

Type 438



Type 438
Packed knob H4
Conventional design

Type 438
Packed knob H4
Flanged connection



Type 438
Cap H2
Long version

Safety Relief Valves – spring loaded

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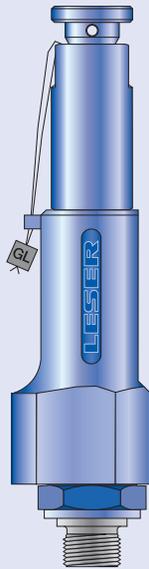
of discharge K_{dr}/α_w

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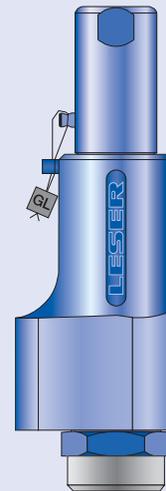
of conventional design and long version

How to order – Article numbers

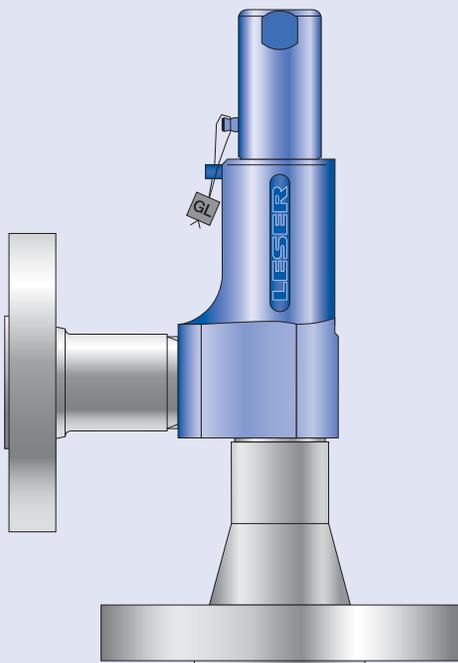
Type 438



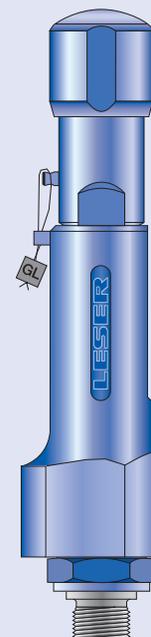
Type 438 Male
Outlet body 1/2"
Pull button H3
Conventional design



