite / 316L	Graphite / 1.4401 Graphite / 316L	Graphite / 1.4401 Graphite / 316L
61	Ball	1.3541 Hardened stainless steel	1.3541 Hardened stainless steel	1.4401 316
66	Screw	1.4401 B8M	1.4401 B8M	1.4401 B8M

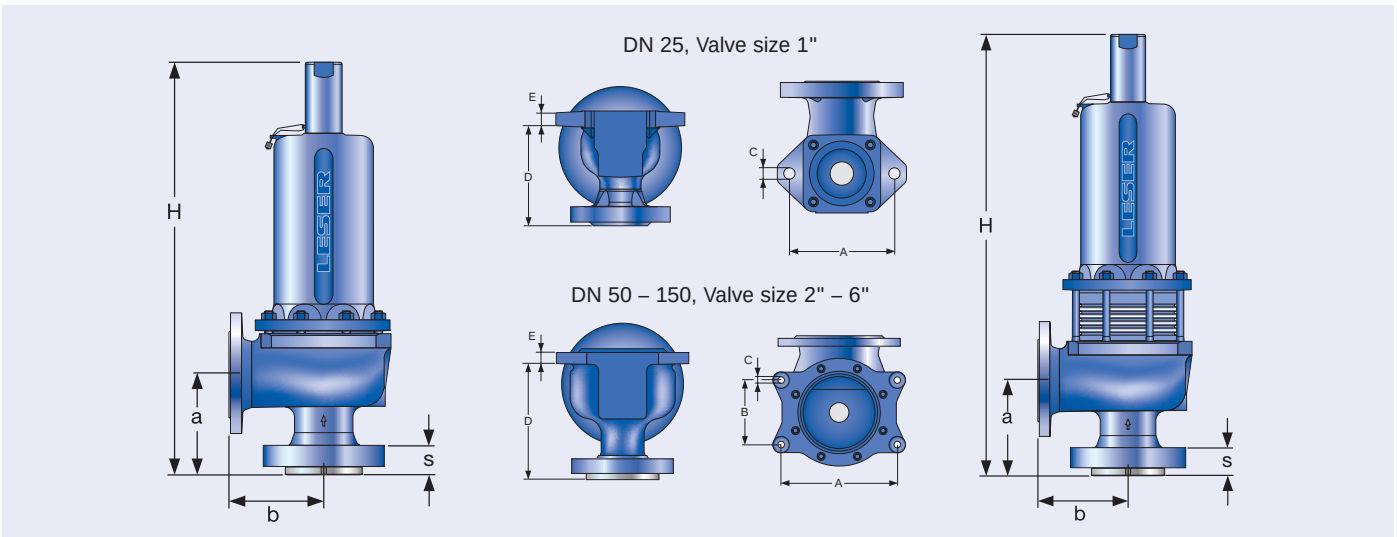
Please notice:

- Modifications reserved by LESER.
- LESER can upgrade materials without notice.
- Every part can be replaced by other material acc. to customer specification.

