



Type 439
Packed knob H4
Conventional design



Type 439
Packed knob H4
Flanged connection



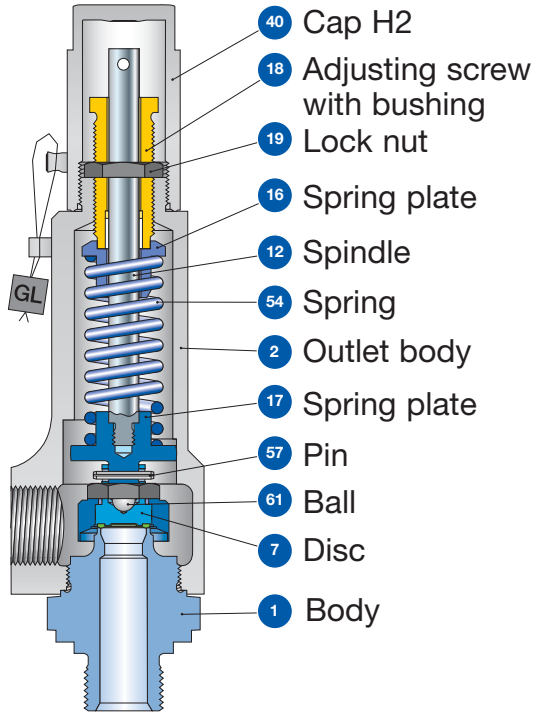
Type 439
Cap H2
Long version

Type 439 Safety Relief Valves

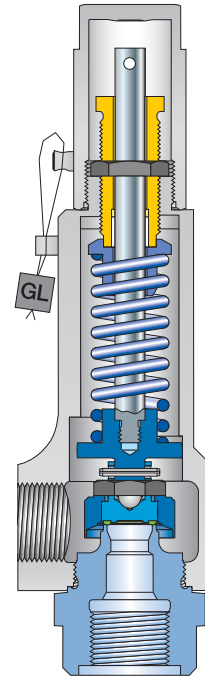
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Type 439
Designs

