



Type 437

Safety Relief Valves
– spring loaded

Metric + US Units



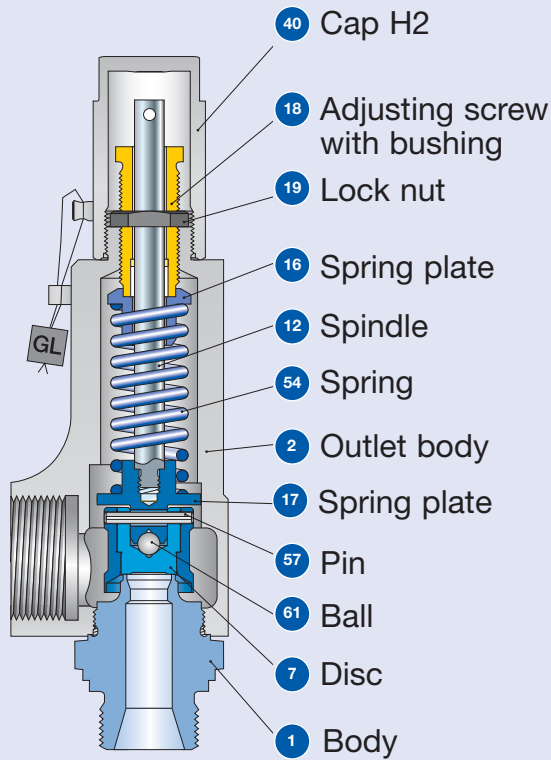
Facts

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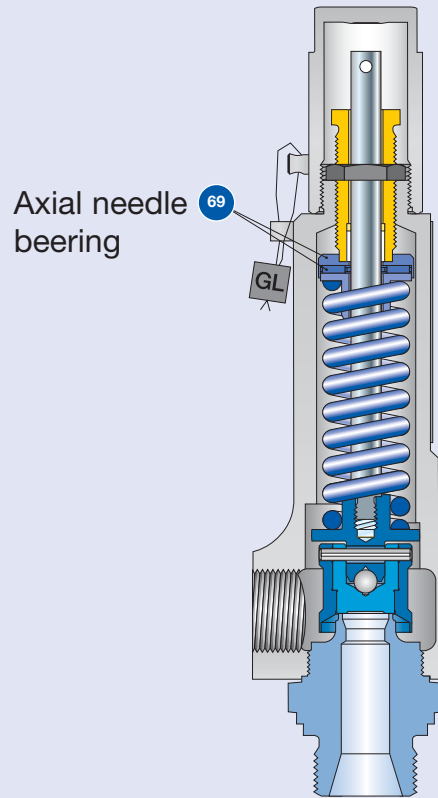
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Designs