Dimensions and weights

Metric Units

		DN_{I+O}	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250
		Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"	4" x 6"	4" x 6"	4" x 6"	4" x 6"	6" x 10"
		Actual Orifice diameter d_0 [mm]	15	20	30	40	50	60	50	60	74	88	110
		Actual Orifice area A_0 [mm^2]	177	314	707	1257	1964	2827	1964	2827	4301	6082	9503
Weight [kg]			20	20	45	45	88	88	157	157	157	157	131
		with bellows	22	22	48	48	108	108	188	188	188	188	162
Center to face [mm]		Inlet a	135	135	170	170	190	190	225	225	225	225	300
	Outlet b	PN 40	120	120	145	145	180	180	235	235	235	235	225
	Outlet b	PN 63	120	120	145	145	205	205	265	265	265	265	–
	Outlet b	PN 160	130	130	–	–	–	–	–	–	–	–	–
Measure [mm] Used to find bolt lenght for inlet flange	PN 40 – 160	s	41	41	53	53	53	53	60	60	60	60	43
	PN 250	s	41	41	53	53	60	60	68	68	68	68	–
	PN 400	s	50	50	–	–	–	–	–	–	–	–	–
Height (H4) [mm]	Standard H	max.	506	506	699	699	832	832	1079	1079	1079	1079	1098
	Bellows H	max.	541	541	779	779	930	930	1170	1170	1170	1170	1156
Support brackets [mm] (drilled only on request)		**A**	140	140	184	184	278	278	364	364	364	364	320
		B	–	–	110	110	160	160	210	210	210	210	185
		C	Ø 14	Ø 14	Ø 14	Ø 14	Ø 18	Ø 18	Ø 18	Ø 18	Ø 18	Ø 18	Ø 18
		D	162	162	209	209	240	240	303	303	303	303	392
		E	18	18	18	18	27	27	32	32	32	32	28
Body material: 1.0619 (WCB)													
DIN Flange		Inlet	PN 63 – 250				PN 63 – 160						PN 40
		Outlet	PN 40 – 63				PN 40						PN 16
Body material: 1.7357 (WC6)													
DIN Flange		Inlet	PN 63 – 250				PN 63 – 160						–
		Outlet	PN 40 – 63				PN 40						–
Body material: 1.4581 (CF10M)													1.4408 (CF8M)
DIN Flange		Inlet	PN 63 – 250				PN 63 – 160						PN 40
		Outlet	PN 40 – 63				PN 40						PN 16



Conventional design | Support brackets | Balanced bellows design

Pressure temperature ratings

Metric Units

	DN_{I+O}	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250
	Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"	4" x 6"	4" x 6"	4" x 6"	4" x 6"	6" x 10"
	Actual Orifice diameter d_0 [mm]	15	20	30	40	50	60	50	60	74	88	110
	Actual Orifice area A_0 [mm²]	177	314	707	1257	1964	2827	1964	2827	4301	6082	9503
Body material: 1.0619 (WCB)												
DIN Flange	Inlet	**PN 63 – 250**				**PN 63 – 160**						**PN 40**
	Outlet	**PN 40 – 63**				**PN 40**						**PN 40**
Minimum set pressure	p [bar_g] S/G/L	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
Min. set pressure[1] standard bellows	p [bar_g] S/G/L	13,5	13,5	20	2,5	10	10	10	6	5	5	5
Min. set pressure low press. bellows	p [bar_g] S/G/L					on request						
Maximum set pressure	p [bar_g] S/G/L	300	180	125	98	130	77	43	46	53	34	18
Max. set pressure with special spring	p [bar_g] S/G/L	300	180	210	114,5	160	77	160	160	77	53	40
Temperature acc. to DIN EN	min. [°C]	-85										
	max. [°C]	+450										
Temperature acc. to ASME	min. [°C]	-29										
	max. [°C]	+427										
Body material: 1.7357 (WCB)												
DIN Flange	Inlet	**PN 63 – 250**				**PN 63 – 160**						**–**
	Outlet	**PN 40 – 63**				**PN 40**						**–**
Minimum set pressure	p [bar_g] S/G/L	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	–
Min. set pressure[1] standard bellows	p [bar_g] S/G/L	13,5	13,5	20	2,5	10	10	10	6	5	5	–
Min. set pressure low press. bellows	p [bar_g] S/G/L					on request						–
Maximum set pressure	p [bar_g] S/G/L	300	180	125	98	130	77	43	46	53	34	–
Max. set pressure with special spring	p [bar_g] S/G/L	300	180	210	114,5	160	77	160	160	77	53	–
Temperature acc. to DIN EN	min. [°C]	-85										
	max. [°C]	+550										
Temperature acc. to ASME	min. [°C]	-29										
	max. [°C]	+538										
Body material: 1.4581 (CF10M)												1.4408 (CF8M)
DIN Flange	Inlet	**PN 63 – 250**				**PN 63 – 160**						**PN 40**
	Outlet	**PN 40 – 63**				**PN 40**						**PN 16**
Minimum set pressure	p [bar_g] S/G/L	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
Min. set pressure[1] standard bellows	p [bar_g] S/G/L	13,5	13,5	20	2,5	10	10	10	6	5	5	5
Min. set pressure low press. bellows	p [bar_g] S/G/L					on request						–
Maximum set pressure	p [bar_g] S/G/L	250	146	82	61	61	35	15,8	11	16,9	0	4,4
Max. set pressure with special spring	p [bar_g] S/G/L	250	146	130	65	104	51,5	71	55	49	32	10
Temperature acc. to DIN EN	min. [°C]	-85										-270
	max. [°C]	+550										+400
Temperature acc. to ASME	min. [°C]	-29										-268
	max. [°C]	+538										+538

[1] Min. set pressure standard bellows = Max. set pressure low pressure bellows.

