

# Type 457, 458

Flanged Safety Relief Valves  
– spring loaded

US Units

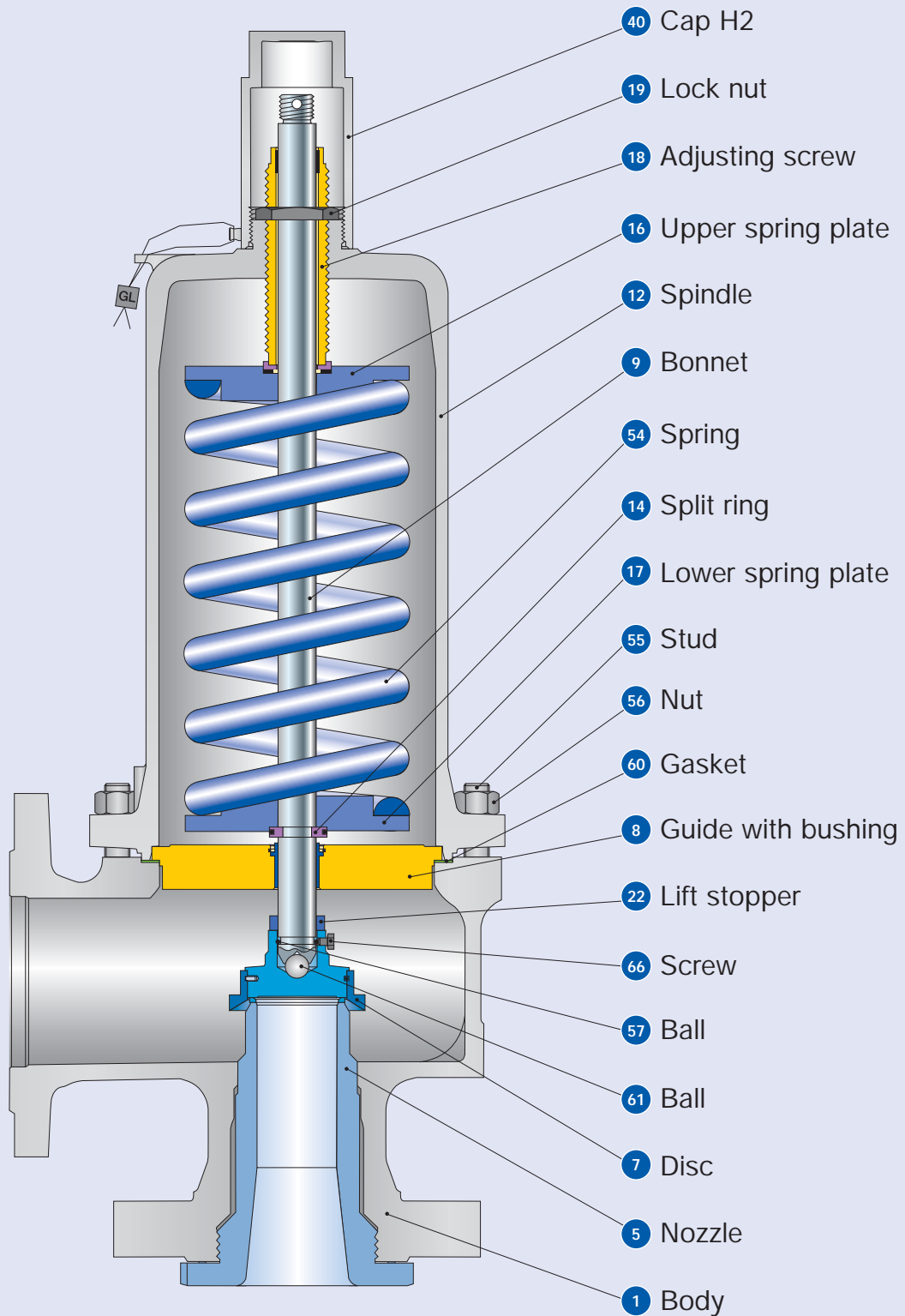


## Facts

**LESER**

[The-Safety-Valve.com](http://The-Safety-Valve.com)