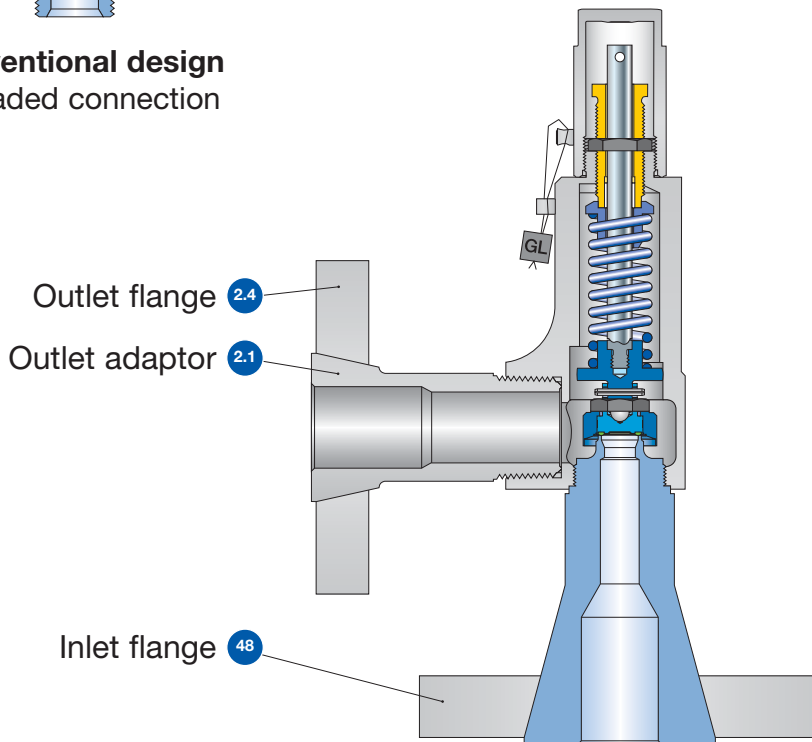
Type 439



Conventional design
Threaded connection



Conventional design
Threaded connection



Conventional design
Flange connection

Type 439 Materials

Item	Component	Design	Type 4393	Type 4394
1	Base / Inlet body	Threaded connection	1.4104 ^{1) 3)} , 1.4404 SA 479 430 ^{1) 3)} , SA 479 316L	1.4404 SA 479 316L
		Flange connection	1.4404 SA 479 316L	1.4404 SA 479 316L
2	Outlet body		1.4104 ³⁾ SA 479 430 ³⁾	1.4404 SA 479 316L
2.1	Outlet adaptor	Flange connection	1.4404 316L	1.4404 316L
2.4	Outlet flange	Flange connection	1.4404 316L	1.4404 316L
7	Vulcanized soft seal disc		1.4404 SA 479 316L	1.4404 SA 479 316L
7.1	Disc with vulcanized soft seal	"N"	NBR Nitrile-Butadiene	NBR Nitrile-Butadiene
		"K"	CR Chloroprene	CR Chloroprene
		"D"	EPDM Ethylen-Propylene-Diene	EPDM Ethylen-Propylene-Diene
		"L"	FKM Fluorocarbon	FKM Fluorocarbon
		"C"	FFKM Perfluor	FFKM Perfluor
12	Spindle ²⁾		1.4021 420	1.4404 316L
16/17	Spring plate ²⁾		1.4104 Chrome steel	1.4404 316L
18	Adjusting screw with bushing		1.4104 / PTFE Chrome steel / PTFE	1.4404 / PTFE 316L / PTFE
19	Lock nut		1.0718 Steel	1.4404 316L
40	Cap H2		1.0460 SA 105	1.4404 316L
48	Inlet flange	Flange connection	1.4404 316L	1.4404 316L
54	Spring		1.4310 Stainless steel	1.4310 Stainless steel
57	Pin		1.4310 Stainless steel	1.4310 Stainless steel
61	Ball		1.3541 Hardened stainless steel	1.4401 316

Please notice:

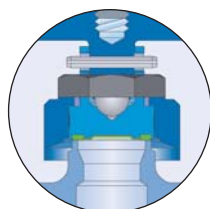
- Modifications reserved by LESER.
- LESER can upgrade materials without notice.
- Every part can be replaced by other material acc. to customer specification.
- The materials shall meet the requirements of the relevant regulations (Pressure Equipment Directive (PED), acc. to PED applied harmonized standards, 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⁾ The items 12 and 17 are combined to one unit.

³⁾ Material 1.4404/316L for ASME application (Option code N68 or N70)

Type 439
Article numbers



Vulcanized soft seat

Type 439

Actual Orifice diameter d_0 [mm]	10		
Actual Orifice area A_0 [mm ²]	78.5		
Actual Orifice diameter d_0 [inch]	0.394		
Actual Orifice area A_0 [inch ²]	0.122		
Soft seal material	NBR	"N"	J30
	CR	"K"	J21
	EPDM	"D"	J22
	FKM	"L"	J23
	FFKM	"C"	J20
Base / Inlet body material: 1.4104 (430)¹⁾			
H2	Art. No. 4393.²⁾	2882	
H3	Art. No. 4393.²⁾ $p_{max} = 10 \text{ bar}_g$	2883	
H4	Art. No. 4393.²⁾	2884	
p [bar _g]	S/G/L	0.1 – 16	
p [psig]	S/G/L	1.5 – 232	
Base / Inlet body material: 1.4404 (316L)			
H2	Art. No. 4394.	2892	
H4	Art. No. 4394.	2894	
p [bar _g]	S/G/L	0.1 – 16	
p [psig]	S/G/L	1.5 – 232	

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

²⁾ Type 4393 should not be selected when a „stainless steel“ valve is required due to corrosive medium.

Type 439

Dimensions and weights

Threaded connections [Metric units]

		1/2"	3/4"	1"
Size Outlet body		1/2"	3/4"	1"
Actual Orifice diameter d ₀ [mm]		10	10	10
Actual Orifice area A ₀ [mm ²]		78.5	78.5	78.5
Weight	[kg]	1.2	1.6	1.6
Required installation diameter d	[mm]	65	80	80

Inlet thread female

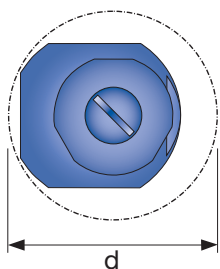
		1/2"	3/4"	1"
Size outlet body		1/2"	3/4"	1"
Center to face [mm]				
DIN ISO 228-1	G	Inlet 1/2" a	46	46
ISO 7-1/BS 21	Rc			49
ASME B1.20.1	NPT	Inlet 3/4", 1" a	56	59
		Outlet b	30	37
Height [mm]				
		Inlet 1/2" H max.	209	209
		Inlet 3/4", 1" H max.	219	219