Flange drillings

Flange drillings

		DN_{I+O}	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250
		Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"	4" x 6"	4" x 6"	4" x 6"	4" x 6"	6" x 10"
		Actual Orifice diameter d_0 [mm]	15	20	30	40	50	60	50	60	74	88	110
		Actual Orifice area A_0 [mm^2]	177	314	707	1257	1964	2827	1694	2827	4301	6082	9503
Body material: 1.0619 (WCB), 1.7357 (CF10M), 1.4408 (CF8M)													
Inlet	**DIN EN 1092**	PN 16	H47	H47	H47	H47	H47	H47	–	–	–	–	–
		PN 25	H47	H47	H47	H47	H47	H47	H47	H47	H47	H47	*
		PN 40	H47	H47	H47	H47	H47	H47	H47	H47	H47	H47	*
		PN 63	*	*	H10	H10	H10	H10	H10	H10	H10	H10	S01
		PN 100	*	*	*	*	*	*	*	*	*	*	–
		PN 160	*	*	*	*	*	*	*	*	*	*	–
		PN 250	H12	H12	H12	H12	S01	S01	S01	S01	S01	S01	–
		PN 320	S01	S01	S01	S01	S01	S01	S01	S01	S01	S01	–
		PN 400	S01	S01	S01	S01	S01	S01	S01	S01	S01	S01	–
	ASME B16.5	CL150	–	–	–	–	–	–	–	–	–	–	H64
		CL300	H65	H65	H65	H65	H65	H65	H65	H65	H65	H65	–
		CL600	H67	H67	H67	H67	H67	H67	H67	H67	H67	H67	–
		CL900	H69	H69	H69	H69	S01	S01	S01	S01	S01	S01	–
		CL1500	H69	H69	H69	H69	S01	S01	S01	S01	S01	S01	–
		CL2500	S01	S01	S01	S01	S01	S01	S01	S01	S01	S01	–
Outlet	**DIN EN 1092**	PN 10	*	*	*	*	H51	H51	H51	H51	H51	H51	H50
		PN 16	*	*	*	*	H51	H51	H51	H51	H51	H51	*
		PN 25	*	*	*	*	*	*	*	*	*	*	–
		PN 40	*	*	*	*	*	*	*	*	*	*	–
		PN 63	H16	H16	H16	H16	S01	S01	S01	S01	S01	S01	–
	ASME B16.5	CL150	H79	H79	H79	H79	H79	H79	H79	H79	H79	H79	H79
		CL300	H80	H80	H80	H80	S01	S01	S01	S01	S01	S01	–

Flange facings

Flange facings

Indication	Standard	Inlet	Outlet	Remark
General				
Flange undrilled	–	H38	H39	
Linde-V-Nut, Form V48	Linde Standard 420-08 LWN 313.36	J07	J08	Groove: Rz 16
Linde-V-Nut, Form V48A		J05	J06	Groove: Rz 4, e.g. with hydrogen
Lens seal form L (without sealing lens)	DIN 2696 LWN 313.35	J11	J12	

Acc. to DIN EN

Flange facing			Inlet		Outlet		Remark	
DIN EN 1092 (new) see also LWN 313.40)		**DIN 2526 (old)**	PN 10 – PN 40	PN 63 – PN 400	PN 10 – PN 40	PN 63	Rz-data according to DIN EN 1092 in µm	
Raised face	Type B1	Type C	*	–	*	–	Facing: Rz = 12,5 – 50	
		Type D						
	Type B2	Type E	–	*	L38	*	Facing: Rz = 3,2 – 12,5	Steel flanges only
Tongue face C[1]		Tongue face F	L56		H92			
Groove face D[1]		Groove face N	L55		H91			
Male face E		Male face V13	I90		H98			
Female face F		Female face R13	I91		H99			
O-ring male face G		Male face V14	I93		J02			
O-ring female face H		Female face R14	I92		J04			

