

Type

457, 458

Type 458
Packed lever H4
Closed bonnet
Conventional design



Flanged Safety Relief Valves – spring loaded

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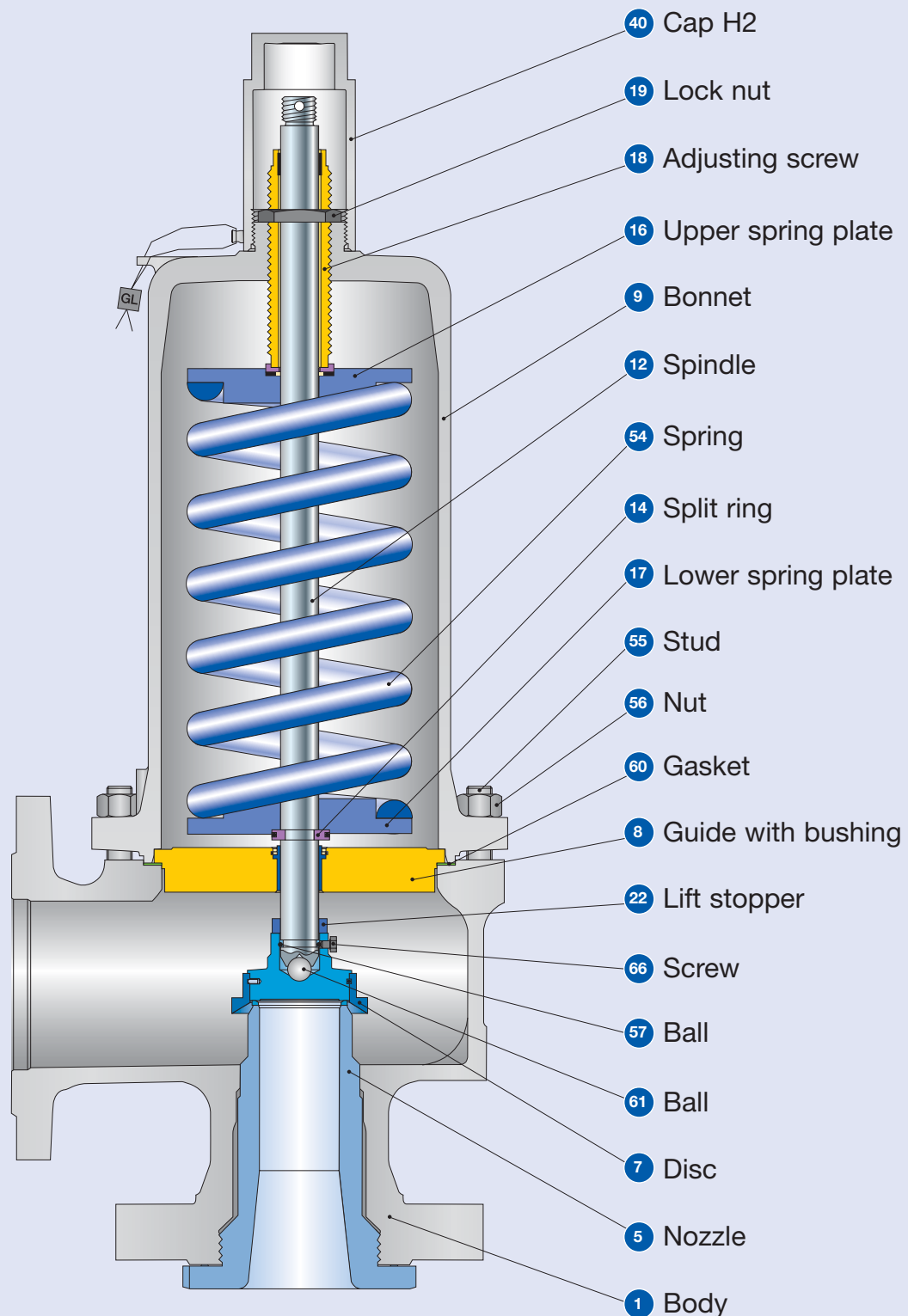
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Conventional design



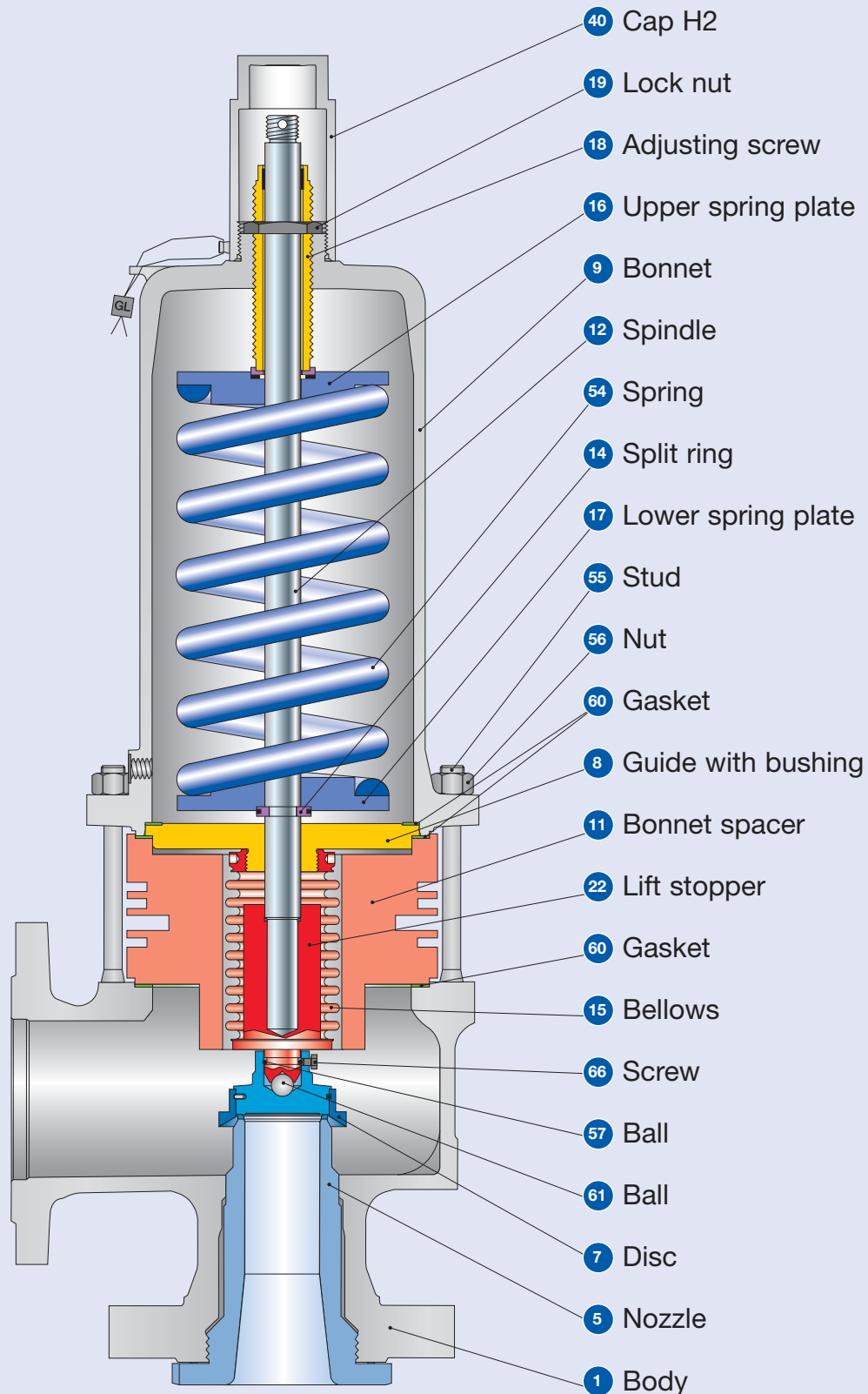
Conventional design

Materials				
Item	Component	Type 4572 / 4582	Type 4577 / 4587	Type 4584
1	Body	1.0619	1.7357	1.4581
		SA 216 WCB	SA 217 WC6	SA 351 CF10M
5	Nozzle	1.4404	1.4404 stellited	1.4404
		316L	316L	316L
7	Disc	1.4122	1.4122	1.4404
		Hardened stainless steel	Hardened stainless steel	316L
8	Guide with bushing	1.0501, 0.7040 Chrome or carbon steel	1.0501, 0.7040 Chrome or carbon steel	1.4404 316L
		1.4104 tenifer Chrome steel	1.4104 tenifer Chrome steel	–
9	Bonnet	0.7043 (Open bonnet 0.7040), 1.0619	0.7043 (Open bonnet 0.7040), 1.0619	1.4408, 1.4404, 1.4571
		Ductile Gr. 60-40-18, SA 216 WCB	Ductile Gr. 60-40-18, SA 216 WCB	SA 351 CF8M, SA 479 316L, 316Ti
12	Spindle	1.4404	1.4404	1.4404
		316L	316L	316L
14	Split ring	1.4104	1.4104	1.4404
		Chrome steel	Chrome steel	316L
16 / 17	Spring plate	1.0718	1.0718	1.4404
		Steel	Steel	316L
18	Adjusting screw with bushing	1.4104 PTFE	1.4104 PTFE	1.4404 PTFE
		Chrome steel PTFE	Chrome steel PTFE	316L PTFE
19	Lock nut	1.0718	1.0718	1.4404
		Steel	Steel	316L
22	Lift stopper	1.4404	1.4404	1.4404
		316L	316L	316L
40	Cap H2	1.0718	1.4404	1.4404
		12L13	316L	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	1.4401	1.4401
		B8M	B8M	B8M
56	Nut	1.4401	1.4401	1.4401
		8M	8M	8M
57	Ball	1.4401	1.4401	1.4401
		316	316	316
60	Gasket	Graphite / 1.4401	Graphite / 1.4401	Graphite / 1.4401
		Graphite / 316L	Graphite / 316L	Graphite / 316L
61	Ball	1.3541	1.3541	1.4401
		Hardened stainless steel	Hardened stainless steel	316
66	Screw	1.4401	1.4401	1.4401
		B8M	B8M	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	1.7357	1.4581
		SA 216 WCB	SA 217 WC6	SA 351 CF10M
5	Nozzle	1.4404	1.4404 stellited	1.4404
		316L	316L	316L
7	Disc	1.4122	1.4122	1.4404
		Hardened stainless steel	Hardened stainless steel	316L
8	Guide with bushing	1.0501, 0.7040 Chrome or carbon steel	1.0501, 0.7040 Chrome or carbon steel	1.4404 316L
		1.4104 tenifer Chrome steel	1.4104 tenifer Chrome steel	–
9	Bonnet	0.7043 or 1.0619	0.7043 or 1.0619	1.4408, 1.4404, 1.4571
		Ductile Gr. 60-40-18 or SA 216 WCB	Ductile Gr. 60-40-18 or SA 216 WCB	SA 351 CF8M, SA 479 316L, 316Ti
11	Bonnet spacer	1.0460	1.0460	1.4404
		Carbon steel	Carbon steel	316L
12	Spindle	1.4404	1.4404	1.4404
		316L	316L	316L
14	Split ring	1.4104	1.4104	1.4404
		Chrome steel	Chrome steel	316L
15	Bellows	1.4571	1.4571	1.4571
		316Ti	316Ti	316Ti
16 / 17	Spring plate	1.0718	1.0718	1.4404
		Steel	Steel	316L
18	Adjusting screw with bushing	1.4104 PTFE	1.4104 PTFE	1.4404 PTFE
		Chrome steel PTFE	Chrome steel PTFE	316L PTFE
19	Lock nut	1.0718	1.0718	1.4404
		Steel	Steel	316L
22	Lift stopper	1.4404	1.4404	1.4404
		316L	316L	316L
40	Cap H2	1.0718	1.4404	1.4404
		12L13	316L	316L
54	Spring standard	1.1200, 1.8159, 1.7102	1.1200, 1.8159, 1.7102	1.4310
		Carbon steel	Carbon steel	Stainless steel
54	Spring optional	1.4310	1.4310	–
		Stainless steel	Stainless steel	–
55	Stud	1.7709	1.7709	1.4401
		B16	B16	B8M
56	Nut	1.7258	1.7258	1.4401
		7M	7M	8M
57	Ball	1.4401	1.4401	1.4401
		316	316	316
60	Gasket	Graphite / 1.4401	Graphite / 1.4401	Graphite / 1.4401
		Graphite / 316L	Graphite / 316L	Graphite / 316L
61	Ball	1.3541	1.3541	1.4401
		Hardened stainless steel	Hardened stainless steel	316
66	Screw	1.4401	1.4401	1.4401
		B8M	B8M	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.