## Conventional design



## Conventional design

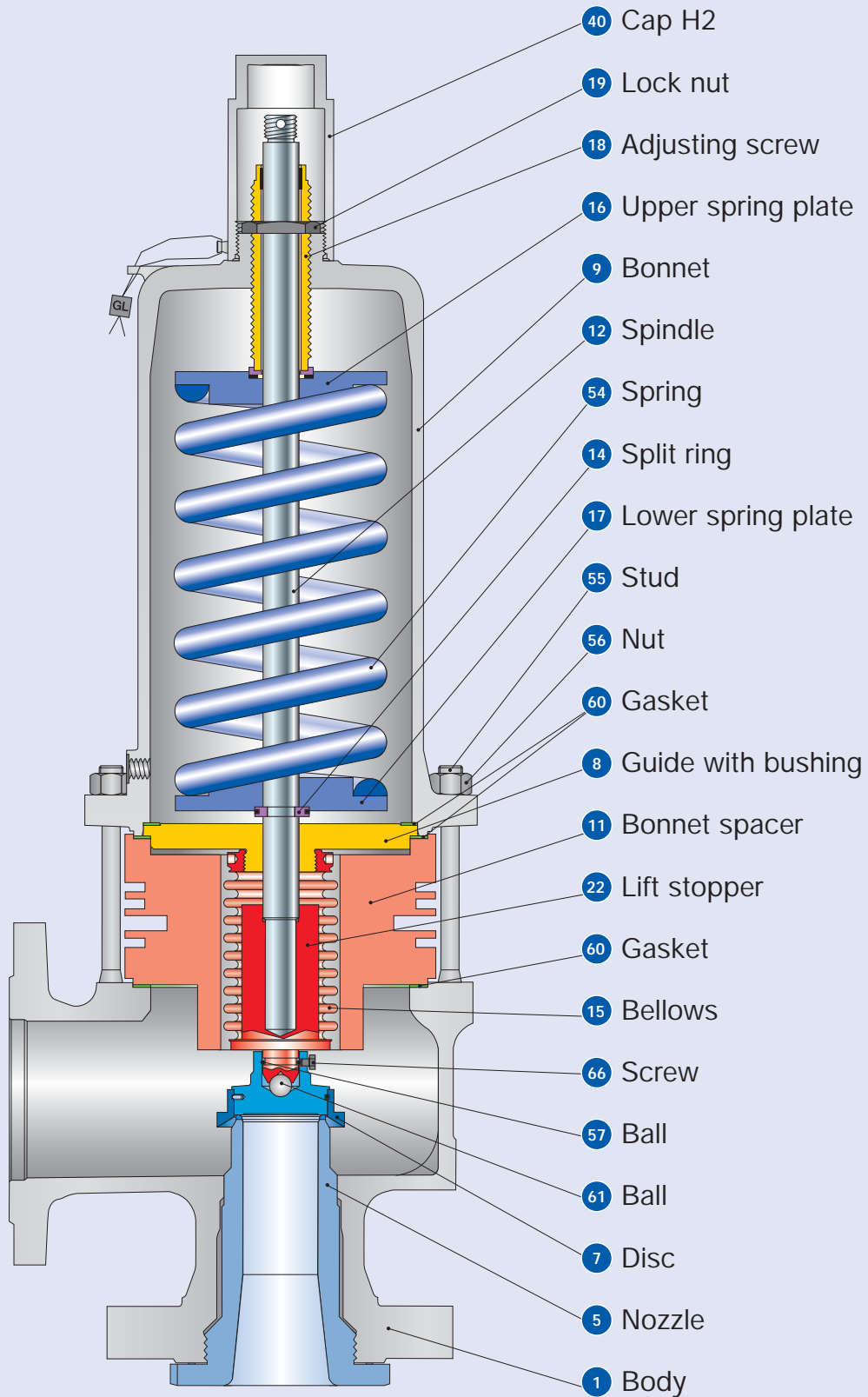
Materials				
Item	Component	Type 4572 / 4582	Type 4577 / 4587	Type 4584
1	Body	1.0619	1.7357	1.4581
		SA 216 WCB	SA 217 WC6	SA 351 CF10M
5	Nozzle	1.4404	1.4404 stellite	1.4404
		316L	316L	316L
7	Disc	1.4122	1.4122	1.4404
		Hardened stainless steel	Hardened stainless steel	316L
8	Guide with bushing	1.0501, 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	1.1200, 1.8159, 1.7102	1.4310
		Carbon steel	Carbon steel	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.