Acc. to ASME B16.5

Body material	Inlet	Outlet	Smooth finish[2]		Serrated finish		RTJ-groove						
			Inlet	Outlet	Inlet	Outlet	Inlet					Outlet	
			Option code		Option code		CL300	CL600	CL900	CL1500	CL2500	CL150	CL300
all	1“	2“	L51	L53	–	*	L58	L58	L58	L58	L58	H63	H63
	2“	3“	L52	L53	–	*	L58	L58	L58	L58	L58	H63	H63
	3“	4“	L52	L53	–	*	L58	L58	L58	L58	L58	–	H63
	4“	6“	L52	L53	–	*	L58	L58	L58	L58	–	–	H63

[1] According to DIN EN 1092 groove depths and tongue heights increased compared to the formerly valid DIN (refer to LWN 313.40). LESER manufactures the groove at flanged valves by milling. If a customer demands a turned surface in the soil of the groove according to DIN 2512 and/or DIN EN 1092-1 an additional option code is necessary: „S01: bottom of the groove drilled”. Groove and tongue for PN160 flanges refer to DIN 2512/LWN 313.32.
[2] Smooth finish is not defined in the effective standards. For LESER‘s definition for smooth finish see page 00/07.

For signs and symbols refer to page 00/07
Note: Flange drillings and facings meet always the requirements of mentioned flange standards. Flange thickness and outer diameter may vary from flange standard.

Approvals

Approvals												
	DN_{I+O}	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250
	Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"	4" x 6"	4“ x 6“	4“ x 6“	4" x 6"	6" x 10"
	Actual Orifice diameter d_0 [mm]	15	20	30	40	50	60	50	60	74	88	110
	Actual Orifice area A_0 [mm^2]	177	314	707	1257	1964	2827	1694	2827	4301	6082	9503
Europe		**Coefficient of discharge K_{dr}**										
DIN EN ISO 4126-1	Approval No.	072020111Z0008/0/12										
	S/G	0,83	0,84	0,84	0,8	0,83	0,75	0,84	0,8	0,8	0,75	0,7
	L	0,63	0,6	0,58	0,54	0,58	0,5	0,6	0,54	0,56	0,49	0,45
Germany		**Coefficient of discharge α_w**										
AD 2000-Merkblatt A2	Approval No.	TÜV SV 934										
	S/G	0,83	0,84	0,84	0,8	0,83	0,75	0,84	0,8	0,8	0,75	0,7
	L	0,63	0,6	0,58	0,54	0,58	0,5	0,6	0,54	0,56	0,49	0,45
United States		**Coefficient of discharge K**										
ASME Sec. VIII	Approval No.	M37066	M37066	M37066	M37066	M37066	M37088	M37066	M37066	M37066	M37088	M37088
	S/G	0,798	0,798	0,798	0,798	0,798	0,754	0,798	0,798	0,798	0,754	0,754
	Approval No.	M37077	M37077	M37077	M37077	M37077	M37099	M37077	M37077	M37077	M37099	M37099
	L	0,572	0,572	0,572	0,572	0,572	0,479	0,572	0,572	0,572	0,479	0,479
Canada		**Coefficient of discharge K**										
Canada: CRN	Approval No.	–										
	S/G	0,798	0,798	0,798	0,798	0,798	0,754	0,798	0,798	0,798	0,754	0,754
	L	0,572	0,572	0,572	0,572	0,572	0,479	0,572	0,572	0,572	0,479	0,479
China		**Coefficient of discharge α_w**										
CSBQTS	Approval No.											
	S/G	0,83	0,84	0,84	0,8	0,83	0,75	0,84	0,8	0,8	0,75	0,7
	L	0,63	0,6	0,58	0,54	0,58	0,5	0,6	0,54	0,56	0,49	0,45
Russia		**Coefficient of discharge α_w**										
GGTN/ GOSGOTECHNADZOR GOST R	Approval No.	PPC 00-18458										
	S/G	0,83	0,84	0,84	0,8	0,83	0,75	0,84	0,8	0,8	0,75	0,7
	L	0,63	0,6	0,58	0,54	0,58	0,5	0,6	0,54	0,56	0,49	0,45
Classification societies												
		on request										

Capacities – Steam

Capacities for saturated steam according to AD 2000-Merkblatt A2, based on set pressure plus 10 % overpressure.
Capacities at 1 bar (14,5 psig) and below are based on 0,1 bar (1,45 psig) overpressure.

