



Type 437
Packed knob H4
Conventional design

Type 437
Safety Relief Valves



Type 437
Packed knob H4
Flanged connection

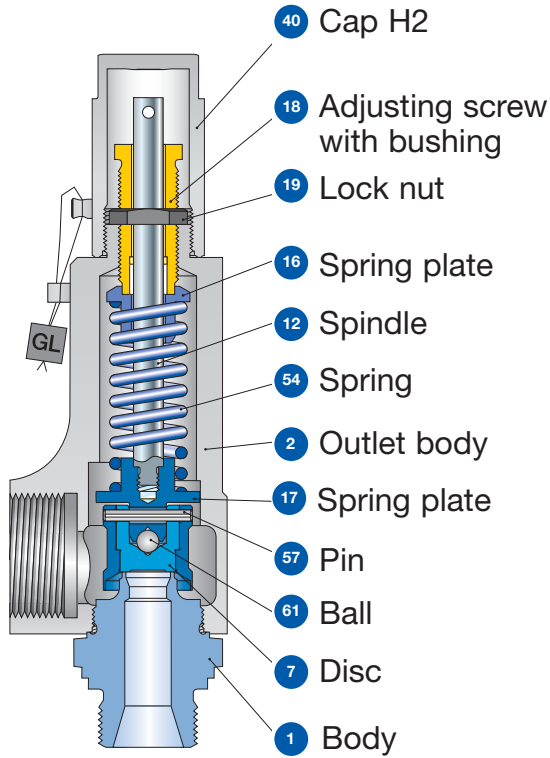
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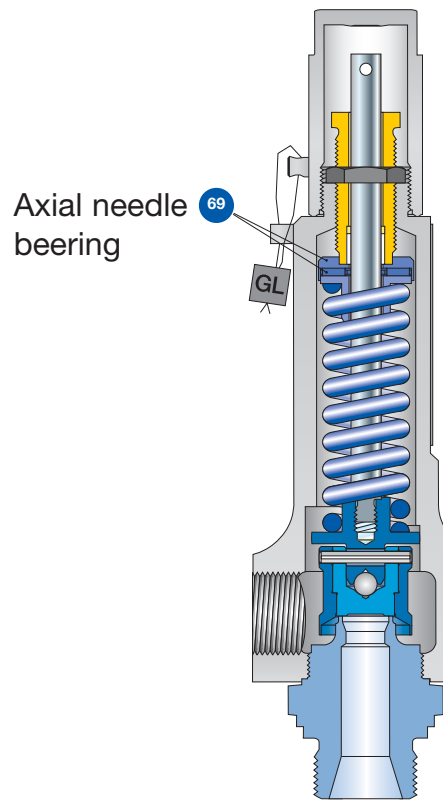
Type 437
Cap H2
Long version