# Type 457, 458

## Balanced bellows design



Type 457, 458

## Balanced bellows design

Materials		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	1.0501, 0.7040	1.4404
		Chrome or carbon steel	Chrome or carbon steel	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
	Spring optional	1.4310	1.4310	-
		Stainless steel	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.

## How to order – Article numbers

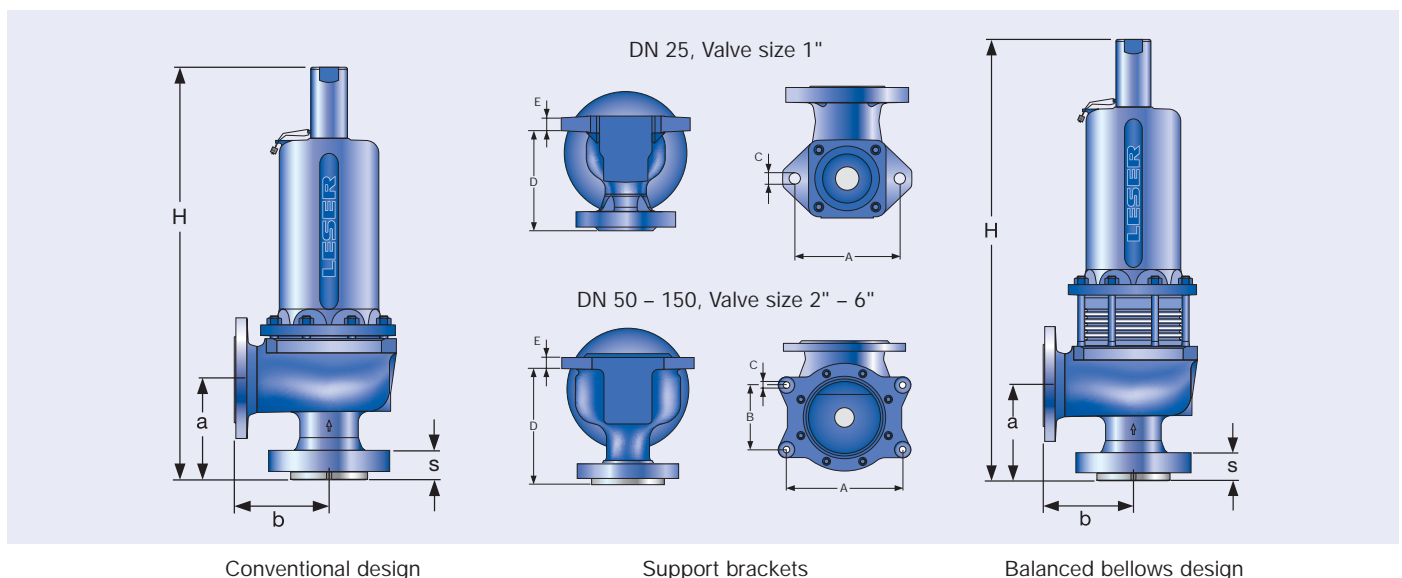
Article numbers			25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100
	DN <sub>I+O</sub>		25 x 50	25 x 50	50 x 80	50 x 80	80 x 100	80 x 100
	Valve size		1" x 2"	1" x 2"	2" x 3"	2" x 3"	3" x 4"	3" x 4"
	Actual Orifice diameter d <sub>0</sub> [mm]		15	20	30	40	50	60
	Actual Orifice area A <sub>0</sub> [mm <sup>2</sup> ]		177	314	707	1257	1964	2827
<b>Body material: 1.0619 (WCB)</b>								
<b>Bonnet</b>	H2	Art.-No. 4582.	6102	6112	6122	6132	6142	6152
closed	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
<b>Body material: 1.7357 (WCB)</b>								
<b>Bonnet</b>	H2	Art.-No. 4587.	6302	6312	6322	6332	6342	6352
closed	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
<b>Inlet body material: 1.4581 (CF10M)</b>								
<b>Bonnet</b>	H2	Art.-No. 4584.	6202	6212	6222	6232	6242	6252
closed	H4	Art.-No. 4584.	6204	6214	6224	6234	6244	6254