Metric Units **AD 2000-Merkblatt A2** [kg/h]

DN $_{I+O}$	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250
Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"	4" x 6"	4" x 6"	4" x 6"	4" x 6"	6" x 10"
Act. Orifice dia. d_0 [mm]	15	20	30	40	50	60	50	60	74	88	110
Act. Orifice area A_0 [mm²]	177	314	707	1257	1964	2827	1694	2827	4301	6082	9503
$LEO_{S/G}$ *) [inch²]	0,224	0,399	0,897	1,594	2,491	3,389	2,491	3,587	5,456	7,29	11,391
Set pressure [bar]	**Capacities** [kg/h]										
2,5	305	535	1205	2036	3429	4403	3388	4641	7149	9470	13998
3	352	619	1409	2385	3915	5094	3915	5366	8265	10958	15980
4	439	781	1779	3011	4882	6352	4940	6775	10306	13664	19926
5	526	946	2129	3605	5844	7604	5914	8111	12338	16358	23855
6	612	1102	2479	4197	6803	8853	6885	9443	14363	19043	27771
7	697	1253	2820	4774	7739	10070	7832	10742	16339	21662	31591
8	782	1407	3167	5362	8692	11310	8797	12064	18351	24329	35480
9	868	1562	3513	5949	9643	12548	9760	13385	20360	26992	39364
10	953	1715	3860	6535	10594	13785	10722	14704	22367	29653	43244
12	1124	2023	4552	7707	12494	16257	12645	17341	26378	34972	51000
14	1292	2324	5230	8855	14355	18678	14527	19923	30306	40179	58594
16	1463	2631	5921	10024	16250	21145	16446	22555	34308	45486	66333
18	1633	2939	6612	11195	18149	23615	18367	25189	38316	50799	74081
20	1804	3247	7305	12368	20050	26089	20291	27828	42330	56120	81842
22	1970	3545	7977	13506	21894	28489	22158	30388	46224	61283	89371
24	2142	3854	8671	14681	23799	30967	24085	33031	50245	66614	97145
26	2314	4163	9366	15859	25708	33452	26018	35682	54276	71958	104939
28	2486	4473	10064	17040	27623	35943	27956	38340	58319	77318	112756
30	2659	4784	10764	18225	29544	38443	29900	41006	62374	82695	120596
32	2832	5096	11466	19414	31471	40950	31850	43680	66443	88089	128463
34	2998	5394	12137	20549	33311	43345	33713	46235	70328	93240	135975
36	3172	5707	12842	21743	35247	45863	35671	48921	74414	98657	143875
38	3347	6022	13549	22941	37189	48391	37637	51617	78515	104094	151804
40	3523	6338	14260	24144	39140	50929	39611	54324	82632	109553	159765
50	4411	7937	1 7858	30235	49014	63777	49605	68029	103480	137192	
60	5306	9546	21479	36366	58952	76709	59663	81823	124462		
70	6236	11221	25246	42745	69294	90166	70129	96177	146296		
80	7174	12907	29042	49171	79711		80671	110634			
90	8160	14682	33035	55932	90670		91763	125846			
100	9156	16473	37065	62756	101733		102959	141201			
120	11326	20378	45850		125844		127361	174666			
140	13773	24781	55758		153039		154882	212410			
160	16604	29873	67215		184485		186707	256056			
180	20171	36291	81656								
200	24970		101082								
220	26183										
240	27342										
260	28455										
280	29525										
300	30558										

*) $LEO_{S/G}$ = LESER Effective Orifice steam/gas please refer to page 00/11
How to use capacity-sheets refer to page 00/09

Capacities – Air

Capacities for air according to AD 2000-Merkblatt A2, based on set pressure plus 10 % overpressure at 0 °C and 1013 mbar.
Capacities at 1 bar (14,5 psig) and below are based on 0,1 bar (1,45 psig) overpressure.