Type 438 Female
Outlet body 1"
Cap H2
Conventional design



Type 438 Flanged connection
Outlet body 1"
Cap H2
Conventional design



Type 438 Male
Outlet body 1/2"
Packed knob H4
Long version

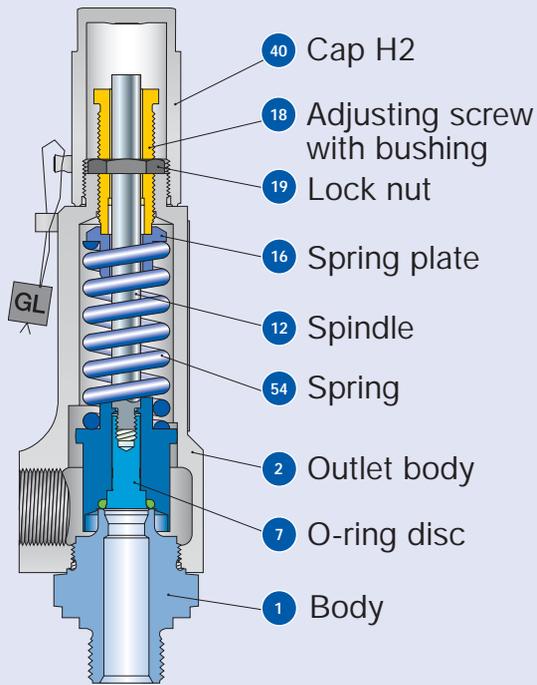
How to order – Article numbers

Article numbers

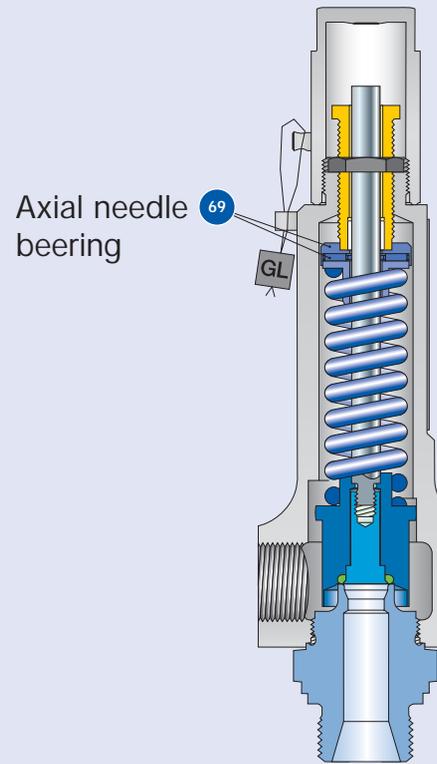
	Conventional design	Long version
Actual Orifice diameter d_0 [mm]	10	10
Actual Orifice area A_0 [mm ²]	78,5	78,5
Actual Orifice diameter d_0 [inch]	0,394	0394
Actual Orifice area A_0 [inch ²]	0,122	0,122
O-ring material	NBR "N" J30	NBR "N" J30
	CR "K" J21	CR "K" J21
	EPDM "D" J22	EPDM "D" J22
	FKM "L" J23	FKM "L" J23
	FFKM "C" J20	FFKM "C" J20
Base / Inlet body material: 1.4104 (430)		
H2 Art.-No. 4383.	2862	2872
H3 Art.-No. 4383. $p_{max} = 10 \text{ bar}_g$	2863	2873
H4 Art.-No. 4383.	2864	2874
p [bar _g] S/G/L	5 – 93	93 – 180
p [psig] S/G/L	72,5 – 1349	1349 – 2611
Base / Inlet body material: 1.4404 (316L)		
H2 Art.-No. 4374.	2982	2992
H4 Art.-No. 4374.	2984	2994
p [bar _g] S/G/L	5 – 68	68 – 180
p [psig] S/G/L	72,5 – 986	986 – 2611

Available designs

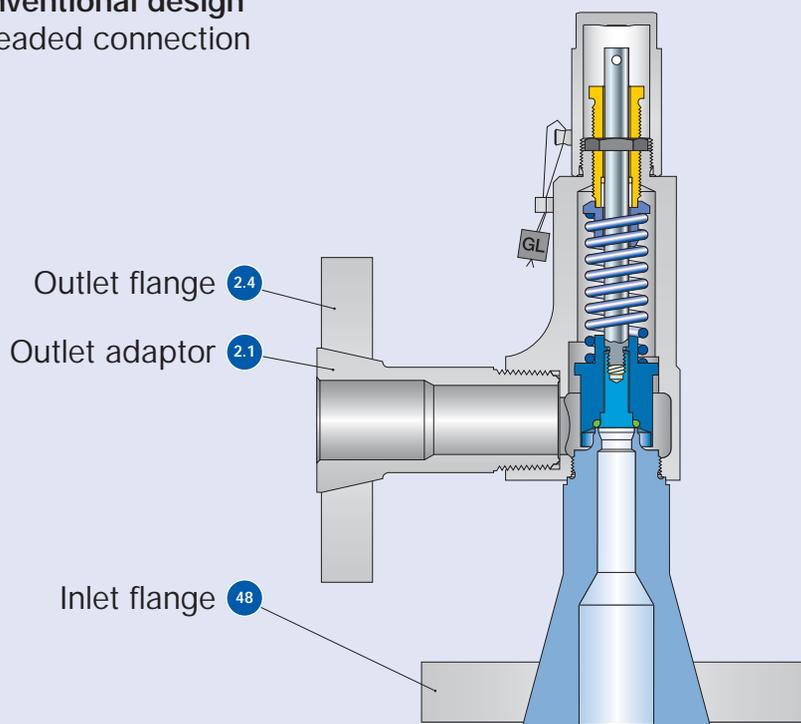
Type 438



Conventional design
Threaded connection



Long version
Threaded connection



Conventional design
Flange connection

Available designs – materials

Materials			Type 4383	Type 4384
Item	Component	Remarks	Type 4383	Type 4384
1	Base / Inlet body	Threaded connection	1.4104 SA 479 430	1.4404 SA 479 316L
		Flange connection	1.4404 SA 479 316L	1.4404 SA 479 316L
		Long version	1.4404 SA 479 316L	1.4404 SA 479 316L
2	Outlet body		1.4104 SA 479 430	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	O-ring disc		1.4404 SA 479 316L	1.4404 SA 479 316L
7.4	Soft seal O-ring	"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 Perflouro	FFKM Perflouro
12	Spindle		1.4021 420	1.4404 316L
16	Spring plate		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		1.0718 Steel	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
69	Axial needle bearing	Long version	1.4404 316L	1.4404 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.