How to order – Numbering system

1

Article Number

1

2

3

4

4582.6112

1

Valve Type 457, 458

Type 458 – with closed bonnet

Type 457 – with open bonnet

2

Material code

Code	Body material
2	1.0619 (WCB)
4	1.4581 (CF10M)
7	1.7357 (WC6)

3

Valve code

Identifies valve size and body material, refer to page 09/09.

4

Code	Lifting lever	
2	screwed cap	H2
3	plain lever	H3
4	packed lever	H4
5	plain lever with open bonnet	H3

2

Set Pressure

Please state unit (in gauge)!

Please do not exceed the pressure range defined in the spring charts.

3

Connections

Please refer to page 09/16

4582.6112

Article No.

5 bar_g

Set Pressure

H47

Connections

Type 457, 458

4

Options

Type 457, 458

- O-ring-disc

		Option code
CR	"K"	J21
EPDM	"D"	J22
FKM	"L"	J23
FFKM	"C"	J20

- Butt-weld connection **S05**
- Disc 1.4404 / 316L **L44**
- Disc 1.4404 / 316L stellited **J25**
- Stainless steel bellows
 - open bonnet (Type 457) **J68**
 - closed bonnet (Type 458) **J78**
- High temperature equipment **J88**
- High temperature alloy spring **X01**
- Stainless steel spring **X04**
- Adaptor for lift indicator H4 **J39**
- Lift indicator **J93**
- Test gag
 - cap H2 **J70**
 - packed lever H4 **J69**
- Nozzle 1.4404 / 316 L stellited **L62**
- Heating jacket
 - Couplings G 3/8 **H29**
 - G 3/4 **H30**
 - Flanges DN 15 **H31**
 - DN 25 **H32**
 - Spacer **H33**
- Drain hole G 1/4 **J18**
- G 1/2 **J19**
- Free of oil and grease **J85**
- Materials
 - NACE **H01**

Option code applies only
if not standard

J22

Options

5

Documentation

Please select requested documentation:

Inspections, tests: **Option Code**
 DIN EN 10204-3.2: TÜV-Nord
 Certificate for test pressure **M33**
 Body material 1.7357/WC6 **H09**

LESER Certificate for Global Application **H03**

- Inspection certificate 3.1 acc. to DIN EN 10204
- Declaration of conformity acc. to PED 97/23/EC

Material test certificate:
 DIN EN 10204-3.1

Part	Option code
Body	H01
Nozzle	L59
Bonnet	L30
Cap / ever cover	L31
Disc	L23
Studs	N07
Nuts	N08

H01

L30

Documentation

6

Code and Medium

1 **2**
2 **0**

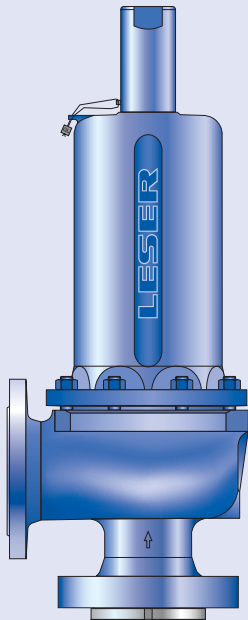
- 1 Code**
1. ASME Section VIII
 2. CE / VdTUEV
 3. ASME Section VIII + CE / VdTUEV

- 2 Medium**
- .1 Gases
 - .2 Liquids
 - .3 Steam
 - .0 Steam / Gases / Liquids (valid only for CE / VdTUEV)

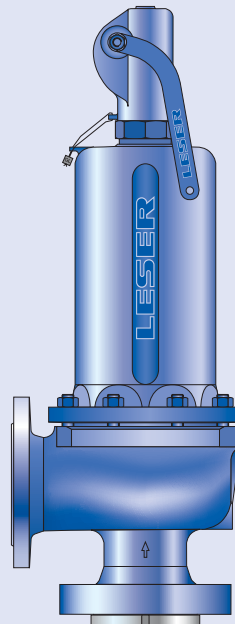
2.0

Code and Medium

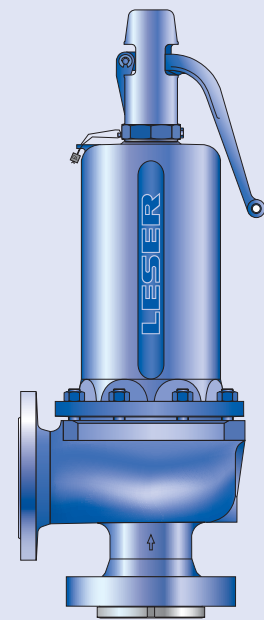
How to order – Article numbers



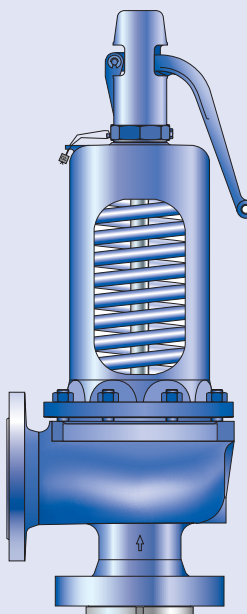
Type 458
Cap H2
Closed bonnet
Conventional design



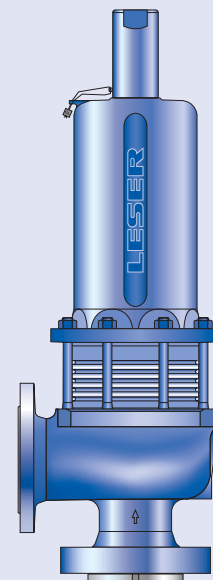
Type 458
Packed lever H4
Closed bonnet
Conventional design



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 [mm ²]	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 (WC6)									
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

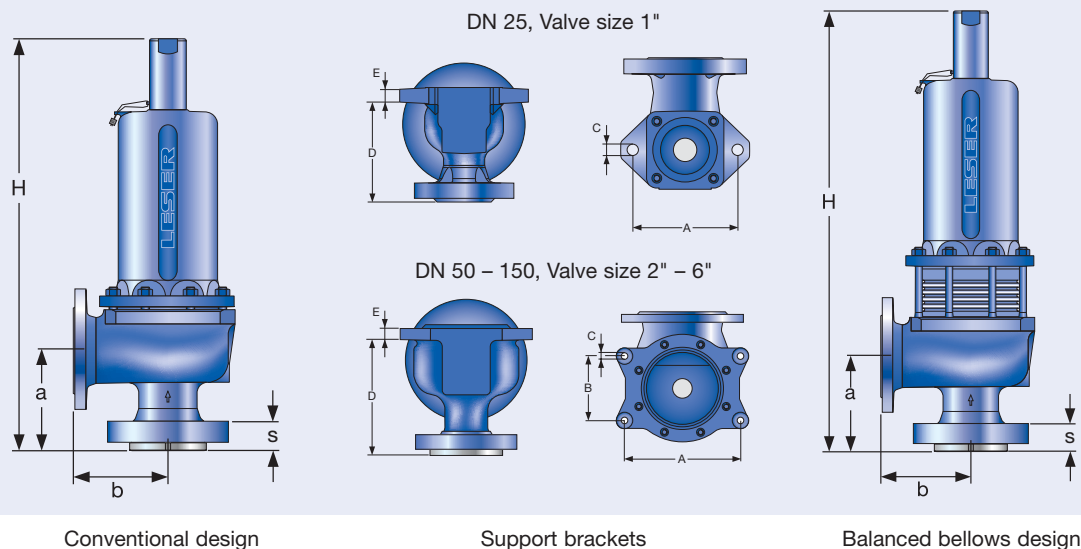
Article numbers

			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 [mm ²]	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.		6164	6174	6184	6194	4604	
open	H3	Art.-No. 4572.		6165	6175	6185	6195	4605	
Body material: 1.7357 (WC6)									
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	

Dimensions and weights

Metric Units

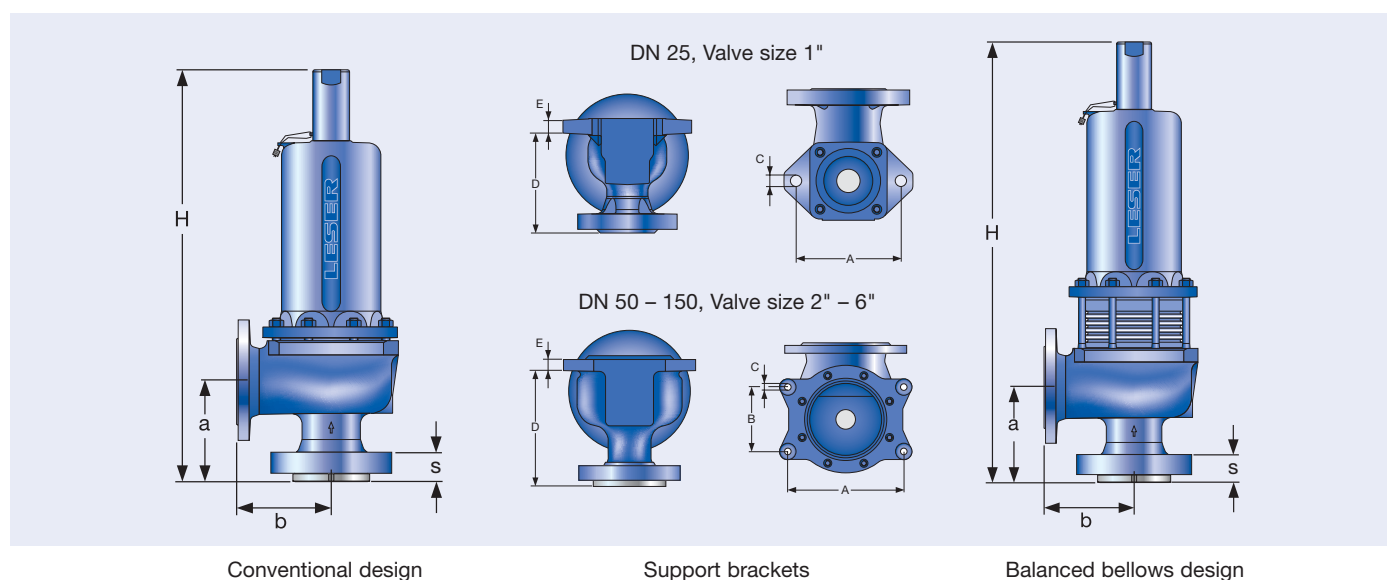
		DN _{I+O}	25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100	100 x 150	100 x 150	100 x 150	100 x 150	150 x 250
		Valve size	1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"	4" x 6"	4" x 6"	4" x 6"	4" x 6"	6" x 10"
		Actual Orifice diameter d ₀ [mm]	15	20	30	40	50	60	50	60	74	88	110
		Actual Orifice area 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 length 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	