Metric Units **AD 2000-Merkblatt A2** [m_n^3/h]

DN $_{I+O}$	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250
Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"	4" x 6"	4" x 6"	4" x 6"	4" x 6"	6" x 10"
Act. Orifice dia. d_0 [mm]	15	20	30	40	50	60	50	60	74	88	110
Act. Orifice area A_0 [mm²]	177	314	707	1257	1964	2827	1694	2827	4301	6082	9503
$LEO_{S/G}$ *) [inch²]	0,224	0,399	0,897	1,594	2,491	3,389	2,491	3,587	5,456	7,29	11,391
Set pressure [bar]	**Capacities** [m_n^3/h]										
2,5	371	652	1466	2478	4173	5357	4122	5647	8700	11524	17033
3	430	756	1722	2914	4783	6224	4783	6556	10098	13388	19524
4	540	961	2187	3704	6004	7812	6076	8333	12676	16805	24507
5	650	1170	2632	4457	7225	9401	7312	10027	15253	20222	29490
6	760	1368	3077	5210	8445	10989	8547	11722	17830	23639	34474
7	870	1565	3522	5963	9666	12578	9783	13416	20407	27056	39457
8	980	1763	3967	6716	10887	14166	11018	15111	22985	30473	44440
9	1090	1961	4411	7469	12108	15755	12254	16805	25562	33890	49423
10	1200	2158	4856	8222	13328	17343	13489	18499	28139	37307	54406
12	1419	2554	5746	9728	15770	20520	15960	21888	33294	44141	64372
14	1639	2949	6635	11234	18211	23697	18431	25277	38449	50974	74338
16	1859	3344	7525	12740	20653	26874	20902	28665	43603	57808	84304
18	2079	3740	8414	14246	23094	30051	23373	32054	48758	64642	94270
20	2298	4135	9304	15752	25536	33228	25844	35443	53912	71476	104236
22	2518	4530	10193	17258	27977	36404	28315	38831	59067	78310	114202
24	2738	4926	11083	18764	30419	39581	30785	42220	64221	85144	124168
26	2957	5321	11972	20271	32860	42758	33256	45609	69376	91978	134134
28	3177	5716	12862	21777	35302	45935	35727	48997	74531	98812	144100
30	3397	6112	13751	23283	37744	49112	38198	52386	79685	105645	154066
32	3617	6507	14641	24789	40185	52289	40669	55775	84840	112479	164032
34	3836	6902	15530	26295	42627	55466	43140	59164	89994	119313	173998
36	4056	7298	16420	27801	45068	58643	45611	62552	95149	126147	183964
38	4276	7693	17310	29307	47510	61820	48082	65941	100304	132981	193930
40	4496	8088	18199	30813	49951	64997	50553	69330	105458	139815	203897
50	5594	10065	22647	38344	62159	80881	62907	86273	131231	173984	
60	6693	12042	27094	45874	74366	96766	75262	103217	157004		
70	7792	14019	31542	53404	86574	112650	87617	120160	182777		
80	8890	15995	35990	60935	98781		99971	137104			
90	9989	17972	40437	68465	110989		112326	154047			
100	11088	19949	44885	75996	123196		124681	170991			
120	13285	23902	53780		147611		149390	204877			
140	15482	27856	62676		172026		174099	238764			
160	17680	31809	71571		196442		198808	272651			
180	19877	35763	80466								
200	22074		89362								
220	24272										
240	26469										
260	28667										
280	30864										
300	33061										

*) $LEO_{S/G}$ = LESER Effective Orifice steam/gas please refer to page 00/11
How to use capacity-sheets refer to page 00/09

Capacities – Water

Capacities for water according to AD 2000-Merkblatt A2, based on set pressure plus 10 % overpressure at 20 °C (68 °F).
Capacities at 1 bar (14,5 psig) and below are based on 0,1 bar (1,45 psig) overpressure..