Dimensions and weights – Metric Units

Threaded connections

Size Outlet body	Conventional design			Long version		
	1/2"	3/4"	1"	1/2"	3/4"	1"
Actual Orifice diameter d_0 [mm]	10	10	10	10	10	10
Actual Orifice area A_0 [mm ²]	78,5	78,5	78,5	78,5	78,5	78,5

Weight [kg]	1,2	1,6	1,6	1,4	2,1	2,1
Required installation diameter [mm]	65	80	80	65	80	80

Inlet thread "Female"

DIN ISO 228-1	G	Inlet a	Conventional design			Long version		
			45	55	55	45	55	55
Center to face [mm]	G	Outlet b	30	37	37	30	37	37
		H max.	210	220	220	230	240	240
ISO 7-1/BS 21 <td rowspan="2">Rc <td rowspan="2">Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td> </td></td>	Rc <td rowspan="2">Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td> </td>	Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td>	Conventional design			Long version		
			45	55	55	45	55	55
Center to face [mm]	Rc	Outlet b	30	37	37	30	37	37
		H max.	210	220	220	230	240	240
ANSI/ASME B1.20.1 <td rowspan="2">NPT <td rowspan="2">Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td> </td></td>	NPT <td rowspan="2">Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td> </td>	Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td>	Conventional design			Long version		
			45	55	55	45	55	55
Center to face [mm]	NPT	Outlet b	30	37	37	30	37	37
		H max.	210	220	220	230	240	240

Inlet thread "Male"

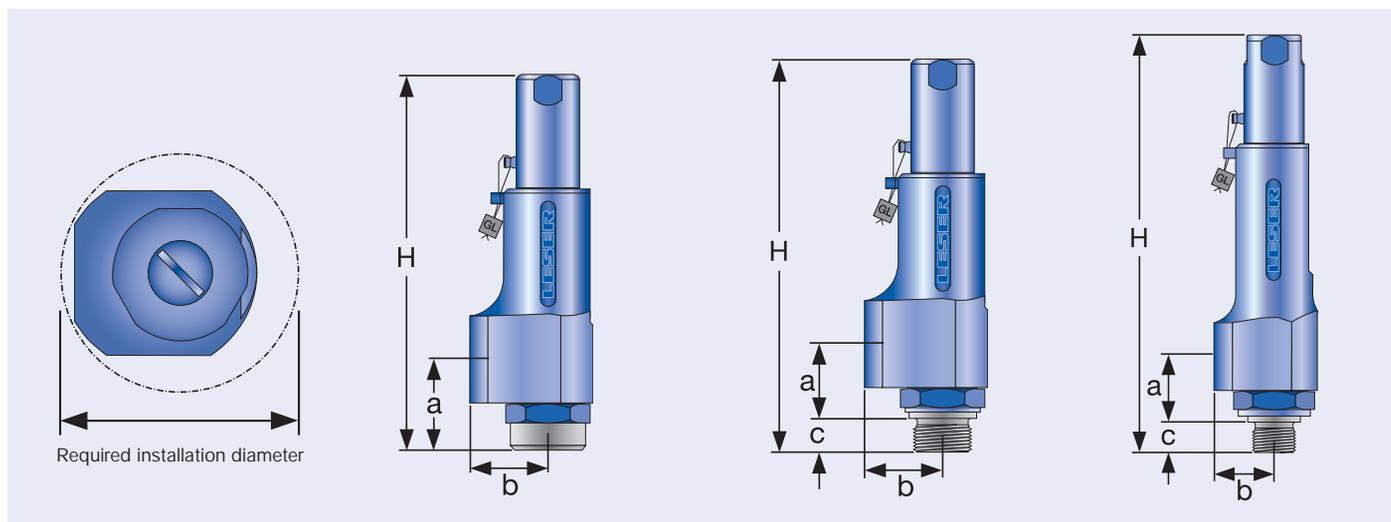
DIN ISO 228-1	G	Inlet a	Conventional design			Long version		
			33	33	36	33	33	36
Center to face [mm]	G	Outlet b	30	37	37	30	37	37
		H max.	210	220	220	230	240	240
ISO 7-1/BS 21 <td rowspan="2">R <td rowspan="2">Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td> </td></td>	R <td rowspan="2">Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td> </td>	Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td>	Conventional design			Long version		
			31	31	34	31	31	34
Center to face [mm]	R	Outlet b	30	37	37	30	37	37
		H max.	210	220	220	230	240	240
ANSI/ASME B1.20.1 <td rowspan="2">NPT <td rowspan="2">Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td> </td></td>	NPT <td rowspan="2">Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td> </td>	Inlet a <td colspan="3">Conventional design</td> <td colspan="3">Long version</td>	Conventional design			Long version		
			31	31	34	31	31	34
Center to face [mm]	NPT	Outlet b	30	37	37	30	37	37
		H max.	210	220	220	230	240	240