**Type 437
Designs**

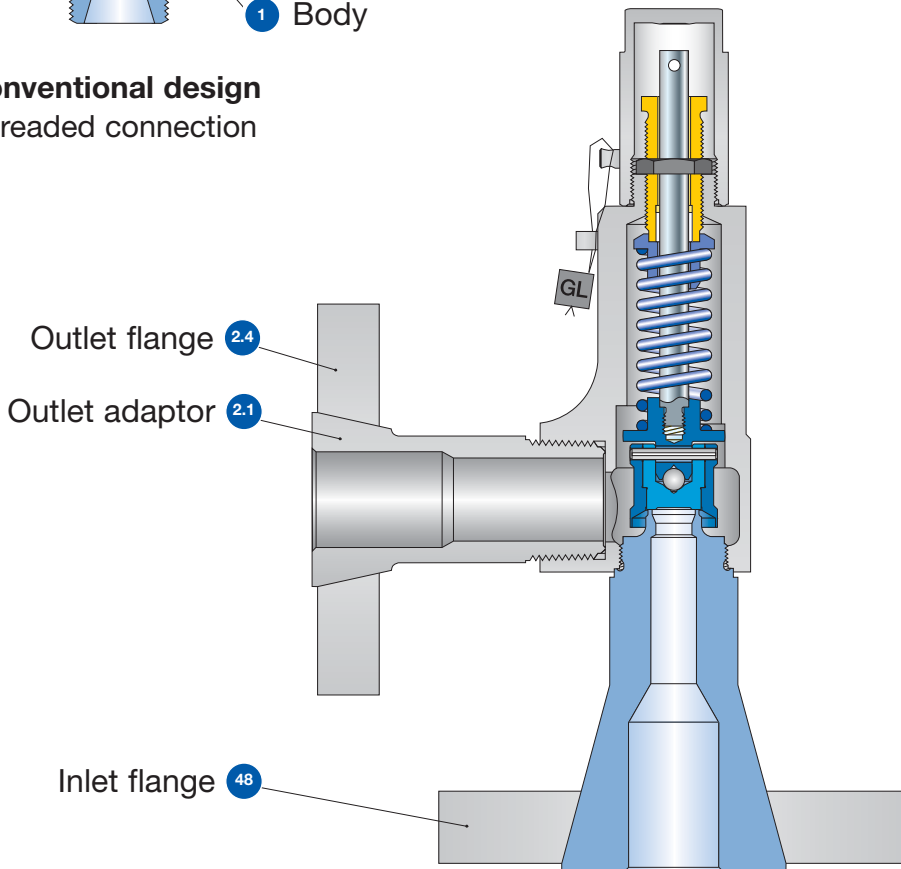
Type 437



Conventional design
Threaded connection



Long version
Threaded connection



Conventional design
Flange connection

Type 437 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	1.4404
			420	316L
			Long Version	1.4404
16/17	Spring plate ³⁾		316L	316L
			1.4104	1.4404
			Chrome steel	316L
Long version	1.4404	1.4404		
	316L	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.

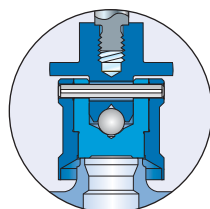
⁴⁾ Material 1.4404/316L for ASME application (Option code N68 or N70)

⁵⁾ Hardened stainless steel

Type 437

Article numbers

Type 437



Metal seat

	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.

Type 437

Dimensions and weights

Threaded connections [Metric units]

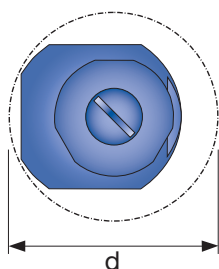
	Size Outlet body	Conventional design			Long version					
		1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"
Actual Orifice diameter d ₀ [mm]		10	10	10	6	6	6	10	10	10
Actual Orifice area A ₀ [mm ²]		78.5	78.5	78.5	28.3	28.3	28.3	78.5	78.5	78.5
Weight [kg]		1.2	1.6	1.6	1.4	2.1	2.1	1.4	2.1	2.1
Required installation diameter d [mm]		65	80	80	65	80	80	65	80	80

Inlet thread female

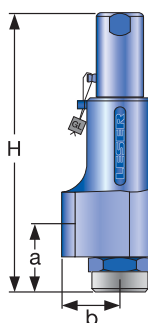
		Size outlet body	Conventional design			Long version								
			1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"			
Center to face [mm]														
DIN ISO 228-1	G	Inlet 1/2" a	46	46	49	46	46	49	46	46	49			
			ISO 7-1/BS 21	Rc	Inlet 3/4", 1" a	56	56	59	56	56	59	56	56	59
						ASME B1.20.1	NPT	Outlet b	30	37	37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

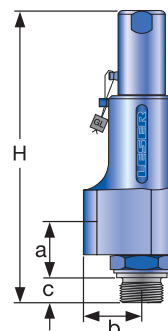
		Size outlet body	Conventional design				Long version				
			1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"
Center to face [mm]											
DIN ISO 228-1	G	Inlet a	33	33	36	33	33	36	33	33	36
		Outlet b	30	37	37	30	37	37	30	37	37
ISO 7-1/BS 21	R	Inlet a	31	31	34	31	31	34	31	31	34
			ASME B1.20.1	NPT	Outlet b	30	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					



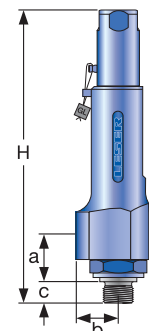
Required installation diameter



Conventional design – female thread



Conventional design – male thread



Long version – male thread

Type 437

Dimensions and weights

Threaded connections [US units]