Dimensions and weights

US Units

		DN _{ISO}	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 [inch]	0,59	0,79	1,18	1,57	1,97	2,36	1,97	2,36	2,91	3,46	4,33
		Actual Orifice area A ₀ [inch ²]	0,274	0,487	1,096	1,948	3,043	4,383	3,043	4,383	6,666	9,427	14,730
Weight			44	44	99	99	194	194	346	346	346	346	289
[lbs]		with bellows	49	49	106	106	238	238	415	415	415	415	357
Center to face		Inlet a	5 5/16	5 5/16	6 11/16	6 11/16	7 15/32	7 15/32	8 27/32	8 27/32	8 27/32	8 27/32	11 13/16
[inch]		Outlet b	CL150	4 23/32	4 23/32	5 23/32	5 23/32	7 3/32	7 3/32	9 1/4	9 1/4	9 1/4	8 27/32
		Outlet b	CL300	4 23/32	4 23/32	5 23/32	5 23/32	–	–	–	–	–	–
Measure [inch]		CL150	s	–	–	–	–	–	–	–	–	–	1 11/16
Used to find bolt length for inlet flange		CL300 – 600	s	1 5/8	1 5/8	2 1/16	2 1/16	2 1/16	2 1/16	2 3/8	2 3/8	2 3/8	–
		CL300 – 1500	s	1 5/8	1 5/8	2 1/16	2 1/16	–	–	–	–	–	–
Height (H4)		Standard H	max.	19 29/32	19 29/32	27 17/32	27 17/32	32 3/4	32 3/4	42 1/2	42 1/2	42 1/2	43 7/32
[inch]		Bellows H	max.	21 5/16	21 5/16	30 21/32	30 21/32	36 5/8	36 5/8	46 1/16	46 1/16	46 1/16	45 1/2
Support brackets		A		5 1/2	5 1/2	7 1/4	7 1/4	10 15/16	10 15/16	41 1/32	41 1/32	41 1/32	12 19/32
[mm]		B		–	–	4 11/32	4 11/32	6 5/16	6 5/16	8 9/32	8 9/32	8 9/32	7 9/32
(drilled only on request)		C		Ø 9/16	Ø 9/16	Ø 9/16	Ø 9/16	Ø 23/32	Ø 23/32	Ø 23/32	Ø 23/32	Ø 23/32	Ø 23/32
		D		6 3/8	6 3/8	8 7/32	8 7/32	9 7/16	9 7/16	11 11/32	11 11/32	11 11/32	15 7/16
		E		23/32	23/32	23/32	23/32	1 1/16	1 1/16	1 1/4	1 1/4	1 1/4	1 3/32
Body material: 1.0619 (WCB)													
ANSI Flange		Inlet		CL300 – 1500				CL300 – 600				CL150	
Class		Outlet		CL150 – 300				CL150				CL150	
Body material: 1.7357 (WC6)													
ANSI Flange		Inlet		CL300 – 1500				CL300 – 600				–	
Class		Outlet		CL150 – 300				CL150				–	
Body material: 1.4581 (CF10M)													
ANSI Flange		Inlet		CL300 – 1500				CL300 – 600				CL150	
Class		Outlet		CL150 – 300				CL150				CL150	
1.4408 (CF8M)													



Pressure temperature ratings

Metric Units

		DN _{ISO}	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 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	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.

Pressure temperature ratings

US Units

DN _{ISO}	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 [inch]	0,59	0,79	1,18	1,57	1,97	2,36	1,97	2,36	2,91	3,46	4,33
Actual Orifice area A ₀ [inch ²]	0,274	0,487	1,096	1,948	3,043	4,383	3,043	4,383	6,666	9,427	14,730

Body material: 1.0619 (WCB)

ANSI Flange Class ¹⁾	Inlet		CL300 – 1500				CL300 – 600				CL150
	Outlet		CL150 – 300				CL150				CL150
Minimum set pressure	p [psig]	S/G/L	36	36	36	36	36	36	36	36	36
Min. set pressure ²⁾ standard bellows	p [psig]	S/G/L	196	196	290	36	145	145	145	87	73
Min. set pressure low press. bellows	p [psig]	S/G/L					on request				
Maximum set pressure	p [psig]	S/G/L	4350	2610	1813	1421	1885	1117	624	667	769
Max. set pressure with special spring	p [psig]	S/G/L	4350	2610	3045	1660	2320	1117	2320	2320	1117
Temperature	min. [°F]		-121								
acc. to DIN EN	max. [°F]		+842								
Temperature	min. [°F]		-20								
acc. to ASME	max. [°F]		+800								

Body material: 1.7357 (WCB)

ANSI Flange Class ¹⁾	Inlet		CL300 – 1500				CL300 – 600				-
	Outlet		CL150 – 300				CL150				-
Minimum set pressure	p [psig]	S/G/L	36	36	36	36	36	36	36	36	-
Min. set pressure ²⁾ standard bellows	p [psig]	S/G/L	196	196	290	36	145	145	145	87	73
Min. set pressure low press. bellows	p [psig]	S/G/L					on request				-
Maximum set pressure	p [psig]	S/G/L	4350	2610	1813	1421	1885	1117	624	667	769
Max. set pressure with special spring	p [psig]	S/G/L	4350	2610	3045	1660	2320	1117	2320	2320	1117
Temperature	min. [°F]		-121								
acc. to DIN EN	max. [°F]		+1022								
Temperature	min. [°F]		-20								
acc. to ASME	max. [°F]		+1000								

Body material: 1.4581 (CF10M)

ANSI Flange Class ¹⁾	Inlet		CL300 – 1500				CL300 – 600				CL150
	Outlet		CL150 – 300				CL150				CL150
Minimum set pressure	p [psig]	S/G/L	36	36	36	36	36	36	36	36	36
Min. set pressure ²⁾ standard bellows	p [psig]	S/G/L	196	196	290	36	145	145	145	87	73
Min. set pressure low press. bellows	p [psig]	S/G/L					on request				-
Maximum set pressure	p [psig]	S/G/L	3625	2117	1189	885	885	508	229	160	245
Max. set pressure with special spring	p [psig]	S/G/L	3625	2117	1885	943	1508	747	1030	798	711
Temperature	min. [°F]		-121								
acc. to DIN EN	max. [°F]		+1022								
Temperature	min. [°F]		-20								
acc. to ASME	max. [°F]		+1000								

¹⁾ For flange rating class 150 the pressure temperature ratings according to ASME ANSI B 16.34 apply

²⁾ 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 (WC6), 1.4581 (CF10M), 1.4408 (CF8M)												
Inlet	DIN EN 1092	PN 16	H47	H47	H47	H47	H47	–	–	–	–	–
		PN 25	H47	H47	H47	H47	H47	H47	H47	H47	H47	*
		PN 40	H47	H47	H47	H47	H47	H47	H47	H47	H47	*
		PN 63	*	*	H10	H10	H10	H10	H10	H10	H10	S01
		PN 100	*	*	*	*	*	*	*	*	*	–
		PN 160	*	*	*	*	*	*	*	*	*	–
		PN 250	H12	H12	H12	H12	S01	S01	S01	S01	S01	–
		PN 320	S01	S01	S01	S01	S01	S01	S01	S01	S01	–
		PN 400	S01	S01	S01	S01	S01	S01	S01	S01	S01	–
	ASME B16.5	CL150	–	–	–	–	–	–	–	–	–	H64
		CL300	H65	H65	H65	H65	H65	H65	H65	H65	H65	–
		CL600	H67	H67	H67	H67	H67	H67	H67	H67	H67	–
		CL900	H69	H69	H69	H69	S01	S01	S01	S01	S01	–
		CL1500	H69	H69	H69	H69	S01	S01	S01	S01	S01	–
		CL2500	S01	S01	S01	S01	S01	S01	S01	S01	S01	–
Outlet	DIN EN 1092	PN 10	*	*	*	*	H51	H51	H51	H51	H51	H50
		PN 16	*	*	*	*	H51	H51	H51	H51	H51	*
		PN 25	*	*	*	*	*	*	*	*	*	–
		PN 40	*	*	*	*	*	*	*	*	*	–
		PN 63	H16	H16	H16	H16	S01	S01	S01	S01	S01	–
	ASME B16.5	CL150	H79	H79	H79	H79	H79	H79	H79	H79	H79	H79
		CL300	H80	H80	H80	H80	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	J07	J08	Groove: Rz 16
Linde-V-Nut, Form V48A	LWN 313.36	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)		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	
see also LWN 313.40)								
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"	L52	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.