Article numbers			100 x 150	100 x 150	100 x 150	100 x 150	150 x 250	
	DN <sub>I+O</sub>		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 <sub>0</sub> [mm]		50	60	74	88	110	
	Actual Orifice area A <sub>0</sub> [mm <sup>2</sup> ]		1964	2827	4301	6082	9503	
<b>Body material: 1.0619 (WCB)</b>								
<b>Bonnet</b>	H2	Art.-No. 4582.	6162	6172	6182	6192	4602	
closed	H3	Art.-No. 4582.	-	-	-	-	-	
	H4	Art.-No. 4582.	6124	6174	6184	6194	4604	
open	H3	Art.-No. 4572.	6125	6175	6185	6195	4605	
<b>Body material: 1.7357 (WCB)</b>								
<b>Bonnet</b>	H2	Art.-No. 4587.	6362	6372	6382	6392	-	
closed	H3	Art.-No. 4587.	-	-	-	-	-	
	H4	Art.-No. 4587.	6364	6374	6384	6394	-	
open	H3	Art.-No. 4577.	6365	6375	6385	6395	-	
<b>Body material: 1.4581 (CF10M)</b>							<b>1.4408 (CF8M)</b>	
<b>Bonnet</b>	H2	Art.-No. 4584.	6262	6272	6282	6292	4732	
closed	H4	Art.-No. 4584.	6264	6274	6284	6294	4734	

# Type 457, 458

## Dimensions and weights

US Units		DN <sub>ISO</sub>	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 <sub>0</sub> [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 <sub>0</sub> [inch <sup>2</sup> ]			0,274	0,487	1,096	1,948	3,043	4,383	3,043	4,383	6,666	9,427	14,730
Weight [lbs]			44	44	99	99	194	194	346	346	346	346	289
	with bellows		49	49	106	106	238	238	415	415	415	415	357
Center to face [inch]	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
	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	9 1/4	8 27/32
	Outlet b CL300		4 23/32	4 23/32	5 23/32	5 23/32	-	-	-	-	-	-	-
Measure [inch] Used to find bolt length for inlet flange	CL150	s	-	-	-	-	-	-	-	-	-	-	1 11/16
	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	2 3/8	-
	CL300 – 1500	s	1 5/8	1 5/8	2 1/16	2 1/16	-	-	-	-	-	-	-
Height (H4) [inch]	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	42 1/2	43 7/32
	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	46 1/16	45 1/2
Support brackets [mm] (drilled only on request)	A		5 1/2	5 1/2	7 1/4	7 1/4	10 15/16	10 15/16	4 11/32	4 11/32	4 11/32	4 11/32	12 19/32
	B		-	-	4 11/32	4 11/32	6 5/16	6 5/16	8 9/32	8 9/32	8 9/32	8 9/32	7 9/32
	C		∅ 9/16	∅ 9/16	∅ 9/16	∅ 9/16	∅ 23/32	∅ 23/32	∅ 23/32	∅ 23/32	∅ 23/32	∅ 23/32	∅ 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	11 11/32	15 7/16
	E		2 3/32	2 3/32	2 3/32	2 3/32	1 1/16	1 1/16	1 1/4	1 1/4	1 1/4	1 1/4	1 3/32
Body material: 1.0619 (WCB)													
ANSI Flange Class	Inlet		CL300 – 1500				CL300 – 600				CL150		
	Outlet		CL150 – 300				CL150				CL150		
Body material: 1.7357 (WC6)													
ANSI Flange Class	Inlet		CL300 – 1500				CL300 – 600				-		
	Outlet		CL150 – 300				CL150				-		
Body material: 1.4581 (CF10M)													1.4408 (CF8M)
ANSI Flange Class	Inlet		CL300 – 1500				CL300 – 600				CL150		
	Outlet		CL150 – 300				CL150				CL150		