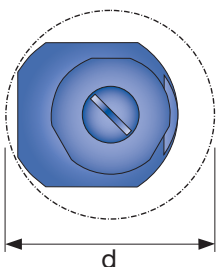
	Size Outlet body	Conventional design			Long version					
		1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"
Actual Orifice diameter d ₀ [inch]		0.394	0.394	0.394	0.236	0.236	0.236	0.394	0.394	0.394
Actual Orifice area A ₀ [inch ²]		0.122	0.122	0.122	0.044	0.044	0.044	0.122	0.122	0.122
Weight [lbs]		2.6	3.5	3.5	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

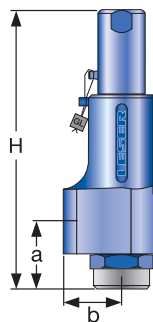
		Size outlet body	Conventional design			Long version							
			1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"		
Center to face [inch]													
DIN ISO 228-1	G	Inlet 1/2" a	1 ¹³ / ₁₆	1 ¹³ / ₁₆	1 ¹⁵ / ₁₆	1 ¹³ / ₁₆	1 ¹³ / ₁₆	1 ¹⁵ / ₁₆	1 ¹³ / ₁₆	1 ¹³ / ₁₆	1 ¹⁵ / ₁₆		
		ISO 7-1/BS 21	Rc	Inlet 3/4", 1" a	2 ⁷ /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

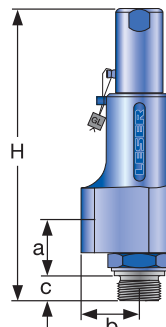
		Size outlet body	Conventional design				Long version				
			1/2"	3/4"	1"	1/2"	3/4"	1"	1/2"	3/4"	1"
Center to face [inch]											
DIN ISO 228-1	G	Inlet a	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1 ¹³ / ₃₂	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1 ¹³ / ₃₂	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1 ¹³ / ₃₂
		Outlet b	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1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



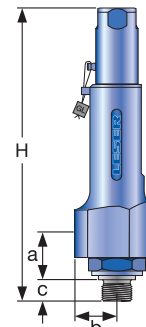
Required installation diameter



Conventional design – female thread



Conventional design – male thread



Long version – male thread

Type 437

Dimensions and weights

Flanged connections [Metric units]

	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

Flange rating class ≥ PN 160			
Center to face	[mm]	Inlet a	103
		Outlet b	100
Height	[mm]	H max.	266

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

Flange rating class ≥ 300			
Center to face	[mm]	Inlet a	103
		Outlet b	100
Height	[mm]	H max.	266

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

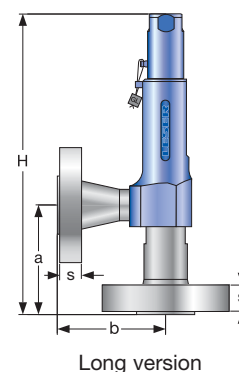
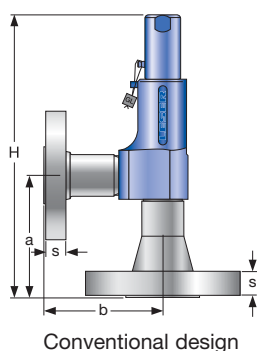
Weight

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



Type 437

Dimensions and weights

Flanged connections [US units]

Type 437

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

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

Flange rating PN 40			
Center to face	[inch]	Inlet a	4 ¹ / ₁₆
		Outlet b	3 ¹⁵ / ₁₆
Height	[inch]	H max.	10 ¹¹ / ₃₂

Flange rating ≥ PN 160			
Center to face	[inch]	Inlet a	4 ¹ / ₁₆
		Outlet b	3 ¹⁵ / ₁₆
Height	[inch]	H max.	10 ¹⁵ / ₃₂

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

Flange rating class 150			
Center to face	[inch]	Inlet a	4 ¹ / ₁₆
		Outlet b	3 ¹⁵ / ₁₆
Height	[inch]	H max.	10 ¹¹ / ₃₂

Flange rating class ≥ 300			
Center to face	[inch]	Inlet a	4 ¹ / ₁₆
		Outlet b	3 ¹⁵ / ₁₆
Height	[inch]	H max.	10 ¹⁵ / ₃₂