Order information – Spare parts

Spare parts							
	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 [mm ²]	177	314	707	1257	1964	2827
Disc (Item 7): Metal to metal seat				Material-No. / Art.-No.			
Disc	1.4122	200.0139.9000	200.0239.9000	200.0339.9000	200.0439.9000	200.0539.9000	200.0639.9000
detachable lifting aid	1.4404	200.0169.9000	200.0269.9000	200.0369.9000	200.0469.9000	200.0569.9000	200.0669.9000
Disc (Item 7): Soft seal				Material-No. / Art.-No.			
Disc	CR	"K"	–	200.1149.9053	200.1249.9053	200.1349.9053	200.1449.9053
	EPDM	"D"	–	200.1149.9043	200.1249.9043	200.1349.9043	200.1449.9043
	FKM	"L"	–	200.1149.9073	200.1249.9073	200.1349.9073	200.1449.9073
	FFKM	"C"	–	200.1149.9093	200.1249.9093	200.1349.9093	200.1449.9093
Disc (Item 7.4): Soft seal				Material-No. / Art.-No.			
O-ring	CR	"K"	–	502.0154.3553	502.0247.5353	502.0342.5353	502.0438.5353
	EPDM	"D"	–	502.0154.3543	502.0247.5343	502.0342.5343	502.0438.5343
	FKM	"L"	–	502.0154.3573	502.0247.5373	502.0342.5373	502.0438.5373
	FFKM	"C"	–	502.0154.3593	502.0247.5393	502.0342.5393	502.0438.5393
Bellows (Item 15)				Material-No. / Art.-No.			
Standard bellows		400.5749.0000	400.5749.0000	400.5849.0000	400.5949.0000	400.6049.0000	400.6149.0000
Conversion kit standard ¹⁾		on request	on request	on request	on request	on request	on request
Low pressure bellows		on request	on request	on request	on request	on request	on request
Conversion kit low pressure ¹⁾		on request	on request	on request	on request	on request	on request
Gasket – body / bonnet (Item 60)				Material-No. / Art.-No.			
Gasket	Graphite + 1.4401	500.1007.0000	500.1007.0000	500.1607.0000	500.1607.0000	500.2107.0000	500.2107.0000
Option code L68	Gylon (filled PTFE)	500.1005.0000	500.1005.0000	500.1605.0000	500.1605.0000	500.2105.0000	500.2105.0000
Ball (Item 61)				Material-No. / Art.-No.			
Ball	Ball Ø [mm]	9	9	12	12	15	15
	1.4401	510.0204.0000	510.0204.0000	510.0304.0000	510.0304.0000	510.0404.0000	510.0404.0000
Split ring (Item 14)				Material-No. / Art.-No.			
Split ring	Spindle Ø [mm]	16	16	20	20	24	24
	1.4404	251.0249.0000	251.0249.0000	251.0349.0000	251.0349.0000	251.0449.0000	251.0449.0000
Ball (Item 57)				Material-No. / Art.-No.			
Ball (15 pieces)	Ball Ø [mm]	3	3	3	3	3	3
	1.4310	510.0604.0000	510.0604.0000	510.0604.0000	510.0604.0000	510.0604.0000	510.0604.0000
Screw (Item 66)				Material-No. / Art.-No.			
Screw	1.4401	451.0114.0000	451.0114.0000	451.0114.0000	451.0114.0000	451.0114.0000	451.0114.0000

¹⁾ For pressure range see page 09/12 – 09/13.
A conversion kit contains the following components:

Item	Component	No.
8	Guide	1
11	Bonnet spacer	1
12	Spindle	1
15	Bellows	1
55	Stud	4, 8 depends on valve size
60	Gasket	2, 3 depends on valve size
	Installation instruction LWN 037.05	1

Refer to page 09/04

Order information – Spare parts

Spare parts							
	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 [mm ²]	1964	2827	4301	6082	9503	
Disc (Item 7): Metal to metal seat				Material-No. / Art.-No.			
Disc	1.4122	200.0539.9000	200.0839.9000	200.0939.9000	200.1039.9000	220.0939.9000	
detachable lifting aid	1.4404	200.0569.9000	200.0869.9000	200.0969.9000	200.1069.9000	220.0969.9000	
Disc (Item 7): Soft seal				Material-No. / Art.-No.			
Disc	CR	"K"	200.1449.9053	200.1749.9053	200.1849.9053	200.1949.9053	–
	EPDM	"D"	200.1449.9043	200.1749.9043	200.1849.9043	200.1949.9043	–
	FKM	"L"	200.1449.9073	200.1749.9073	200.1849.9073	200.1949.9073	–
	FFKM	"C"	200.1449.9093	200.1749.9093	200.1849.9093	200.1949.9093	–
Disc (Item 7.4): Soft seal				Material-No. / Art.-No.			
O-ring	CR	"K"	502.0438.5353	502.0533.5353	502.0692.5353	502.0819.5353	–
	EPDM	"D"	502.0438.4353	502.0533.5343	502.0692.5343	502.0819.5343	–
	FKM	"L"	502.0438.7353	502.0533.5373	502.0692.5373	502.0819.5373	–
	FFKM	"C"	502.0438.9353	502.0533.5393	502.0692.5393	502.0819.5393	–
Bellows (Item 15)				Material-No. / Art.-No.			
Standard bellows		400.6049.0000	400.6149.0000	400.6249.0000	400.6249.0000	400.7849.0000	
Conversion kit standard ¹⁾		on request	on request	on request	on request	on request	
Low pressure bellows		on request	on request	on request	on request	on request	
Conversion kit low pressure ¹⁾		on request	on request	on request	on request	on request	
Gasket – body / bonnet (Item 60)				Material-No. / Art.-No.			
Gasket	Graphite + 1.4401	500.2207.0000	500.2207.0000	500.2207.0000	500.2207.0000	500.2207.0000	
Option code L68	Gylon (filled PTFE)	500.2205.0000	500.2205.0000	500.2205.0000	500.2205.0000	500.2205.0000	
Ball (Item 61)				Material-No. / Art.-No.			
Ball	Ball Ø [mm]	15	15	15	15	15	
	1.4401	510.0404.0000	510.0404.0000	510.0404.0000	510.0404.0000	510.0404.0000	
Split ring (Item 14)				Material-No. / Art.-No.			
Split ring	Spindle Ø [mm]	30	30	30	30	30	
	1.4404	251.0549.0000	251.0549.0000	251.0549.0000	251.0549.0000	251.0549.0000	
Ball (Item 57)				Material-No. / Art.-No.			
Ball (15 pieces)	Ball Ø [mm]	3	3	3	3	3	
	1.4310	510.0604.0000	510.0604.0000	510.0604.0000	510.0604.0000	510.0604.0000	
Screw (Item 66)				Material-No. / Art.-No.			
Screw	1.4401	451.0114.0000	451.0114.0000	451.0114.0000	451.0114.0000	451.0114.0000	

¹⁾ For pressure range see page 09/12 – 09/13.
A conversion kit contains the following components:

Item	Component	No.
8	Guide	1
11	Bonnet spacer	1
12	Spindle	1
15	Bellows	1
55	Stud	8, 12 depends on valve size
60	Gasket	2, 3 depends on valve size
	Installation instruction LWN 037.05	1

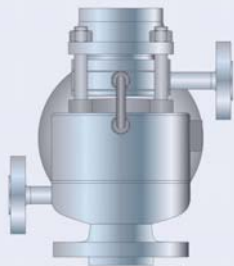
Refer to page 09/04

Available Options

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

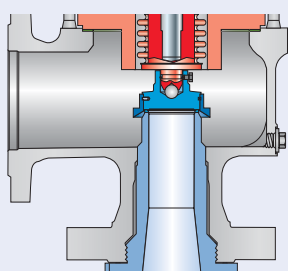
Heating jacket

H29, H30: Couplings G $\frac{3}{8}$, G $\frac{3}{4}$
H31, H32: Flanges DN 15, DN 25



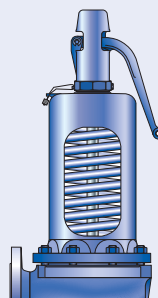
Drain hole

J18: G $\frac{1}{4}$
J19: G $\frac{1}{2}$



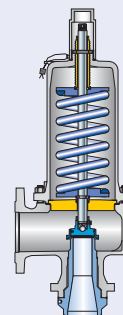
Open bonnet

See Art.-No.



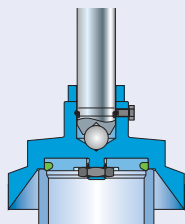
Butt-welded connection

S05



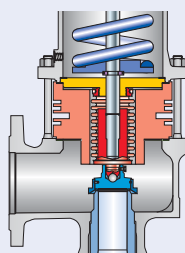
O-ring-disc

J20: FFKM "C"
J21: CR "K"
J22: EPDM "D"
J23: FKM "L"



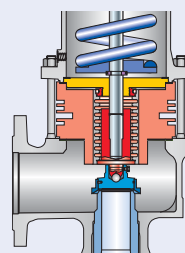
Stainless steel bellows

J68: Open bonnet
J78: Closed bonnet



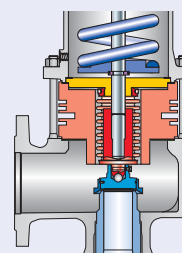
Conversion kit for stainless steel bellows

on request



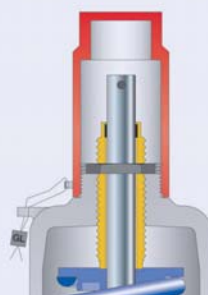
High temperature equipment

J88



Screwed cap H2

H2



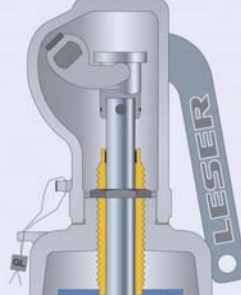
Plain lever H3

H3



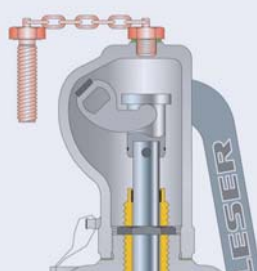
Packed lever H4

H4



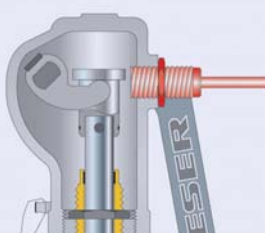
Test gag

J69: H4
J70: H2



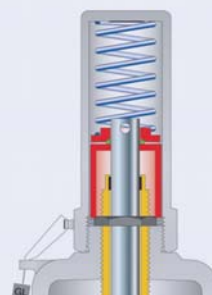
Lift indicator

J39: Adaptor H4
J93: Lift indicator



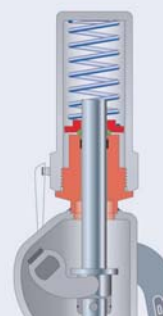
O-ring-damper H2

J65



O-ring-damper H4

J66



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												
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												
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												
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												
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												
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												
GGTN/ GOSGORTECHNADZOR	Approval No.	PPC 00-18458										
GOST R		1989-06										
	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
Belarus												
PROMATOMNADZOR	Approval No.	15-171-2006										
	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									

*) 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 – Steam

Capacities for saturated steam according to ASME Section VIII (UV), based on set pressure plus 10% overpressure.
Capacities at 2,07 bar (30 psig) and below are based on 0,207 bar (3 psig) overpressure.