Inlet thread male

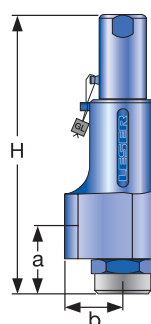
		1/2"	3/4"	1"
Size outlet body		1/2"	3/4"	1"
Center to face [mm]				
DIN ISO 228-1	G	Inlet a	33	33
		Outlet b	30	37
ISO 7-1/BS 21	R	Inlet a	31	31
ASME B1.20.1	NPT			34
		Outlet b	30	37

Height [mm]						
		Size inlet thread	3/8"	1/2"	3/4"	1"
DIN ISO 228-1	G	H max.	208	210	212	217
ISO 7-1/BS 21	R	H max.	–	213	214	220
ASME B1.20.1	NPT	H max.	–	216	216	224

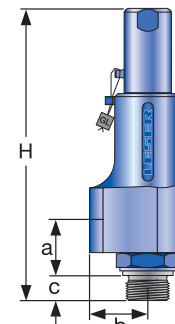
Length of screwed end c [mm]						
		Size inlet thread	3/8"	1/2"	3/4"	1"
DIN ISO 228-1	G		12	14	16	18
ISO 7-1/BS 21	R		–	19	20	23
ASME B1.20.1	NPT		–	22	22	27



Required installation diameter



Conventional design – Female thread



Conventional design – Male thread

Type 439

Dimensions and weights

Threaded connections [US units]

Size Outlet body		1/2"	3/4"	1"
Actual Orifice diameter d ₀ [inch]		0.394	0.394	0.394
Actual Orifice area A ₀ [inch ²]		0.122	0.122	0.122
Weight	[lbs]	2.6	3.5	3.5
Required installation diameter d	[inch]	2 ⁹ / ₁₆	3 ⁵ / ₃₂	3 ⁵ / ₃₂

Inlet thread female

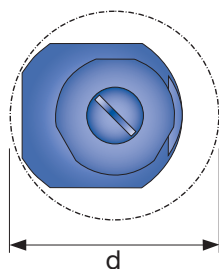
Size outlet body		1/2"	3/4"	1"	
Center to face [inch]					
DIN ISO 228-1	G	Inlet 1/2" a	1 ¹³ / ₁₆	1 ¹³ / ₁₆	1 ¹⁵ / ₁₆
ISO 7-1/BS 21	Rc				
ASME B1.20.1	NPT	Inlet 3/4", 1" a	2 ⁷ / ₃₂	2 ⁷ / ₃₂	2 ⁵ / ₁₆
		Outlet b	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂
Height [inch]					
		Inlet 1/2" H max.	8 ⁷ / ₃₂	8 ⁷ / ₃₂	8 ¹¹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

Inlet thread male

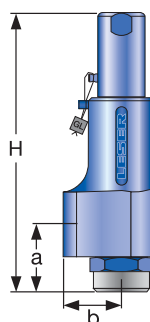
Size outlet body		1/2"	3/4"	1"	
Center to face [inch]					
DIN ISO 228-1	G	Inlet a	1 ⁵ / ₁₆	1 ⁵ / ₁₆	1 ¹³ / ₃₂
		Outlet b	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂
ISO 7-1/BS 21	R	Inlet a	1 ⁷ / ₃₂	1 ⁷ / ₃₂	1 ¹¹ / ₃₂
ASME B1.20.1	NPT	Outlet b	1 ³ / ₁₆	1 ¹⁵ / ₃₂	1 ¹⁵ / ₃₂

Height [inch]						
		Size inlet thread	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
ISO 7-1/BS 21	R	H max.	–	8 ³ / ₈	8 ¹³ / ₃₂	8 ²¹ / ₃₂
ASME B1.20.1	NPT	H max.	–	8 ¹ / ₂	8 ¹ / ₂	8 ¹³ / ₁₆

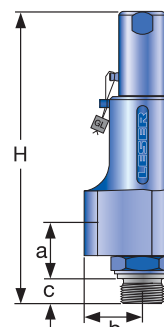
Length of screwed end c [inch]						
		Size inlet thread	3/8"	1/2"	3/4"	1"
DIN ISO 228-1	G		1 ⁵ / ₃₂	9/16	5/8	2 ³ / ₃₂
ISO 7-1/BS 21	R		–	3/4	2 ⁵ / ₃₂	2 ⁹ / ₃₂
ASME B1.20.1	NPT		–	7/8	7/8	1 ¹ / ₁₆