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

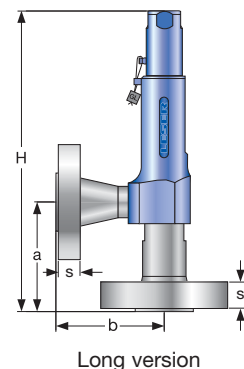
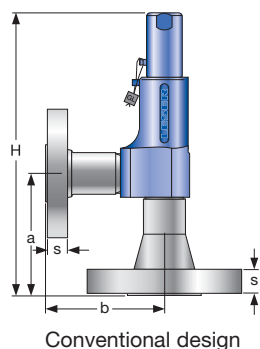
Weight

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

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

Flange dimensions

	Size	DIN EN 1092-1 / Flange rating PN						ASME B16.5 / Flange rating					
		40	100	160	250	320	400	150	300	600	900	1500	2500
DN 15		NPS 1/2"											
Flange thickness [inch]	s	23/32	-	7/8	23/32	13/32	13/16	9/16	23/32	23/32	13/32	13/32	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 3/4"											
Flange thickness [inch]	s	25/32	7/8	-	-	-	-	19/32	23/32	23/32	1	1	1 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	7/8	-	1 1/32	13/16	1 13/32	1 9/16	2 1/32	2 7/32	2 7/32	1 9/32	1 9/32	1 9/16
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



Type 437

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] S/G/L	180 [S/G only]				0.1			
Maximum set pressure	p [bar _g] S/G/L	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] S/G/L	180 [S/G only]				0.1			
Maximum set pressure	p [bar _g] S/G/L	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] S/G/L	2611				1.5		
Maximum set pressure	p [psig] S/G/L	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] S/G/L	2611				1.5		
Maximum set pressure	p [psig] S/G/L	5294				2611			
Temperature acc. to DIN EN	min [°F]					-450			
	max [°F]					+536			
Temperature acc. to ASME	min [°F]					-450			
	max [°F]					+536			

Type 437 Approvals

Actual Orifice diameter d_0 [mm]		6	10
Actual Orifice area A_0 [mm ²]		28.3	78.5
Actual Orifice diameter d_0 [inch]		0.236	0.394
Actual Orifice area A_0 [inch ²]		0.044	0.122
Europe			
		Coefficient of discharge K_{dr}	
	Approval No.	072020111Z0008/0/21	
PED/DIN EN ISO 4126-1	S/G	0.72	0.50
	L	–	0.35
Germany			
		Coefficient of discharge α_w	
	Approval No.	TÜV SV 980	
PED/AD 2000-Merkblatt A2	S/G	0.72	0.50
	L	–	0.35
United States			
		Coefficient of discharge K	
ASME Sec. VIII Div. 1	Zulassungs-Nr.	–	M 37213
	D/G	–	0.458
	Zulassungs-Nr.	–	M 37189
	F	–	0.333
Canada			
		Coefficient of discharge K	
	Approval No.	The current approval no. can be found at www.leser.com	
CRN	S/G	–	0.458
	L	–	0.333
China			
		Coefficient of discharge α_w	
	Approval No.	The current approval no. can be found at www.leser.com	
AQSIQ	S/G	0.72	0.50
	L	–	0.35
Eurasian Custom Union			
		Coefficient of discharge α_w	
	Approval No.	The current approval no. can be found at www.leser.com	
EAC	S/G	0.72	0.50
	L	–	0.35
Classification societies			
		Homepage	
Bureau Veritas	BV	www.bureauveritas.com	
DNV GL		www.dnvgl.com	
Lloyd's Register EMEA	LREMEA	www.lr.org	
Registro Italiano Navale	RINA	www.rina.org	
U.S. Coast Guard	U.S.C.G	www.uscg.org	
		The valid certification number is changed with every renewal.	
		A sample certificate including the valid certification number can be found at www.leser.com	

Rated slope

Within the capacity certification according to ASME Sec. VIII Div. 1 the coefficients of discharge for Series 437 are issued as "rated slope values" instead of K values. Rated slope values can be converted into K values. The table above shows the converted K values. The original rated slope values are listed in the table below.

Fluid	Rated slope Type 437
S	2.86 lb / hr / PSIA
G	1.02 SCFM / PSIA
L	1.54 GPM $\sqrt{\text{PSID}}$