US Units	ASME Section VIII [lb/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 [inch]	0,59	0,79	1,18	1,57	1,97	2,36	1,97	2,36	2,91	3,46	4,33
Act. Orifice area A ₀ [inch ²]	0,274	0,487	1,096	1,948	3,043	4,383	3,043	4,383	6,666	9,427	14,730
LEO _{S/G} *) [inch ²]	0,224	0,399	0,897	1,594	2,491	3,389	2,491	3,587	5,456	7,29	11,391
Set pressure [psig]	Capacities [lb/h]										
40	660	1174	2641	4695	7336	9982	7336	10565	16070	21472	33551
50	784	1394	3136	5576	8712	11854	8712	12546	19083	25499	39843
60	908	1614	3632	6456	10088	13726	10088	14527	22097	29526	46134
70	1032	1834	4127	7337	11464	15598	11464	16508	25111	33553	52426
80	1156	2054	4622	8217	12840	17470	12840	18489	28124	37580	58718
90	1279	2275	5118	9098	14216	19342	14216	20471	31138	41606	65010
100	1403	2495	5613	9979	15591	21214	15591	22452	34152	45633	71302
120	1651	2935	6604	11740	18343	24958	18343	26414	40179	53687	83886
140	1899	3375	7594	13501	21095	28702	21095	30377	46206	61740	96469
160	2146	3815	8585	15262	23846	32446	23846	34339	52233	69794	109053
180	2394	4256	9575	17023	26598	36189	26598	38301	58261	77848	121637
200	2641	4696	10566	18784	29350	39933	29350	42264	64288	85901	134221
220	2889	5136	11557	20545	32101	43677	32101	46226	70315	93955	146804
240	3137	5577	12547	22306	34853	47421	34853	50188	76342	102008	159388
260	3384	6017	13538	24067	37605	51165	37605	54151	82370	110062	171972
280	3632	6457	14528	25828	40356	54909	40356	58113	88397	118115	184555
300	3880	6897	15519	27589	43108	58653	43108	62076	94424	126169	197139
320	4127	7338	16510	29350	45860	62397	45860	66038	100451	134223	209723
340	4375	7778	17500	31111	48611	66141	48611	70000	106478	142276	222307
360	4623	8218	18491	32872	51363	69885	51363	73963	112506	150330	234890
380	4870	8658	19481	34633	54115	73629	54115	77925	118533	158383	247474
400	5118	9099	20472	36395	56866	77373	56866	81888	124560	166437	260058
500	6356	11300	25425	45200	70625	96092	70625	101700	154696	206705	322976
600	7594	13501	30378	54005	84383	114812	84383	121512	184833	246973	
700	8833	15703	35331	62810	98141	133531	98141	141324	214969	287241	
800	10071	17904	40284	71616	111900	152251	111900	161136	245105		
900	11309	20105	45237	80421	125658	170970	125658	180948	275241		
1000	12547	22307	50190	89226	139416	189690	139416	200759	305377		
1100	13786	24508	55143	98032	153175	208410	153175	220571	335514		
1200	15024	26709	60096	106837	166933		166933	240383			
1300	16262	28911	65049	115642	180691		180691	260195			
1400	17476	31068	69903	124273	194176		194176	279614			
1500	18829	33473	75314	133892	209206		209206	301256			
2000	26033	46281	104132		289256		289256	416528			
2500	34450	61245	137802								
3000	37312		149250								

*) 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 _{ISO}	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_o [mm]	15	20	30	40	50	60	50	60	74	88	110
Act. Orifice area A_o [mm ²]	177	314	707	1257	1964	2827	1694	2827	4301	6082	9503
LEO _{S/G} *) [inch ²]	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 – 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.

US Units	ASME Section VIII [S.C.F.M.]										
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 [inch]	0,59	0,79	1,18	1,57	1,97	2,36	1,97	2,36	2,91	3,46	4,33
Act. Orifice area A ₀ [inch ²]	0,274	0,487	1,096	1,948	3,043	4,383	3,043	4,383	6,666	9,427	14,730
LEO _{S/G} ^{*)} [inch ²]	0,224	0,399	0,897	1,594	2,491	3,389	2,491	3,587	5,456	7,29	11,391
Set pressure [psig]	Capacities [S.C.F.M.]										
40	235	418	941	1673	2613	3556	2613	3764	5724	7649	11951
50	279	497	1118	1986	3103	4223	3103	4470	6798	9083	14193
60	324	575	1294	2300	3593	4890	3593	5175	7871	10517	16434
70	368	653	1471	2614	4083	5557	4083	5881	8945	11952	18675
80	412	732	1647	2928	4573	6224	4573	6587	10018	13386	20916
90	456	810	1824	3241	5063	6891	5063	7293	11091	14821	23158
100	500	889	2000	3555	5553	7558	5553	7999	12165	16255	25399
120	588	1046	2353	4182	6533	8891	6533	9410	14312	19124	29881
140	677	1202	2706	4810	7513	10225	7513	10822	16459	21993	34364
160	765	1359	3059	5437	8493	11559	8493	12234	18606	24861	38847
180	853	1516	3412	6065	9473	12893	9473	13645	20753	27730	43329
200	941	1673	3765	6692	10454	14227	10454	15057	22900	30599	47812
220	1030	1830	4118	7319	11434	15560	11434	16468	25047	33468	52294
240	1118	1987	4471	7947	12414	16894	12414	17880	27193	36336	56777
260	1206	2144	4824	8574	13394	18228	13394	19292	29340	39205	61259
280	1294	2300	5177	9202	14374	19562	14374	20703	31487	42074	65742
300	1383	2457	5530	9829	15354	20896	15354	22115	33634	44943	70224
320	1471	2614	5883	10456	16334	22229	16334	23527	35781	47811	74707
340	1559	2771	6236	11084	17314	23563	17314	24938	37928	50680	79189
360	1647	2928	6589	11711	18294	24897	18294	26350	40075	53549	83672
380	1736	3085	6942	12338	19274	26231	19274	27762	42222	56418	88154
400	1824	3241	7295	12966	20254	27565	20254	29173	44369	59286	92637
500	2265	4026	9060	16103	25155	34234	25155	36231	55104	73630	115050
600	2706	4810	10825	19240	30055	40903	30055	43290	65838	87974	
700	3147	5594	12590	22377	34955	47572	34955	50348	76573	102318	
800	3589	6378	14355	25514	39855	54241	39855	57406	87307		
900	4030	7163	16120	28651	44756	60910	44756	64464	98042		
1000	4471	7947	17885	31788	49656	67579	49656	71522	108777		
1100	4912	8731	19650	34925	54556	74248	54556	78581	119511		
1200	5354	9515	21415	38062	59457		59457	85639			
1300	5795	10300	23180	41199	64357		64357	92697			
1400	6236	11084	24945	44336	69257		69257	99755			
1500	6677	11868	26709	47473	74158		74158	106813			
2000	8884	15789	35534		98659		98659	142104			
2500	11090	19711	44359								
3000	13296		53184								
3500	15502										
4000	17708										
4350	19253										

^{*)} 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 ³ kg/h]										
DN _{ISO}	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 [mm ²]	177	314	707	1257	1964	2827	1694	2827	4301	6082	9503
LEO _L ^{*)} [inch ²]	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 ³ kg/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

Capacities – Water

Capacities for water according to ASME Section VIII (UV), based on set pressure plus 10 % overpressure at 21 °C (70 °F).
Capacities at 2,07 bar (30 psig) and below are based on 0,207 bar (3 psig) overpressure.

US Units	ASME Section VIII [US-G.P.M.]										
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 [inch]	0,59	0,79	1,18	1,57	1,97	2,36	1,97	2,36	2,91	3,46	4,33
Act. Orifice area A ₀ [inch ²]	0,274	0,487	1,096	1,948	3,043	4,383	3,043	4,383	6,666	9,427	14,730
LEO ^{*)} [inch ²]	0,241	0,429	0,964	1,714	2,678	3,230	2,678	3,857	5,866	6,947	10,855
Set pressure [psig]	Capacities [US-G.P.M.]										
40	39,4	70,1	158	280	438	528	438	631	960	1137	1776
50	44,1	78,4	176	314	490	591	490	706	1073	1271	1986
60	48,3	85,9	193	343	537	647	537	773	1175	1392	2175
70	52,2	92,8	209	371	580	699	580	835	1270	1504	2349
80	55,8	99,2	223	397	620	747	620	892	1357	1607	2511
90	59,2	105	237	421	657	793	657	947	1440	1705	2664
100	62,4	111	249	443	693	836	693	998	1517	1797	2808
120	68,3	121	273	486	759	915	759	1093	1662	1969	3076
140	73,8	131	295	525	820	989	820	1181	1795	2126	3322
160	78,9	140	316	561	876	1057	876	1262	1919	2273	3552
180	83,7	149	335	595	929	1121	929	1339	2036	2411	3767
200	88,2	157	353	627	980	1182	980	1411	2146	2541	3971
220	92,5	164	370	658	1027	1239	1027	1480	2251	2665	4165
240	96,6	172	387	687	1073	1294	1073	1546	2351	2784	4350
260	101	179	402	715	1117	1347	1117	1609	2447	2898	4528
280	104	186	417	742	1159	1398	1159	1670	2539	3007	4699
300	108	192	432	768	1200	1447	1200	1728	2628	3113	4863
320	112	198	446	793	1239	1495	1239	1785	2714	3215	5023
340	115	204	460	818	1277	1541	1277	1840	2798	3314	5178
360	118	210	473	841	1314	1585	1314	1893	2879	3410	5328
380	122	216	486	864	1350	1629	1350	1945	2958	3503	5474
400	125	222	499	887	1385	1671	1385	1995	3035	3594	5616
500	139	248	558	992	1549	1868	1549	2231	3393	4018	6279
600	153	272	611	1086	1697	2047	1697	2444	3717	4402	
700	165	293	660	1173	1833	2211	1833	2640	4015	4755	
800	176	314	706	1254	1959	2363	1959	2822	4292		
900	187	333	748	1330	2078	2507	2078	2993	4552		
1000	197	351	789	1402	2191	2642	2191	3155	4799		
1100	207	368	827	1471	2297	2771	2297	3309	5033		
1200	216	384	864	1536	2400	2400	3456				
1300	225	400	900	1599	2498	2498	3597				
1400	233	415	934	1659	2592	2592	3733				
1500	242	429	966	1717	2683	2683	3864				
2000	279	496	1116	3098	3098	4462					
2500	312	554	1247								
3000	342	1367									
3500	369										
4000	394										
4350	411										

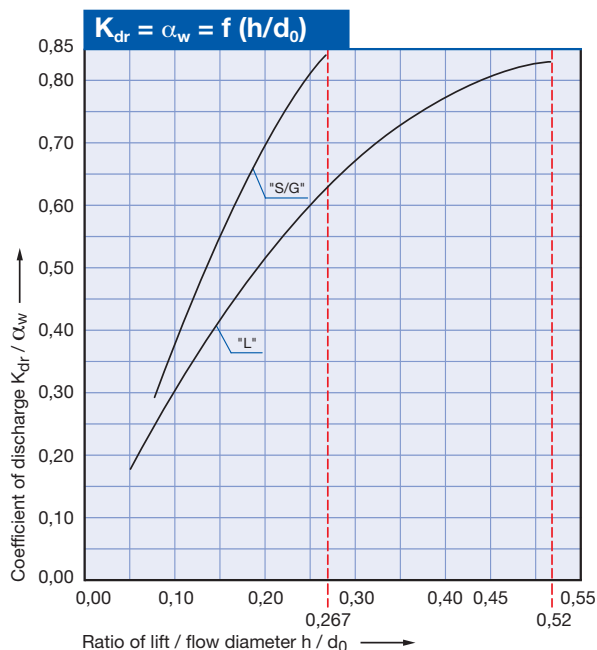
*) LEO_L = LESER Effective Orifice liquids please refer to page 00/12
How to use capacity-sheets refer to page 00/09

Determination of coefficient of discharge in case of lift restriction or back pressure

Diagram for evaluation of ratio of lift / flow diameter (h/d_0) in reference to the coefficient of discharge (K_{dr}/α_w)

h = Lift [mm]
 d_0 = Flow diameter [mm] of selected safety valve, refer to table article numbers
 h/d_0 = Ratio of lift / flow diameter
 p_{a0} = Back pressure [bar_a]
 p_0 = Set pressure [bar_a]
 p_{a0}/p_0 = Ratio of back pressure / set pressure
 K_{dr} = Coefficient of discharge acc. to DIN EN ISO 4126-1
 α_w = Coefficient of discharge acc. to AD 2000-Merkblatt A2
 K_b = Back pressure correction factor acc. to API 520 topic 3.3