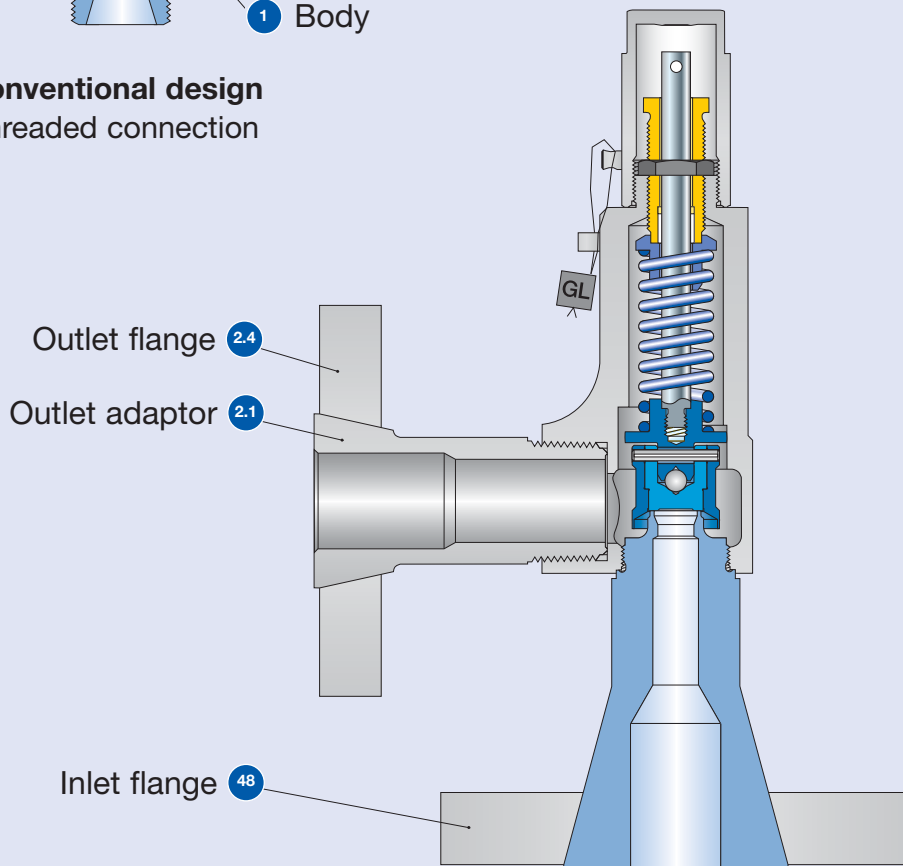
Type 437



Conventional design
Threaded connection



Long version
Threaded connection



Conventional design
Flange connection

Materials

Materials				
Item	Component	Design	Type 4373	Type 4374
1	Base/Inlet body	Threaded connection	1.4104 ^{1) 4)} , 1.4404	1.4404
			SA 479 430 ^{1) 4)} , SA 479 316L	SA 479 316L
		Flange connection	1.4404	1.4404
			SA 479 316L	SA 479 316L
Long version	1.4104 ²⁾ , 1.4404 stellited	1.4404 stellited		
	SA 479 430 ²⁾ , SA 479 316L stellited	SA 479 316L stellited		
2	Outlet body		1.4104 ⁴⁾	1.4404
			SA 479 430 ⁴⁾	SA 479 316L
2.1	Outlet adaptor	Flange connection	1.4404	1.4404
			316L	316L
2.4	Outlet flange	Flange connection	1.4404	1.4404
			316L	316L
7	Disc		1.4122	1.4404
			Hardened stainless steel	SA 316L
		Long version	d ₀ 6: 1.4404 stellited d ₀ 6: 316L stellited	d ₀ 10: 1.4122 d ₀ 10: HSS ⁵⁾
12	Spindle ³⁾		1.4021	1.4571
			420	316Ti
		Long Version	1.4571 316Ti	1.4571 316Ti
16/17	Spring plate ³⁾		1.4104	1.4404
			Chrome steel	316L
		Long version	1.4404 316L	1.4404 316L
18	Adjusting screw with bushing		1.4104 / PTFE	1.4104 / PTFE
			Chrome steel / PTFE	1.4104 / PTFE
19	Lock nut		1.0718	1.4404
			steel	316L
40	Cap H2		1.0460	1.4404
			SA 105	316L
48	Inlet flange	Flange connection	1.4404	1.4404
			316L	316L
54	Spring		1.4310	1.4310
			Stainless steel	Stainless steel
57	Pin		1.4310	1.4310
			Stainless steel	Stainless steel
61	Ball		1.3541	1.4401
			Hardened stainless steel	316
69	Axial needle bearing	Long version	1.4404	1.4404
			316L	316L

Please notice:

- Modifications reserved by LESER.
- LESER can upgrade materials without notice.
- Every part can be replaced by other material acc. to customer specification.
- The materials shall meet the requirements of the relevant regulations (Pressure Equipment Directive (PED), acc. to PED applied harmonized standards, AD 2000-Merkblätter, VdTÜV (Werkstoffblätter) as well as further materials listed in Section 8 of the Type-Examination.

¹⁾ Only for male thread DIN ISO 228-1 G³/₈, G¹/₂, G³/₄ (Option Codes V49, V54, V55).

²⁾ Only for d₀ 10 with male thread DIN ISO 228-1 G³/₈, G¹/₂, G³/₄ (Option Codes V49, V54, V55).

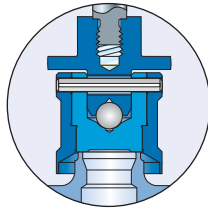
³⁾ The items 12 and 17 are combined to one unit.