Type 457, 458

## Pressure temperature ratings

US Units												
	DN <sub>r,o</sub>	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 <sub>0</sub> [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 <sub>0</sub> [inch <sup>2</sup> ]	0,274	0,487	1,096	1,948	3,043	4,383	3,043	4,383	6,666	9,427	14,730
<b>Body material: 1.0619 (WCB)</b>												
ANSI Flange Class <sup>1)</sup>	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	36	36
Min. set pressure <sup>2)</sup> standard bellows	p [psig] S/G/L	196	196	290	36	145	145	145	87	73	73	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	493	261
Max. set pressure with special spring	p [psig] S/G/L	4350	2610	3045	1660	2320	1117	2320	2320	1117	769	580
Temperature acc. to DIN EN	min. [°F]						-121					
	max. [°F]						+842					
Temperature acc. to ASME	min. [°F]						-20					
	max. [°F]						+800					
<b>Body material: 1.7357 (WCB)</b>												
ANSI Flange Class <sup>1)</sup>	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	36	36	-
Min. set pressure <sup>2)</sup> standard bellows	p [psig] S/G/L	196	196	290	36	145	145	145	87	73	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	493	-
Max. set pressure with special spring	p [psig] S/G/L	4350	2610	3045	1660	2320	1117	2320	2320	1117	769	-
Temperature acc. to DIN EN	min. [°F]						-121					-
	max. [°F]						+1022					-
Temperature acc. to ASME	min. [°F]						-20					-
	max. [°F]						+1000					-
<b>Body material: 1.4581 (CF10M)</b>												1.4408 (CF8M)
ANSI Flange Class <sup>1)</sup>	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	36	36
Min. set pressure <sup>2)</sup> standard bellows	p [psig] S/G/L	196	196	290	36	145	145	145	87	73	73	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	0	64
Max. set pressure with special spring	p [psig] S/G/L	3625	2117	1885	943	1508	747	1030	798	711	464	145
Temperature acc. to DIN EN	min. [°F]						-121					-454
	max. [°F]						+1022					+752
Temperature acc. to ASME	min. [°F]						-20					-450
	max. [°F]						+1000					+1000

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

<sup>2)</sup> Min. set pressure standard bellows = Max. set pressure low pressure bellows.



## Available Options

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

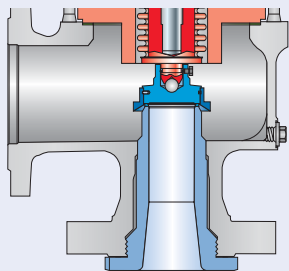
### Heating jacket

H29, H30: Couplings G 3/8, G 3/4  
H31, H32: Flanges DN 15, DN 25



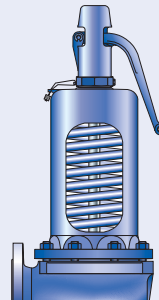
### Drain hole

J18: G 1/4  
J19: G 1/2



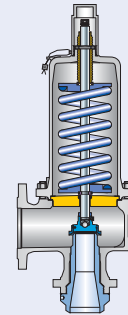
### Open bonnet

See Art.-No.



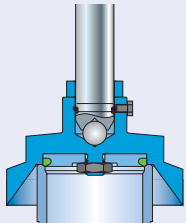
### Butt-welded connection

S05



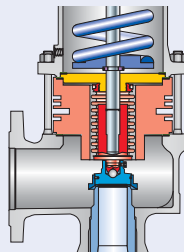
### O-ring-disc

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



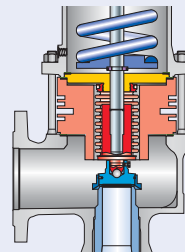
### Stainless steel bellows

J68: Open bonnet  
J78: Closed bonnet



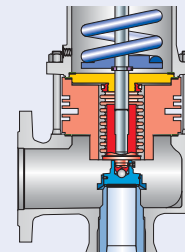
### Conversion kit for stainless steel bellows

on request



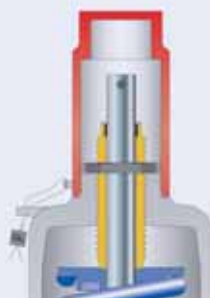
### High temperature equipment

J88



### Screwed cap H2

H2



### Plain lever H3

H3



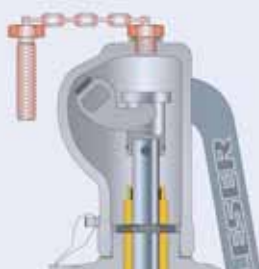
### Packed lever H4

H4



### Test gag

J69: H4  
J70: H2



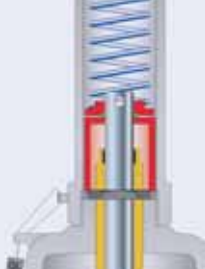
### Lift indicator

J39: Adaptor H4  
J93: Lift indicator



### O-ring-damper H2

J65



### O-ring-damper H4

J66