Metric Units **AD 2000-Merkblatt A2** [10^3kg/h]

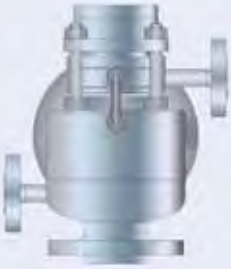
DN $_{I+O}$	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250
Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"	4" x 6"	4“ x 6“	4" x 6"	4" x 6"	6" x 10"
Act. Orifice dia. d_0 [mm]	15	20	30	40	50	60	50	60	74	88	110
Act. Orifice area A_0 [mm²]	177	314	707	1257	1964	2827	1694	2827	4301	6082	9503
LEO_L*) [inch²]	0,241	0,429	0,964	1,714	2,678	3,230	2,678	3,857	5,866	6,947	10,855
Set pressure [bar]	**Capacities** [10^3kg/h]										
2,5	9,39	15,9	34,6	57,2	96,1	119	99,4	129	203	251	361
3	10,3	17,4	37,9	62,7	105	131	109	141	223	275	395
4	11,9	20,1	43,7	72,4	122	151	126	163	257	318	456
5	13,3	22,5	48,9	80,9	136	169	141	182	287	355	510
6	14,5	24,6	53,6	88,7	149	185	154	200	315	389	559
7	15,7	26,6	57,9	95,8	161	200	166	215	340	421	604
8	16,8	28,4	61,9	102	172	213	178	230	363	450	645
9	17,8	30,2	65,6	109	182	226	189	244	385	477	684
10	18,8	31,8	69,2	114	192	238	199	258	406	503	721
12	20,6	34,8	75,8	125	210	261	218	282	445	551	790
14	22,2	37,6	81,8	135	227	282	235	305	481	595	854
16	23,8	40,2	87,5	145	243	302	251	326	514	636	913
18	25,2	42,7	92,8	154	258	320	267	346	545	675	968
20	26,6	45	97,8	162	272	337	281	364	575	711	1020
22	27,9	47,2	103	170	285	354	295	382	603	746	1070
24	29,1	49,3	107	177	298	369	308	399	629	779	1118
26	30,3	51,3	112	185	310	385	320	415	655	811	1163
28	31,4	53,2	116	192	321	399	333	431	680	841	1207
30	32,5	55,1	120	198	333	413	344	446	704	871	1250
32	33,6	56,9	124	205	344	427	356	461	727	899	1291
34	34,6	58,6	128	211	354	440	366	475	749	927	1330
36	35,6	60,3	131	217	365	452	377	489	771	954	1369
38	36,6	62	135	223	374	465	387	502	792	980	1406
40	37,6	63,6	138	229	384	477	397	515	813	1005	1443
50	42,0	71,1	155	256	430	533	444	576	909	1124	
60	46,0	77,9	169	280	471	584	487	631	995		
70	49,7	84,1	183	303	508	631	526	681	1075		
80	53,1	89,9	196	324	543		562	729			
90	56,3	95,4	207	343	576		596	773			
100	59,4	101	219	362	608		628	814			
120	65,1	110	240		666		688	892			
140	70,3	119	259		719		744	964			
160	75,1	127	277		768		795	1030			
180	79,7	135	293								
200	84,0		309								
220	88,1										
240	92,0										
260	95,8										
280	99,4										
300	103										

*) LEO_L = LESER Effective Orifice liquids please refer to page 00/12
How to use capacity-sheets refer to page 00/09

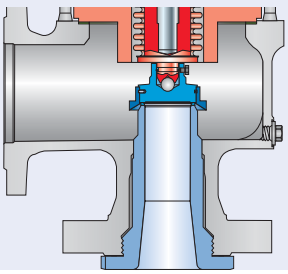
Available Options

For further information refer to
“Accessories and Options”, page 99/01

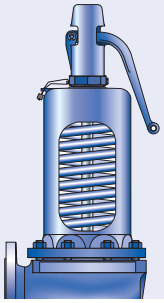
Heating jacket
H29, H30: Couplings G $^{3}/_{8}$, G $^{3}/_{4}$
H31, H32: Flanges DN 15, DN 25



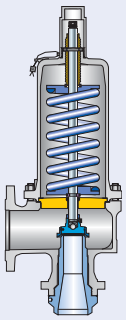
Drain hole
J18: G $^{1}/_{4}$
J19: G $^{1}/_{2}$



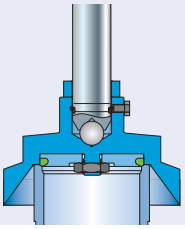
Open bonnet
See Art.-No.