⁴⁾ Material 1.4404/316L for ASME application (Option code N68 or N70)

⁵⁾ Hardened stainless steel

Article numbers

Type 437



Metal seat

Article numbers

	Conventional design	Long version	
Actual Orifice diameter d_0 [mm]	10	6	10
Actual Orifice area A_0 [mm ²]	78.5	28.3	78.5
Actual Orifice diameter d_0 [inch]	0.394	0.236	0.394
Actual Orifice area A_0 [inch ²]	0.122	0.044	0.122
Base / Inlet body material: 1.4104 (430)¹⁾			
H2 Art. No. 4373. ²⁾	2602	2622	2612
H3 Art. No. 4373. ²⁾ $p_{max.} = 16 \text{ bar}_g$	2603	-	-
H4 Art. No. 4373. ²⁾	2604	2624	2614
p [bar _g]	S/G/L 0.1 – 93	S/G 180 – 365	S/G/L 93 – 180
p [psig]	S/G/L 1.5 – 1349	S/G 2611 – 5294	S/G/L 1349 – 2611
Base / Inlet body material: 1.4404 (316L)			
H2 Art. No. 4374.	3142	3122	3152
H4 Art. No. 4374.	3144	3124	3154
p [bar _g]	S/G/L 0.1 – 68	S/G 180 – 330	S/G/L 68 – 180
p [psig]	S/G/L 1.5 – 986	S/G 2611 – 4786	S/G/L 986 – 2611

¹⁾ Material 1.4404/316L for ASME application (Option code N68 or N70).

²⁾ Type 4373 should not be selected when a „stainless steel“ valve is required due to corrosive medium.

Dimensions and weights – Threaded connections [Metric units]

Threaded connections

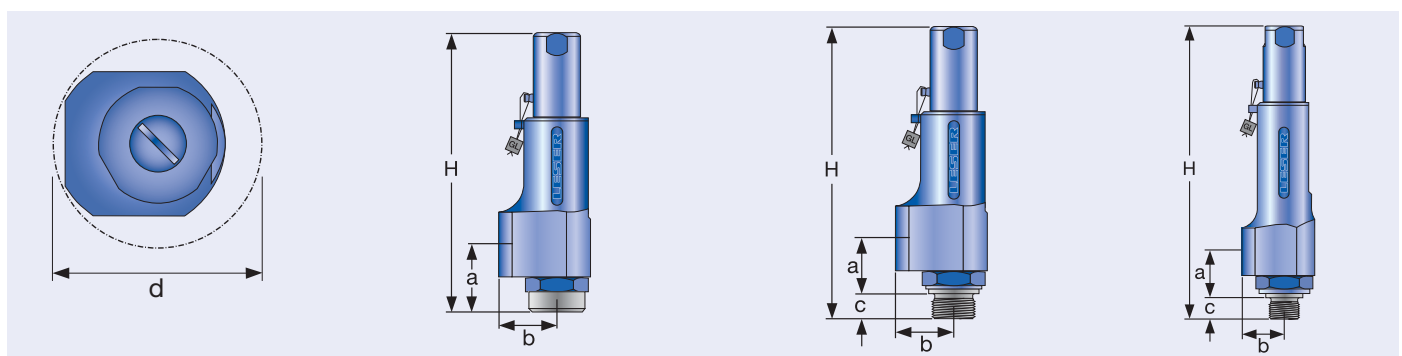
	Size Outlet body	Conventional design			Long version					
		1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"
Actual Orifice diameter d_0 [mm]		10	10	10	6	6	6	10	10	10
Actual Orifice area A_0 [mm ²]		78.5	78.5	78.5	28.3	28.3	28.3	78.5	78.5	78.5
Weight [kg]		1.2	1.6	1.6	1.4	2.1	2.1	1.4	2.1	2.1
Required installation diameter d [mm]		65	80	80	65	80	80	65	80	80

Inlet thread female

	Size outlet body	Conventional design			Long version						
		1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"	
Center to face [mm]											
DIN ISO 228-1 ISO 7-1/BS 21 ASME B1.20.1	G Rc NPT	Inlet 1/2" a	46	46	49	46	46	49	46	46	49
		Inlet 3/4", 1" a	56	56	59	56	56	59	56	56	59
		Outlet b	30	37	37	30	37	37	30	37	37
Height [mm]											
		Inlet 1/2" H max.	209	209	212	230	230	233	230	230	233
		Inlet 3/4", 1" H max.	219	219	222	240	240	243	240	240	243