Required installation diameter



Conventional design – Female thread



Conventional design – Male thread

Type 439

Dimensions and weights

Flanged connections [Metric units]

Actual Orifice diameter d_0 [mm]	10
Actual Orifice area A_0 [mm ²]	78.5

DIN EN 1092-1

			Flange rating PN 40
Center to face	[mm]	Inlet a	103
		Outlet b	100
Height	[mm]	H max.	263

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

ASME B 16.5

			Flange rating class 150
Center to face	[mm]	Inlet a	103
		Outlet b	100
Height	[mm]	H max.	263

			Flange rating class \geq 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.

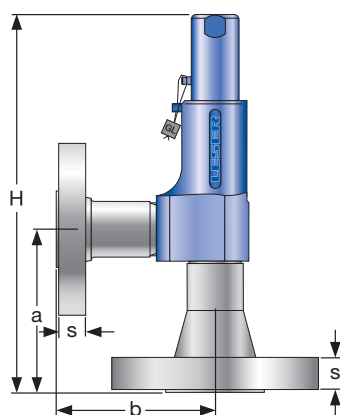
Weight

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

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

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 [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

Type 439

Dimensions and weights

Flanged connections [US units]

Actual Orifice diameter d_0 [inch]	0.394
Actual Orifice area A_0 [inch ²]	0.122

DIN ISO 1092-1

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

			Flange rating \geq PN 160
Center to face	[inch]	Inlet a	$4\frac{1}{16}$
		Outlet b	$3\frac{15}{16}$
Height	[inch]	H max.	$10\frac{15}{32}$

ASME B 16.5

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

			Flange rating class \geq 300
Center to face	[inch]	Inlet a	$4\frac{1}{16}$
		Outlet b	$3\frac{15}{16}$
Height	[inch]	H max.	$10\frac{15}{32}$

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.

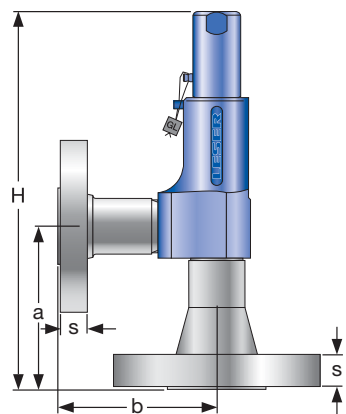
Weight

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
(without inlet and outlet flange)			

Flange dimensions

			DIN ISO 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 $\frac{1}{2}$"												
Flange thickness	[inch]	s	$\frac{23}{32}$	-	$\frac{7}{8}$	$1\frac{3}{32}$	$1\frac{3}{32}$	$1\frac{3}{16}$		$\frac{9}{16}$	$\frac{23}{32}$	$\frac{23}{32}$	$1\frac{1}{32}$	$1\frac{1}{32}$	$1\frac{3}{16}$
Weight slip on flange	[lbs]	m_F	1.8	-	2.6	5.5	5.5	8.0		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	$\frac{7}{8}$	-	$1\frac{1}{32}$	$1\frac{3}{16}$	$1\frac{13}{32}$	$1\frac{9}{16}$		$\frac{21}{32}$	$\frac{27}{32}$	$\frac{27}{32}$	$1\frac{9}{32}$	$1\frac{9}{32}$	$1\frac{9}{16}$
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



Conventional design

Type 439

Pressure/temperature ratings

[Metric units + US units]

Metric units

Actual Orifice diameter d_0 [mm]		10			
Actual Orifice Area A_0 [mm ²]		78.5			
Body material: 1.4104 (430)					
Base / Inlet Body	Connection size	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"
	Pressure rating	PN 250			
Outlet body	Pressure rating	PN 160			
Minimum set pressure	p [bar _g] S/G/L	0.1			
Maximum set pressure	p [bar _g] S/G/L	16			
Temperature acc. to DIN EN	min. [°C]	-10			
	max. [°C]	+150			
Temperature acc. to ASME	min. [°C]	-29			
	max. [°C]	+150			
Body material: 1.4404 (316L)					
Base / Inlet Body	Connection size	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"
	Pressure rating	PN 250			
Outlet body	Pressure rating	PN 160			
Minimum set pressure	p [bar _g] S/G/L	0.1			
Maximum set pressure	p [bar _g] S/G/L	16			
Temperature acc. to DIN EN	min. [°C]	-45			
	max. [°C]	+150			
Temperature acc. to ASME	min. [°C]	-45			
	max. [°C]	+150			