DN 25, d_0 15



DN 25, d_0 20

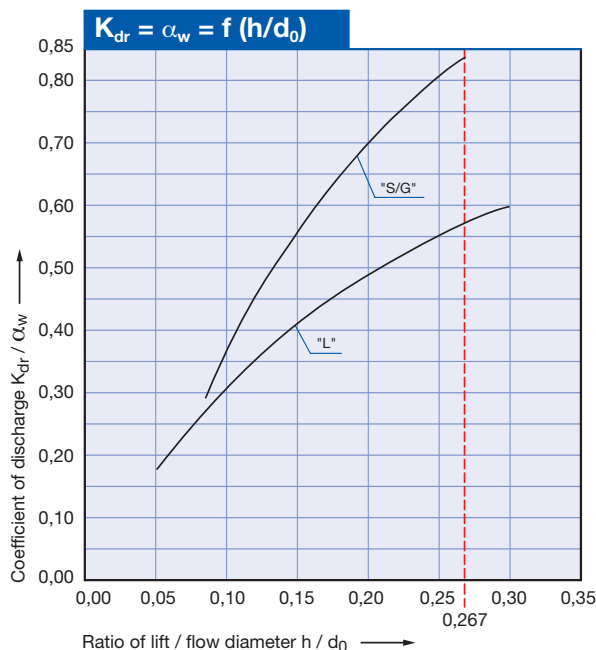
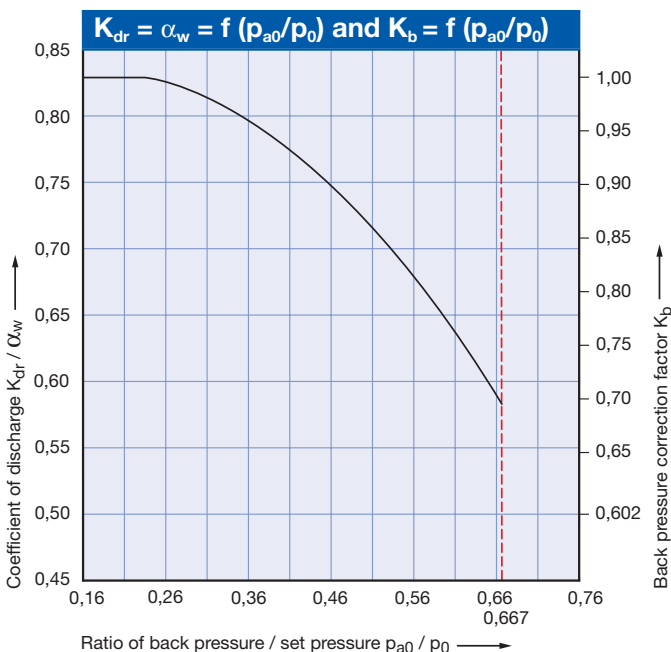
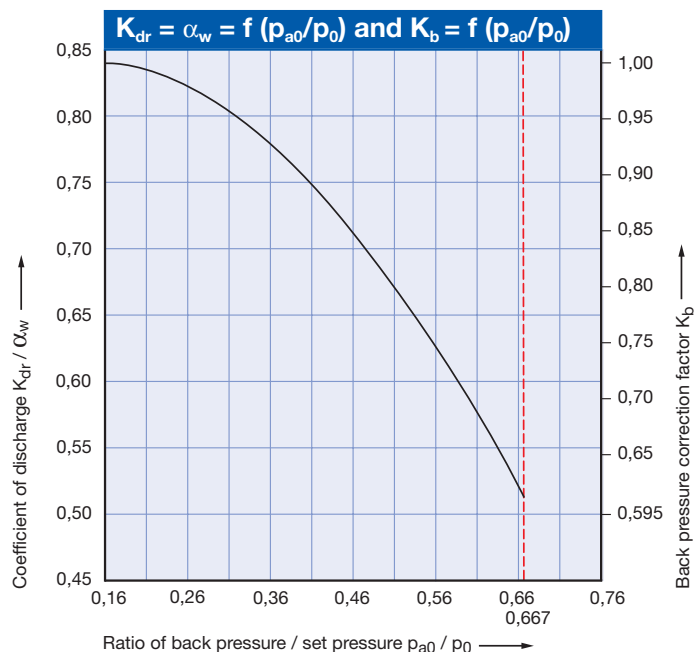


Diagram for evaluation of coefficient of discharge (K_{dr}/α_w) or K_b in reference to the ratio of back pressure / set pressure (p_{a0}/p_0)

DN 25, d_0 15



DN 25, d_0 20

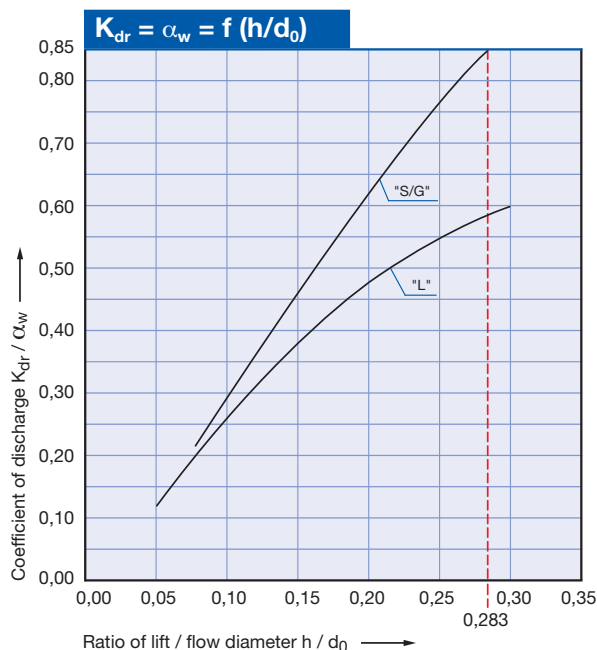


Determination of coefficient of discharge in case of lift restriction or back pressure

Diagram for evaluation of ratio of lift / flow diameter (h/d_0) in reference to the coefficient of discharge (K_{dr}/α_w)

h = Lift [mm]
 d_0 = Flow diameter [mm] of selected safety valve, refer to table article numbers
 h/d_0 = Ratio of lift / flow diameter
 p_{a0} = Back pressure [bar_a]
 p_0 = Set pressure [bar_a]
 p_{a0}/p_0 = Ratio of back pressure / set pressure
 K_{dr} = Coefficient of discharge acc. to DIN EN ISO 4126-1
 α_w = Coefficient of discharge acc. to AD 2000-Merkblatt A2
 K_b = Back pressure correction factor acc. to API 520 topic 3.3

DN 50, d_0 30



DN 50, d_0 40

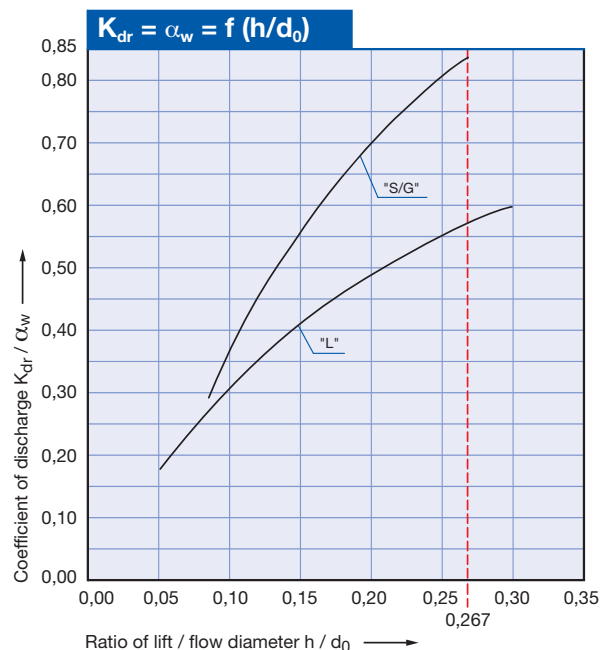
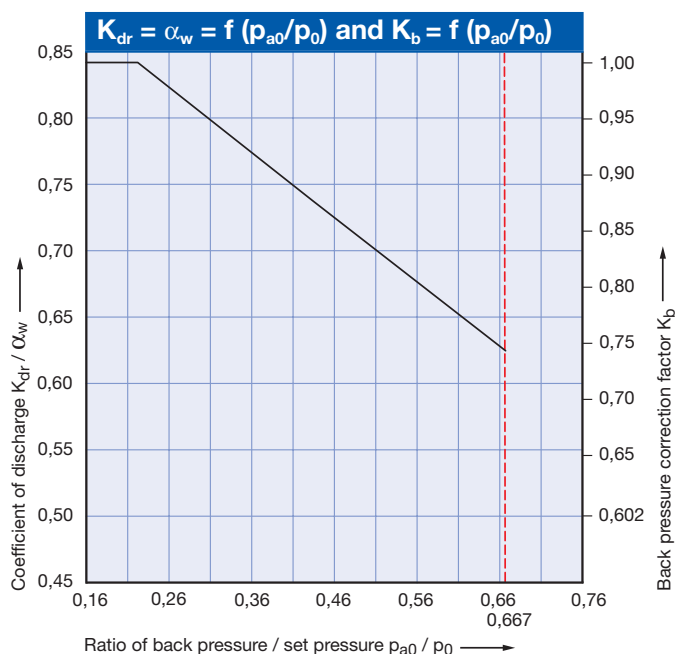
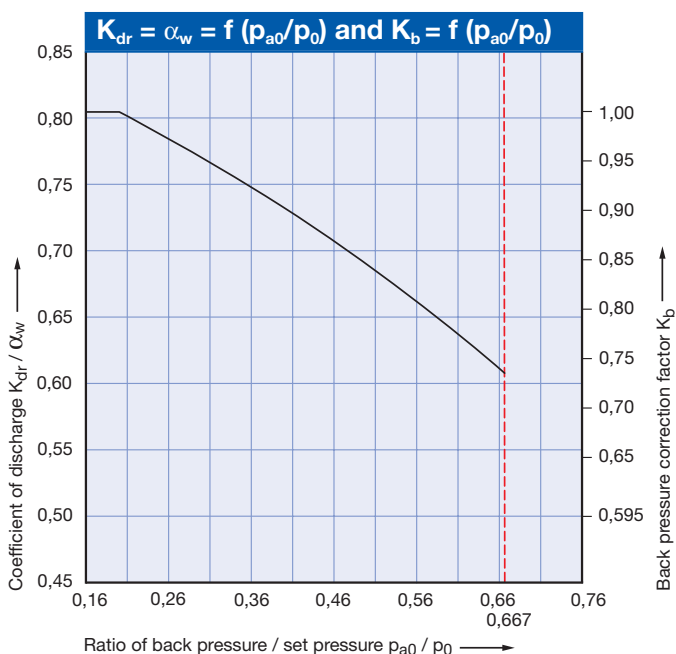