Inlet thread male

	Size outlet body	Conventional design				Long version					
		1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"	
Center to face [mm]											
DIN ISO 228-1	G	Inlet a	33	33	36	33	33	36	33	33	36
		Outlet b	30	37	37	30	37	37	30	37	37
ISO 7-1/BS 21 ASME B1.20.1	R NPT	Inlet a	31	31	34	31	31	34	31	31	34
		Outlet b	30	37	37	30	37	37	30	37	37
Height [mm]											
	Size inlet thread	Conventional design				Long version					
		3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"		
DIN ISO 228-1	G	H max.	208	210	212	217	229	231	233	238	
ISO 7-1/BS 21	R	H max.	–	213	214	220	–	234	235	241	
ASME B1.20.1	NPT	H max.	–	216	216	224	–	237	237	245	
Length of screwed end c [mm]											
	Size inlet thread	3/8"	1/2"	3/4"	1"						
DIN ISO 228-1	G	12	14	16	18						
ISO 7-1/BS 21	R	–	19	20	23						
ASME B1.20.1	NPT	–	22	22	27						



Required installation diameter

Conventional design – female thread

Conventional design – male thread

Long version – male thread

Dimensions and weights – Threaded connections [US units]

Threaded connections

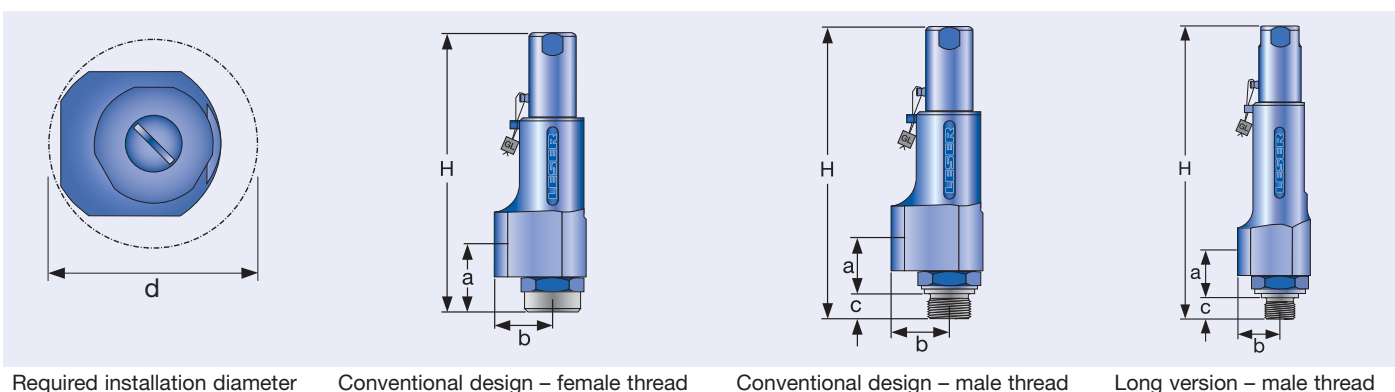
	Size Outlet body	Conventional design			Long version					
		1/2"	3/4"	1"	1/2"	3/4"	1"	1 1/2"	3/4"	1"
Actual Orifice diameter d ₀ [inch]		0.394	0.394	0.394	0.236	0.236	0.236	0.394	0.394	0.394
Actual Orifice area A ₀ [inch ²]		0.122	0.122	0.122	0.044	0.044	0.044	0.122	0.122	0.122
Weight [lbs]		2.6	3.5	3.5	3.1	4.6	4.6	3.1	4.6	4.6
Required installation diameter d [inch]		2 ⁹ / ₁₆	3 ⁵ / ₃₂	3 ⁵ / ₃₂	2 ⁹ / ₁₆	3 ⁵ / ₃₂	3 ⁵ / ₃₂	2 ⁹ / ₁₆	3 ⁵ / ₃₂	3 ⁵ / ₃₂