US units

Actual Orifice diameter d_0 [inch]		0.394				
Actual Orifice area A_0 [inch ²]		0.122				
Body material: 1.4104 (430)						
Base / Inlet Body	Connection size	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	
	Minimum set pressure	p [psig] S/G/L	1.5			
	Maximum set pressure	p [psig] S/G/L	232			
Temperature acc. to DIN EN	min [°F]	+14				
	max [°F]	+302				
Temperature acc. to ASME	min [°F]	-20				
	max [°F]	+302				
Body material: 1.4404 (316L)						
Base / Inlet Body	Connection size	$\frac{3}{8}$ "	$\frac{1}{2}$ "	$\frac{3}{4}$ "	1"	
	Minimum set pressure	p [psig] S/G/L	1.5			
	Maximum set pressure	p [psig] S/G/L	232			
Temperature acc. to DIN EN	min [°F]	-49				
	max [°F]	+302				
Temperature acc. to ASME	min [°F]	-49				
	max [°F]	+302				

Type 439 Approvals

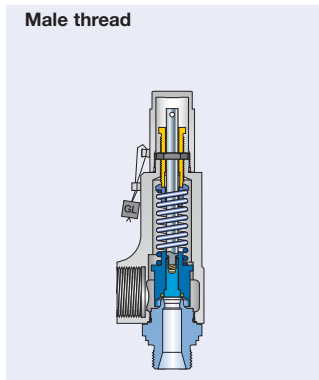
Actual Orifice diameter d_0 [mm]		10
Actual Orifice area A_0 [mm ²]		78.5
Actual Orifice diameter d_0 [inch]		0.394
Actual Orifice area A_0 [inch ²]		0.122
Europa Coefficient of discharge K_{dr}		
Approval No.		072020111Z0008/0/21
PED / DIN EN ISO 4126-1	S/G	0.45
	L	0.37
Germany Coefficient of discharge α_w		
Approval No.		TÜV SV 980
PED / AD 2000-Merkblatt A2	S/G	0.45
	L	0.37
United States Coefficient of discharge K		
Approval No.		M 37190
ASME Sec. VIII Div. 1	S/G	0.406
	Approval No.	M 37202
L		0.322
Canada Coefficient of discharge K		
Approval No.		The current approval no. can be found at www.leser.com
CRN	S/G	0.406
	L	0.322
China Coefficient of discharge α_w		
Approval No.		The current approval no. can be found at www.leser.com
AQSIQ	S/G	0.45
	L	0.37
Eurasian Custom Union Coefficient of discharge α_w		
Approval No.		The current approval no. can be found at www.leser.com
EAC	S/G	0.45
	L	0.37
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 below.

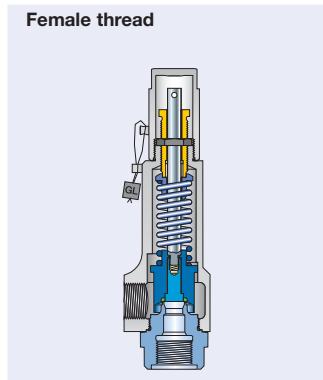
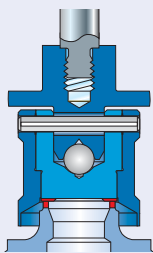
Fluid	Rated slope Type 439
S	2.55 lb / hr / PSIA
G	0.904 SCFM / PSIA
L	1.49 GPM $\sqrt{\text{PSID}}$

Series 437 Available options



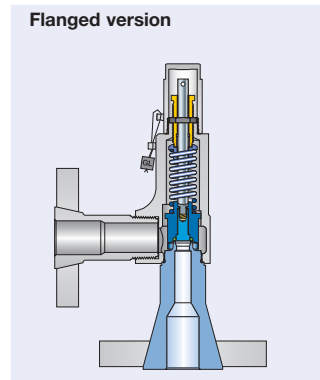
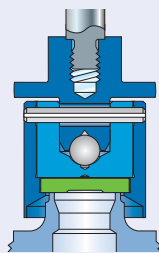
Type 437