Diagram for evaluation of coefficient of discharge (K_{dr}/α_w) or K_b in reference to the ratio of back pressure / set pressure (p_{a0}/p_0)

DN 50, d_0 30



DN 50, d_0 40

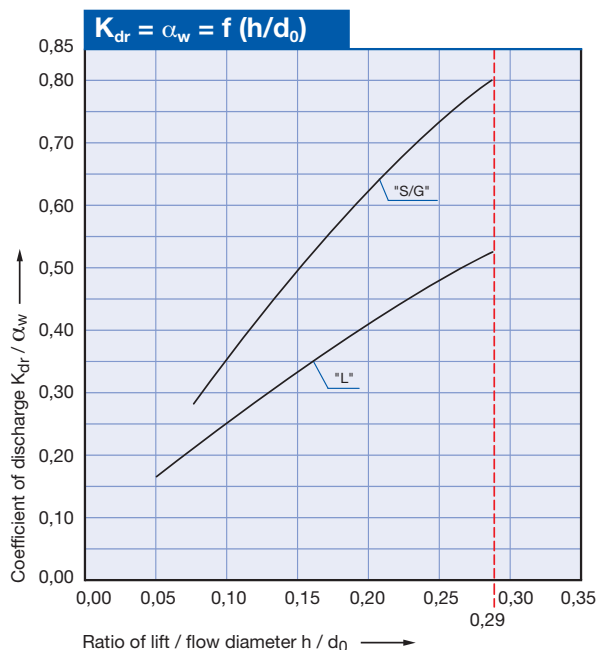


Determination of coefficient of discharge in case of lift restriction or back pressure

Diagram for evaluation of ratio of lift / flow diameter (h/d_0) in reference to the coefficient of discharge (K_{dr}/α_w)

h = Lift [mm]
 d_0 = Flow diameter [mm] of selected safety valve, refer to table article numbers
 h/d_0 = Ratio of lift / flow diameter
 p_{a0} = Back pressure [bar_a]
 p_0 = Set pressure [bar_a]
 p_{a0}/p_0 = Ratio of back pressure / set pressure
 K_{dr} = Coefficient of discharge acc. to DIN EN ISO 4126-1
 α_w = Coefficient of discharge acc. to AD 2000-Merkblatt A2
 K_b = Back pressure correction factor acc. to API 520 topic 3.3

DN 80, d_0 50



DN 80, d_0 60

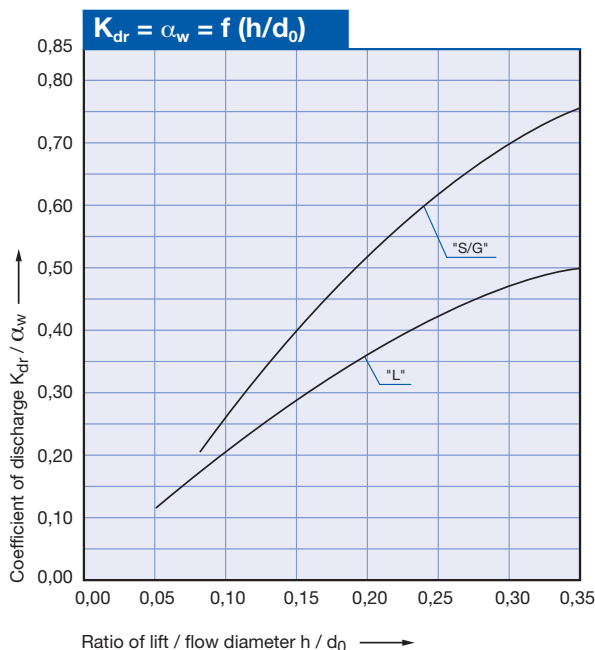
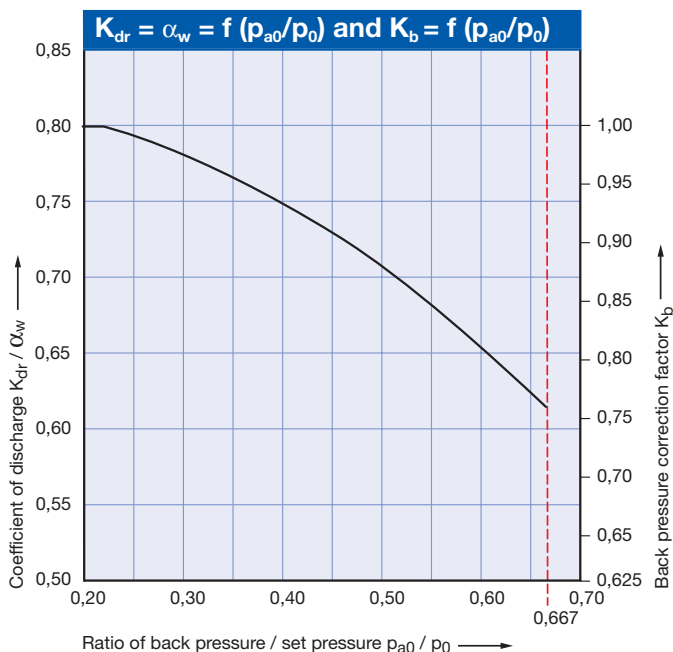
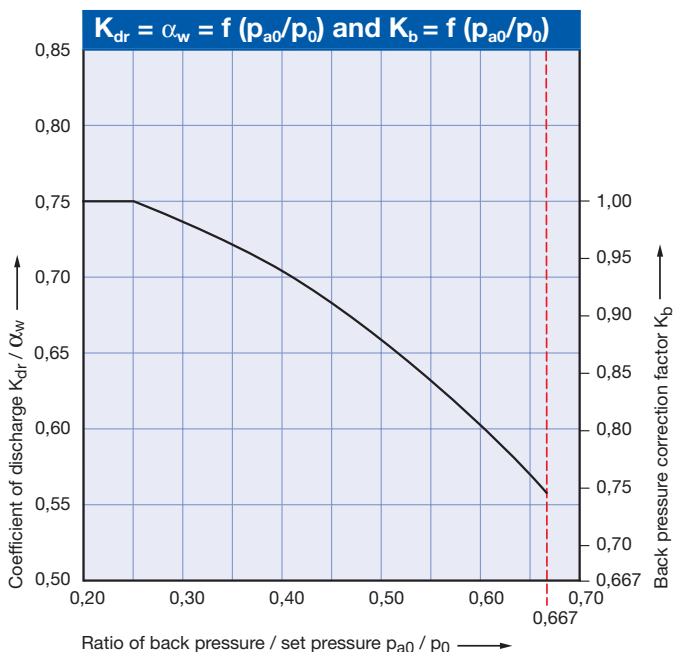


Diagram for evaluation of coefficient of discharge (K_{dr}/α_w) or K_b in reference to the ratio of back pressure / set pressure (p_{a0}/p_0)

DN 80, d_0 50



DN 80, d_0 60

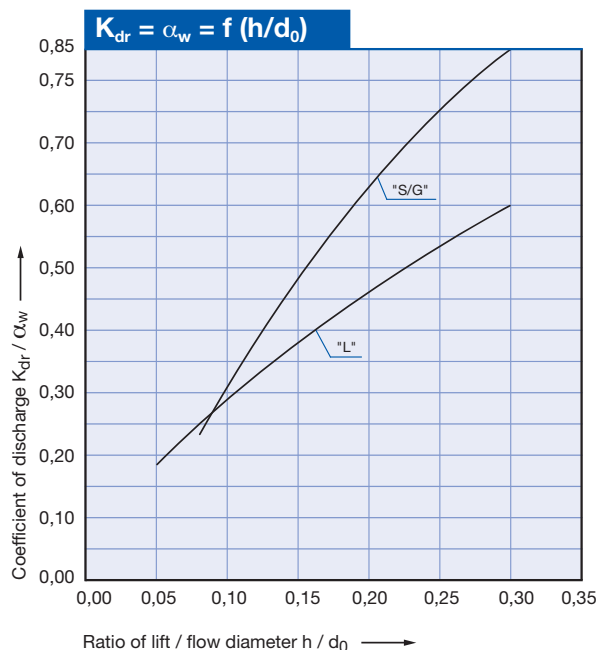


Determination of coefficient of discharge in case of lift restriction or back pressure

Diagram for evaluation of ratio of lift / flow diameter (h/d_0) in reference to the coefficient of discharge (K_{dr}/α_w)

h = Lift [mm]
 d_0 = Flow diameter [mm] of selected safety valve, refer to table article numbers
 h/d_0 = Ratio of lift / flow diameter
 p_{a0} = Back pressure [bar_a]
 p_0 = Set pressure [bar_a]
 p_{a0}/p_0 = Ratio of back pressure / set pressure
 K_{dr} = Coefficient of discharge acc. to DIN EN ISO 4126-1
 α_w = Coefficient of discharge acc. to AD 2000-Merkblatt A2
 K_b = Back pressure correction factor acc. to API 520 topic 3.3

DN 100, d_0 50



DN 100, d_0 60

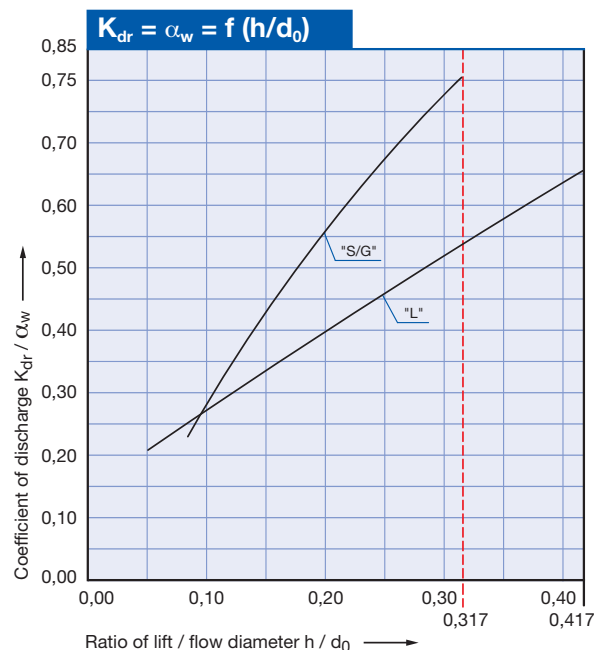
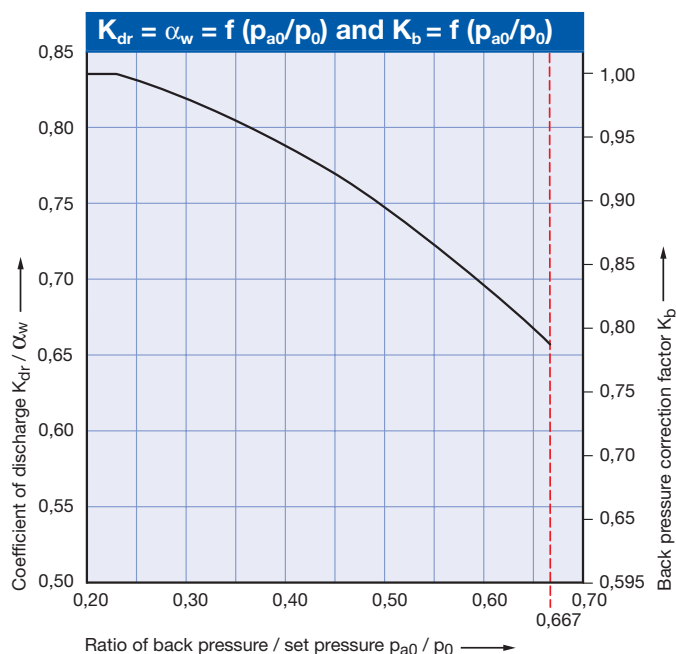
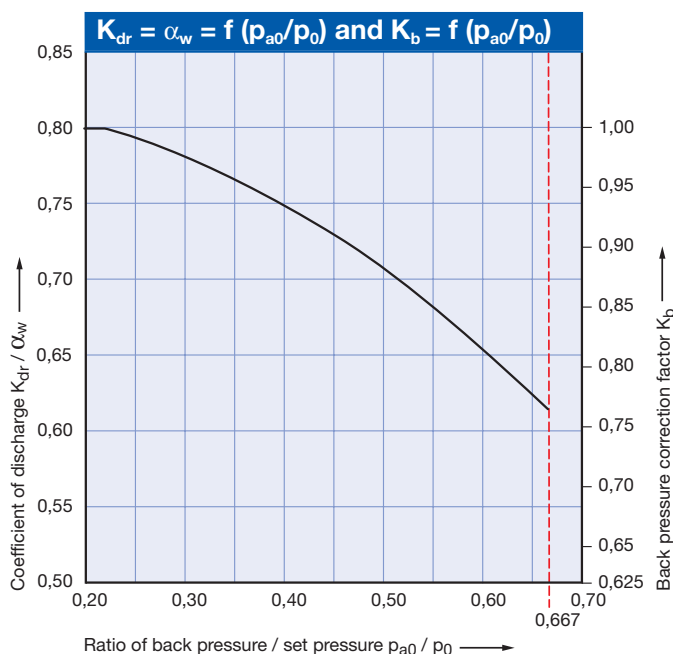