Inlet thread female

	Size outlet body	Conventional design			Long version						
		1/2"	3/4"	1"	1/2"	3/4"	1"	1 1/2"	3/4"	1"	
Center to face [inch]											
DIN ISO 228-1	G	Inlet 1/2" a	1 ¹³ / ₁₆	1 ¹³ / ₁₆	1 ¹⁵ / ₁₆	1 ¹³ / ₁₆	1 ¹³ / ₁₆	1 ¹⁵ / ₁₆	1 ¹³ / ₁₆	1 ¹³ / ₁₆	1 ¹⁵ / ₁₆
ISO 7-1/BS 21	Rc										
ASME B1.20.1	NPT	Inlet 3/4", 1" a	2 ⁷ / ₃₂	2 ⁷ / ₃₂	2 ⁵ / ₁₆	2 ⁷ / ₃₂	2 ⁷ / ₃₂	2 ⁵ / ₁₆	2 ⁷ / ₃₂	2 ⁷ / ₃₂	2 ⁵ / ₁₆
		Outlet b	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂
Height [inch]											
		Inlet 1/2" H max.	8 ⁷ / ₃₂	8 ⁷ / ₃₂	8 ¹¹ / ₃₂	9 ¹ / ₁₆	9 ¹ / ₁₆	9 ³ / ₁₆	9 ¹ / ₁₆	9 ¹ / ₁₆	9 ³ / ₁₆
		Inlet 3/4", 1" H max.	8 ⁵ / ₈	8 ⁵ / ₈	8 ³ / ₄	9 ⁷ / ₁₆	9 ⁷ / ₁₆	9 ⁹ / ₁₆	9 ⁷ / ₁₆	9 ⁷ / ₁₆	9 ⁹ / ₁₆

Inlet thread male

	Size inlet thread	Conventional design				Long version					
		3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"		
Center to face [inch]											
DIN ISO 228-1	G	Inlet a	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1 ¹³ / ₃₂	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1 ¹³ / ₃₂	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1 ¹³ / ₃₂
		Outlet b	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂
ISO 7-1/BS 21	R										
ASME B1.20.1	NPT	Inlet a	1 ⁷ / ₃₂	1 ⁷ / ₃₂	1 ¹¹ / ₃₂	1 ⁷ / ₃₂	1 ⁷ / ₃₂	1 ¹¹ / ₃₂	1 ⁷ / ₃₂	1 ⁷ / ₃₂	1 ¹¹ / ₃₂
		Outlet b	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂
Height [inch]											
		H max.	8 ³ / ₁₆	8 ¹ / ₄	8 ¹¹ / ₃₂	8 ¹⁷ / ₃₂	9	9 ³ / ₃₂	9 ⁵ / ₃₂	9 ³ / ₈	
		H max.	–	8 ³ / ₈	8 ¹³ / ₃₂	8 ²¹ / ₃₂	–	9 ⁷ / ₃₂	9 ¹ / ₄	9 ¹⁵ / ₃₂	
		H max.	–	8 ¹ / ₂	8 ¹ / ₂	8 ¹³ / ₁₆	–	9 ⁵ / ₁₆	9 ⁵ / ₁₆	9 ² / ₁₆	
Length of screwed end c [inch]											
		Size inlet thread	3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"	
DIN ISO 228-1	G		1 ⁵ / ₃₂	9/16	5/8	2 ³ / ₃₂					
ISO 7-1/BS 21	R		–	3/4	2 ⁵ / ₃₂	2 ⁹ / ₃₂					
ASME B1.20.1	NPT		–	7/8	7/8	1 ¹ / ₁₆					



Dimensions and weights – Flanged connections [Metric units]

Flanged connections

	Conventional design	Long version	
Actual Orifice diameter d_0 [mm]	10	6	10
Actual Orifice area A_0 [mm ²]	78.5	28.3	78.5

DIN EN 1092-1 (Available flange sizes refer to page 04/05)

Flange rating class PN 40			
Center to face	[mm]	Inlet a	103
		Outlet b	100
Height	[mm]	H max.	263
			284
Flange rating class \geq PN 160			
Center to face	[mm]	Inlet a	103
		Outlet b	100
Height	[mm]	H max.	266
			287

ASME B 16.5 (Available flange sizes refer to page 04/05)

Flange rating class 150			
Center to face	[mm]	Inlet a	103
		Outlet b	100
Height	[mm]	H max.	263
			284
Flange rating class \geq 300			
Center to face	[mm]	Inlet a	103
		Outlet b	100
Height	[mm]	H max.	266
			287

Note The outlet dimension b can differ at special combinations of nominal diameter and pressure range if flanged connections are used at the inlet and outlet. Special dimensions are possible. More information at sales@leser.com