Stellited sealing surface
J25: Disc stellited
L20: Base/inlet body



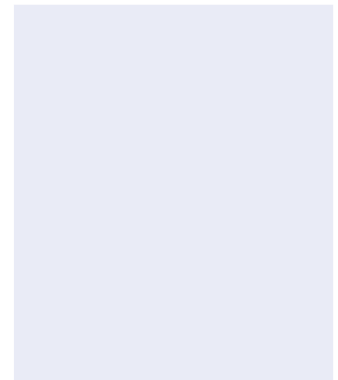
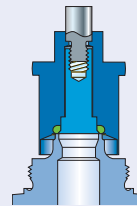
Type 437

Disc with inserted sealing plate
J44: PTFE-FDA "A"
J48: PCTFE "G"
J49: VESPEL-SP1 "T"



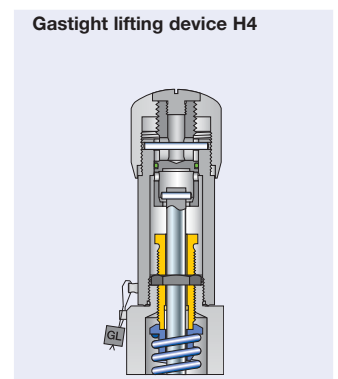
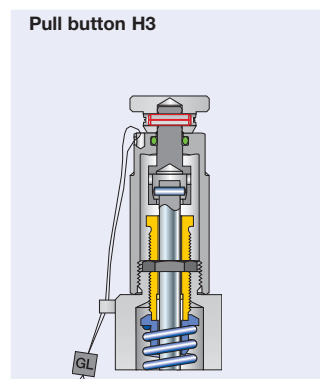
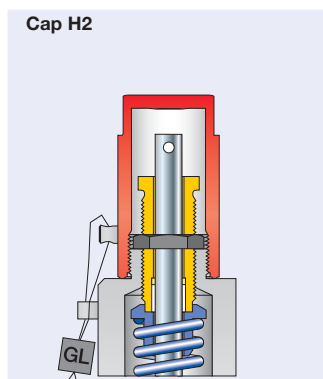
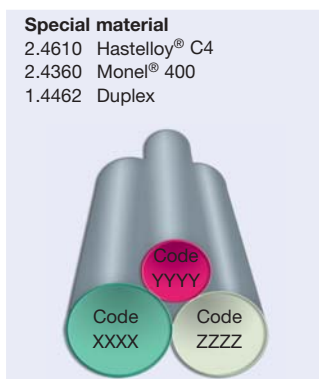
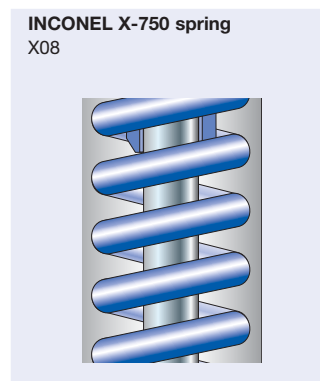
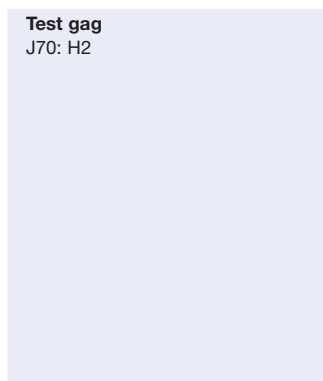
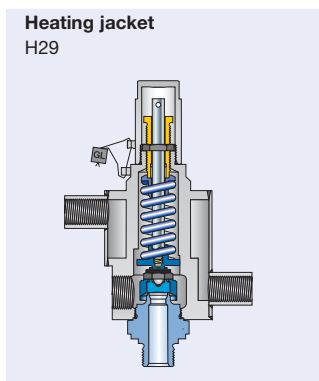
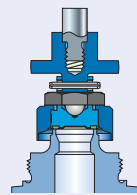
Type 438

Soft seal o-ring disc
J30: NBR "N"
J21: CR "K"
J22: EPDM "D"
J23: FKM "L"
J20: FFKM "C"