Diagram for evaluation of coefficient of discharge (K_{dr}/α_w) or K_b in reference to the ratio of back pressure / set pressure (p_{a0}/p_0)

DN 100, d_0 50



DN 100, d_0 60



Determination of coefficient of discharge in case of lift restriction or back pressure

h = Lift [mm]
 d_0 = Flow diameter [mm] of selected safety valve, refer to table article numbers
 h/d_0 = Ratio of lift / flow diameter
 p_{a0} = Back pressure [bar_a]
 p_0 = Set pressure [bar_a]
 p_{a0}/p_0 = Ratio of back pressure / set pressure
 K_{dr} = Coefficient of discharge acc. to DIN EN ISO 4126-1
 α_w = Coefficient of discharge acc. to AD 2000-Merkblatt A2
 K_b = Back pressure correction factor acc. to API 520 topic 3.3

Diagram for evaluation of ratio of lift / flow diameter (h/d_0) in reference to the coefficient of discharge (K_{dr}/α_w)

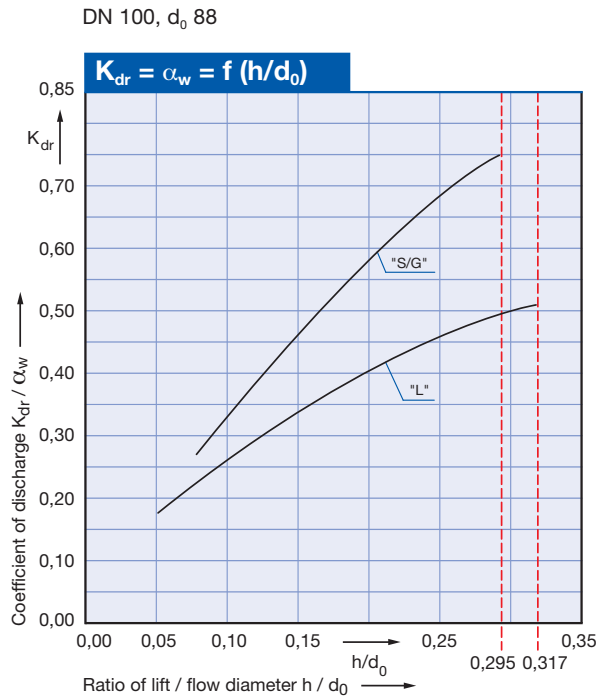
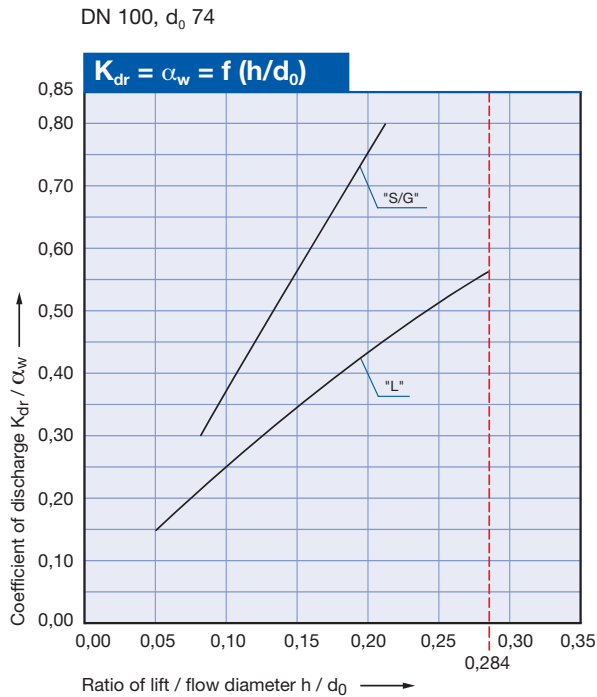
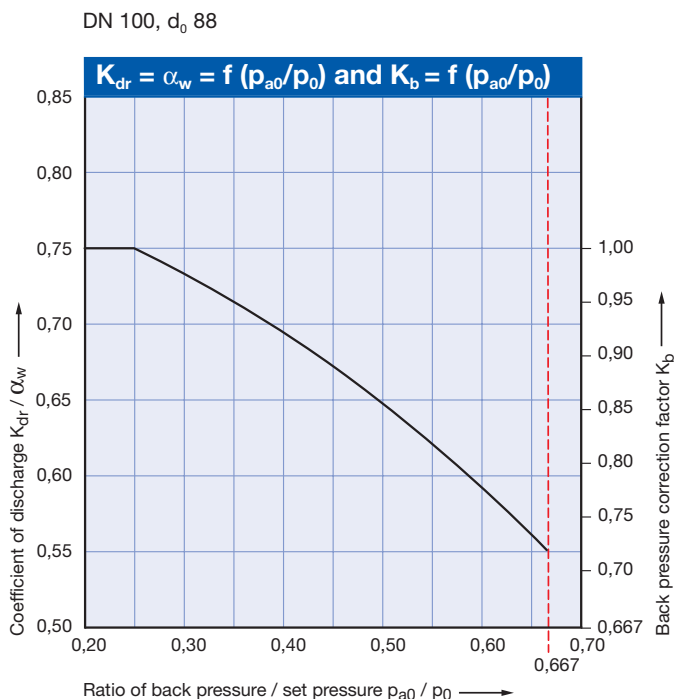
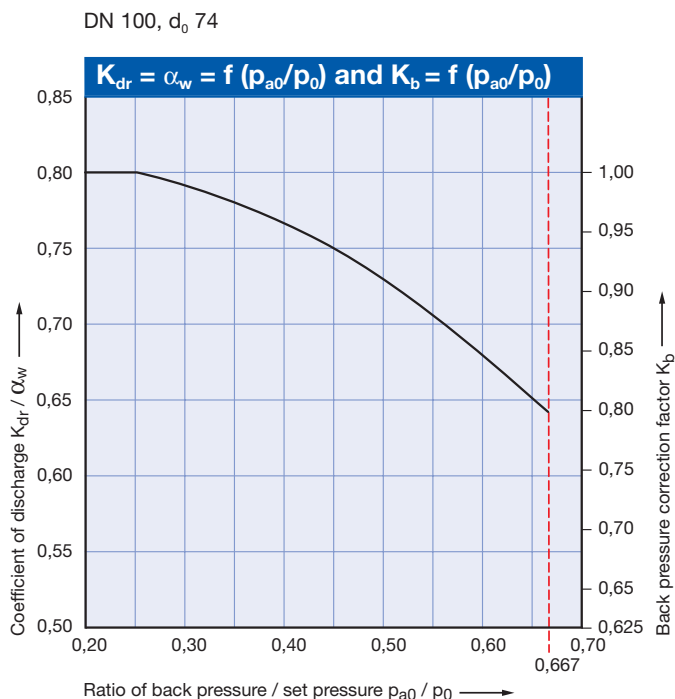


Diagram for evaluation of coefficient of discharge (K_{dr}/α_w) or K_b in reference to the ratio of back pressure / set pressure (p_{a0}/p_0)



Determination of coefficient of discharge in case of lift restriction or back pressure

Diagram for evaluation of ratio of lift / flow diameter (h/d_0) in reference to the coefficient of discharge (K_{dr}/α_w)

h	= Lift [mm]
d_0	= Flow diameter [mm] of selected safety valve, refer to table article numbers
h/d_0	= Ratio of lift / flow diameter
p_{a0}	= Back pressure [bar _a]
p_0	= Set pressure [bar _a]
p_{a0}/p_0	= Ratio of back pressure / set pressure
K_{dr}	= Coefficient of discharge acc. to DIN EN ISO 4126-1
α_w	= Coefficient of discharge acc. to AD 2000-Merkblatt A2
K_b	= Back pressure correction factor acc. to API 520 topic 3.3

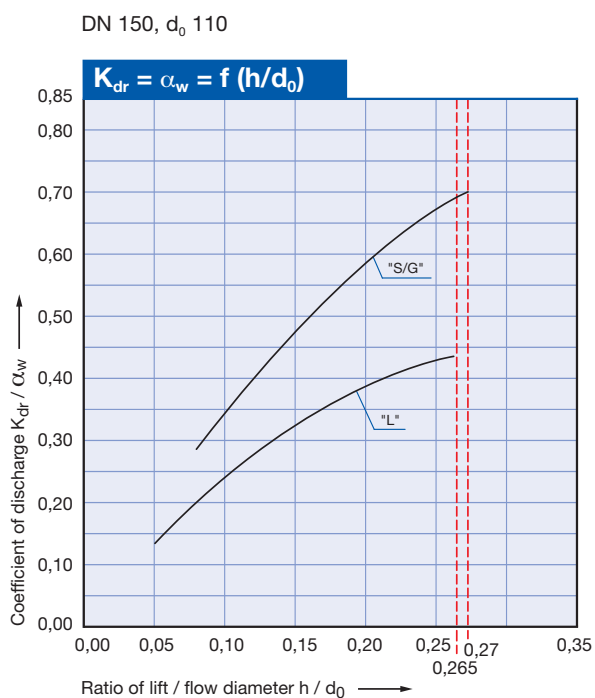


Diagram for evaluation of coefficient of discharge (K_{dr}/α_w) or K_b in reference to the ratio of back pressure / set pressure (p_{a0}/p_0)