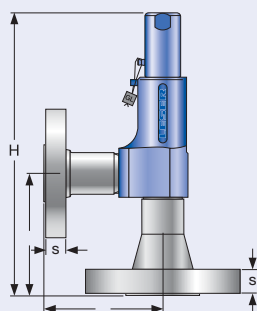
Weight

To calculate the total weight use the formula: $m_T = m_N + m_F(\text{Inlet}) + m_F(\text{Outlet})$

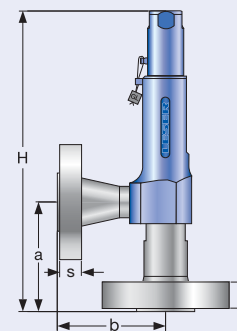
Weight net [kg] (without inlet and outlet flange)	m_N	2.4	2.8	2.8
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Flange dimensions

	Size	DIN EN 1092-1 / Flange rating PN						ASME B16.5 / Flange rating						
		40	100	160	250	320	400	Size	150	300	600	900	1500	2500
DN 15		NPS 1/2"												
Flange thickness [mm]	s	18	-	22	28	28	30		14	18	18	26	26	30.2
Weight slip on flange [kg]	m_F	0.8	-	1.2	2.5	2.5	3.6		0.6	0.9	0.9	2.1	2.1	3
DN 20		NPS 3/4"												
Flange thickness [mm]	s	20	22	-	-	-	-		15	18	18	25.4	25.4	32
Weight slip on flange [kg]	m_F	1.1	1.3	-	-	-	-		0.8	1.4	1.4	2.3	2.3	3.5
DN 25		NPS 1"												
Flange thickness [mm]	s	22	-	26	30	36	40		17	21.5	21.5	32.5	32.5	40
Weight slip on flange [kg]	m_F	1.3	-	2.6	3.5	5	7.5		1	2.1	2.1	4.1	4.1	5.1



Conventional design



Long version

Dimensions and weights – Flanged connections [US units]

Flanged connections

	Conventional design	Long version	
Actual Orifice diameter d_0 [inch]	0.394	0.236	0.394
Actual Orifice area A_0 [inch ²]	0.122	0.044	0.122

DIN EN 1092-1 (Available flange sizes refer to page 39)

Flange rating PN 40

Center to face	[inch]	Inlet a	$4\frac{1}{16}$	$4\frac{1}{16}$	$4\frac{1}{16}$
		Outlet b	$3\frac{15}{16}$	$3\frac{15}{16}$	$3\frac{15}{16}$
Height	[inch]	H max.	$10\frac{11}{32}$	$11\frac{3}{16}$	$11\frac{3}{16}$

Flange rating \geq PN 160

Center to face	[inch]	Inlet a	$4\frac{1}{16}$	$4\frac{1}{16}$	$4\frac{1}{16}$
		Outlet b	$3\frac{15}{16}$	$3\frac{15}{16}$	$3\frac{15}{16}$
Height	[inch]	H max.	$10\frac{15}{32}$	$11\frac{5}{16}$	$11\frac{5}{16}$

ASME B 16.5 (Available flange sizes refer to page 39)

Flange rating class 150

Center to face	[inch]	Inlet a	$4\frac{1}{16}$	$4\frac{1}{16}$	$4\frac{1}{16}$
		Outlet b	$3\frac{15}{16}$	$3\frac{15}{16}$	$3\frac{15}{16}$
Height	[inch]	H max.	$10\frac{11}{32}$	$11\frac{3}{16}$	$11\frac{3}{16}$

Flange rating class \geq 300

Center to face	[inch]	Inlet a	$4\frac{1}{16}$	$4\frac{1}{16}$	$4\frac{1}{16}$
		Outlet b	$3\frac{15}{16}$	$3\frac{15}{16}$	$3\frac{15}{16}$
Height	[inch]	H max.	$10\frac{15}{32}$	$11\frac{5}{16}$	$11\frac{5}{16}$

Note The outlet dimension b can differ at special combinations of nominal diameter and pressure range if flanged connections are used at the inlet and outlet. Special dimensions are possible. More information at sales@leser.com

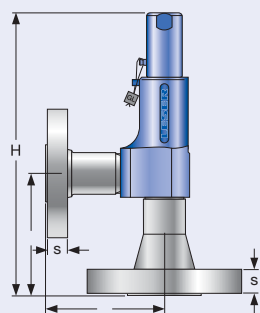
Weight

To calculate the total weight use the formula: $m_T = m_N + m_F$ (Inlet) + m_F (Outlet)