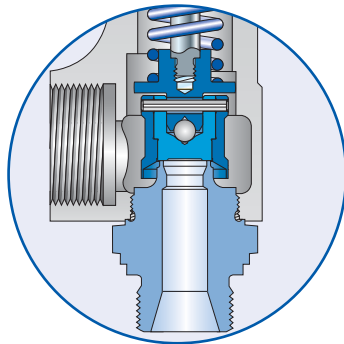
Type 439

Vulcanized soft seal disc
J30: NBR "N"
J21: CR "K"
J22: EPDM "D"
J23: FKM "L"
J20: FFKM "C"

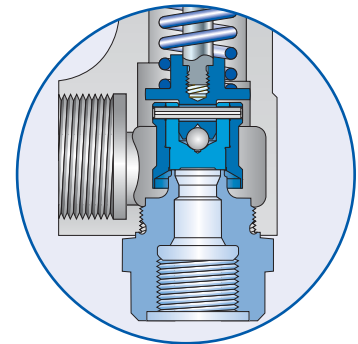


Series 437

Available connections



Male thread



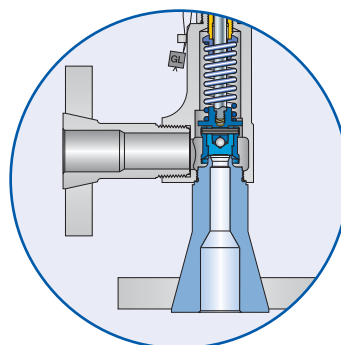
Female thread

Threaded connections

	Valve size	d ₀ 6 mm		d ₀ 10 mm	
		Inlet	Outlet	Inlet	Outlet
		Option code	Option code	Option code	Option code
Male thread DIN ISO 228-1					
G	3/8"	V49	-	V49	-
	1/2"	V54	-	V54	-
	3/4"	V55	-	V55	-
	1"	V56	-	V56	-
Female thread DIN ISO 228-1					
G	1/2"	V50	V65	V50	V65
	3/4"	V51	V76	V51	V76
	1"	V52	V66	V52	V66
Male thread ISO 7- 1 / BS 21					
R/BSPT	1/2"	V30	-	V30	-
	3/4"	V31	-	V31	-
	1"	V32	-	V32	-
Female thread ISO 7- 1 / BS 21					
Rc/BSPT	1/2"	V38	V34	V38	V34
	3/4"	V39	V35	V39	V35
	1"	V40	V36	V40	V36
Male thread ANSI / ASME B1.20.1					
NPT	1/2"	V61	-	V61	-
	3/4"	V62	-	V62	-
	1"	V63	-	V63	-
Female thread ANSI / ASME B1.20.1					
NPT	1/2"	V58	V70	V58	V70
	3/4"	V59	V77	V59	V77
	1"	V60	V71	V60	V71

Flanged and threaded connections can be combined.
 Threads according to other standards are available.
 Please specify in writing (diameter, pressure rating, standard).

Series 437 Available connections



Flanged version

Flanged connections

Nominal diameter	Pressure rating	d ₀ 6 mm		d ₀ 10 mm	
DIN EN 1092-1					
		Option code		Option code	
DN	PN	Inlet	Outlet	Inlet	Outlet
15	40		I40	I21	I40
	160		I41	I22	I41
	250	I23	I42	I23	I42
	320	I24	–	I24	–
	400	I25	–	I25	–
20	40	I26	I43	I26	I43
	100	I27	I44	I27	I44
25	40		I46	I31	I46
	160		I47	I32	I47
	250	I33	I48	I33	I48
	320	I34	–	I34	–
	400	I35	–	I35	–
ANSI/ASME B16.5					
		Option code		Option code	
NPS	CL	Inlet	Outlet	Inlet	Outlet
1/2"	150		V24	V01	V24
	300		V13	V02	V13
	600		V13	V02	V13
	900	V03	V14	V03	V14
	1500	V03	–	V03	–
	2500	V04	–	V04	–
3/4"	150		V15	V05	V15
	300		V16	V06	V16
	600		V16	V06	V16
	900	V07	V17	V07	V17
	1500	V07	–	V07	–
	2500	V08	–	V08	–
1"	150		V18	V09	V18
	300		V19	V10	V19
	600		V19	V10	V19
	900	V11	V20	V11	V20
	1500	V11	–	V11	–
	2500	V12	–	V12	–

Flanged and threaded connections can be combined.
Threads according to other standards are available.
Please specify in writing (diameter, pressure rating, standard).