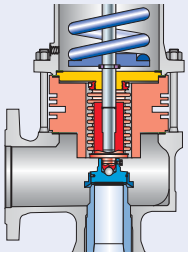
Butt-welded connection
S05



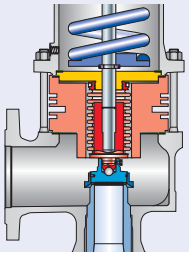
O-ring-disc
J20: FFKM “C”
J21: CR “K”
J22: EPDM “D”
J23: FKM “L”



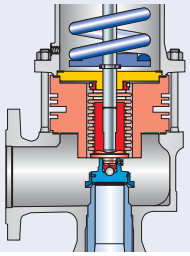
Stainless steel bellows
J68: Open bonnet
J78: Closed bonnet



Conversion kit for stainless steel bellows
on request



High temperature equipment
J88

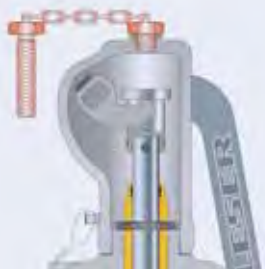


Screwed cap H2
H2

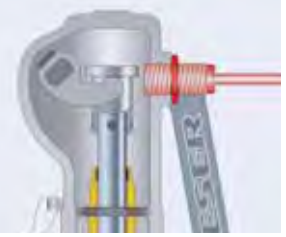
Plain lever H3
H3

Packed lever H4
H4

Test gag
J69: H4
J70: H2



Lift indicator
J39: Adaptor H4
J93: Lift indicator



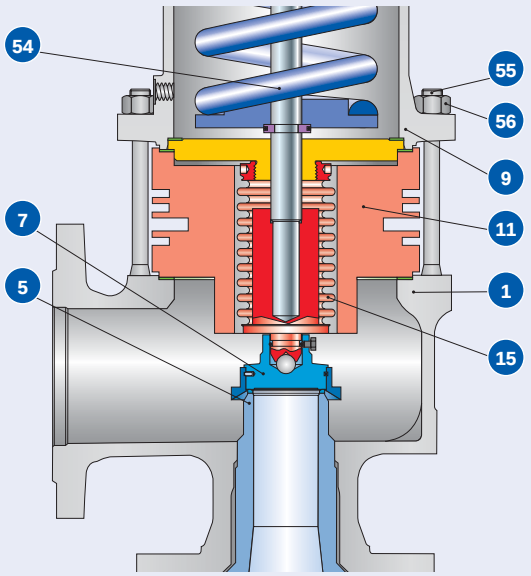
O-ring-damper H2
J65

O-ring-damper H4
J66

High temperature equipment

For fluid temperatures higher than 400 °C / 752 °F high temperature equipment is necessary to protect the inner parts and the spring against inadmissible influence of temperature. The maximum inlet temperature is 550 °C / 1022 °F. The equipment shown is only fitted in Type 457 / 458. For all other Types an open bonnet and a stainless steel bellows is necessary for fluid temperatures exceeding 400 °C / 752 °F up to max. 450 °C / 842 °F.

Specification

		Series 458
Design		
Option code		J88
Operating conditions		
Temperature limits	[°C]	> 400 fluid temperature
	[°F]	> 752 fluid temperature
	max. [°C]	550 inlet temperature
	max. [°F]	1022 inlet temperature

Materials

High temperature equipment

Item	Component	
1	Body	1.7357 WC6
5	Nozzle	1.4404 316L
7	Disc	1.4404 stellited 316L stellited
9	Bonnet open	1.0619 WCB
11	Cooling spool	1.4404 316L
15	Bellows	1.4571 316L
54	Spring	1.7102, 1.8159 High temperature alloy steel
55	Studs	1.7709 B16
56	Nuts	1.7258 7M