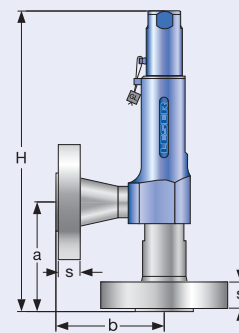
Weight net	[lbs]				
(without inlet and outlet flange)	m_N	5.3	6.2	6.2	

Flange dimensions

		DIN EN 1092-1 / Flange rating PN						ASME B16.5 / Flange rating					
		Size						Size					
		40	100	160	250	320	400	150	300	600	900	1500	2500
DN 15		NPS $\frac{1}{2}$"											
Flange thickness	[inch] s	$\frac{23}{32}$	–	$\frac{7}{8}$	$\frac{23}{32}$	$\frac{13}{32}$	$\frac{13}{16}$	$\frac{9}{16}$	$\frac{23}{32}$	$\frac{23}{32}$	$\frac{13}{32}$	$\frac{13}{32}$	$\frac{13}{16}$
Weight slip on flange	[lbs] m_F	1.8	–	2.6	5.5	5.5	7.9	1.3	2.0	2.0	4.6	4.6	6.6
DN 20		NPS $\frac{3}{4}$"											
Flange thickness	[inch] s	$\frac{25}{32}$	$\frac{7}{8}$	–	–	–	–	$\frac{19}{32}$	$\frac{23}{32}$	$\frac{23}{32}$	1	1	$1\frac{1}{4}$
Weight slip on flange	[lbs] m_F	2.4	2.9	–	–	–	–	1.8	3.1	3.1	5.0	5.0	7.7
DN 25		NPS 1"											
Flange thickness	[inch] s	$\frac{7}{8}$	–	$\frac{11}{32}$	$\frac{13}{16}$	$\frac{13}{32}$	$\frac{19}{16}$	$\frac{21}{32}$	$\frac{27}{32}$	$\frac{27}{32}$	$\frac{19}{32}$	$\frac{19}{32}$	$\frac{19}{16}$
Weight slip on flange	[lbs] m_F	2.9	–	5.7	7.7	11.0	16.5	2.2	4.6	4.6	9.0	9.0	11.2



Conventional design



Long version

Pressure/temperature ratings [Metric units + US units]

Metric units									
Actual Orifice diameter d_0 [mm]		6				10			
Actual Orifice area A_0 [mm ²]		28.3				78.5			
Body material: 1.4104 (430)									
Base / Inlet Body	Connection size	3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"
	Pressure rating	PN 400				PN 320			
Outlet body	Pressure rating	PN 160				PN 160			
Minimum set pressure	p [bar _g]	180 [S/G only]				0.1			
Maximum set pressure	p [bar _g]	365 [S/G only]				16 [only H3] 180			
Temperature acc. to DIN EN	min [°C]					-10			
	max [°C]					+220			
Temperature acc. to ASME	min [°C]					-29			
	max [°C]					+220			
Body material: 1.4404 (316L)									
Base / Inlet Body	Connection size	3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"
	Pressure rating	PN 400				PN 320			
Outlet body	Pressure rating	PN 160				PN 160			
Minimum set pressure	p [bar _g]	180 [S/G only]				0.1			
Maximum set pressure	p [bar _g]	365 [S/G only]				180			
Temperature acc. to DIN EN	min [°C]					-270			
	max [°C]					+280			
Temperature acc. to ASME	min [°C]					-268			
	max [°C]					+280			
US units									
Actual Orifice diameter d_0 [inch]		0,236				0,394			
Actual Orifice area A_0 [inch ²]		0,044				0,122			
Body material: 1.4104 (430)									
Base / Inlet Body	Connection size	3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"
	Minimum set pressure	p [psig]	2611				1.5		
Maximum set pressure	p [psig]	5294				145 [only H3] 2611			
Temperature acc. to DIN EN	min [°F]					+14			
	max [°F]					+428			
Temperature acc. to ASME	min [°F]					-20			
	max [°F]					+428			
Body material: 1.4404 (316L)									
Base / Inlet Body	Connection size	3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"
	Minimum set pressure	p [psig]	2611				1.5		
Maximum set pressure	p [psig]	5294				2611			
Temperature acc. to DIN EN	min [°F]					-450			
	max [°F]					+536			
Temperature acc. to ASME	min [°F]					-450			
	max [°F]					+536			