Height inlet thread "Male"

Inlet thread	Size	Conventional design				Long version			
		3/8"	1/2"	3/4"	1"	3/8"	1/2"	3/4"	1"
DIN ISO 228-1 [mm] G	H max.	210	212	214	216	230	232	234	236
ISO 7-1/BS 21 [mm] R	H max.	–	215	216	219	–	235	236	239
ASME B1.20.1 [mm] NPT	H max.	–	218	218	223	–	238	238	243

Length of screwed end "c" inlet thread "Male"

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



Conventional design – Female thread

Conventional design – Male thread

Long version – male thread

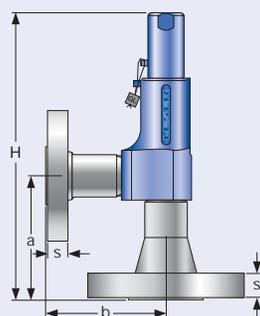
Dimensions and weights – Metric Units

Flanged connection

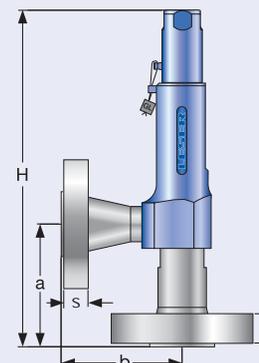
		Conventional design		Long version	
Actual Orifice diameter d_0 [mm]		10		10	
Actual Orifice area A_0 [mm ²]		78,5		78,5	
DIN ISO 1092-1 (Available flange sizes refer to page 04/05)					
Flange rating PN 40					
Center to face	[mm]	Inlet a	100	100	
		Outlet b	100	100	
Height [H4]	[mm]	H max.	263	284	
Flange rating \geq PN 160					
Center to face	[mm]	Inlet a	103	103	
		Outlet b	100	100	
Height [H4]	[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	100	100	
		Outlet b	100	100	
Height [H4]	[mm]	H max.	263	284	
Flange rating class \geq 300					
Center to face	[mm]	Inlet a	103	103	
		Outlet b	100	100	
Height [H4]	[mm]	H max.	266	287	
Weight					
For the calculation of the total weight please use the Formular: $W_T = W_N + W_F$ (Inlet) + W_F (Outlet)					
Weight net	[kg]	W_N	2,4	2,8	
(without inlet and outlet flange)					

Flange dimensions and availability

		DIN ISO 1092-1 / Flange rating PN					ASME B16.5 / Flange rating class						
Size		40	160	250	320	400	Size	150	300	600	900	1500	2500
DN 15							NPS 1/2"						
Flange thickness	[mm] s	18	22	26	26	30	14	18			26		30,2
Weight slip on flange	[kg] W_F	0,8	1,2	2,5	2,5	3,6	0,6	0,9			2,1		3
Available at Inlet		✓	✓	✓	✓	✓	✓	✓			✓		✓
Available at Outlet		✓	✓	✓			✓	✓			✓		
DN 20							NPS 3/4"						
Flange thickness	[mm] s	20	22				15	18			25,4		32
Weight slip on flange	[kg] W_F	1,1	1,3				0,8	1,4			2,3		3,5
Available at Inlet		✓	✓				✓	✓			✓		✓
Available at Outlet		✓	✓				✓	✓			✓		
DN 25							NPS 1"						
Flange thickness	[mm] s	22	26	30	36	40	17	21,5			32,5		40
Weight slip on flange	[kg] W_F	1,3	2,6	3,5	5	7,5	1	2,1			4,1		5,1
Available at Inlet		✓	✓	✓	✓	✓	✓	✓			✓		✓
Available at Outlet		✓	✓	✓	✓	✓	✓	✓			✓		



Conventional design



Long version

Pressure temperature ratings

Metric Units

		Conventional design				Long version			
Actual Orifice diameter d_0 [mm]		10				10			
Actual Orifice Area A_0 [mm ²]		78,5				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 320				PN 320			
Outlet body	Pressure rating	PN 160				PN 160			
Minimum set pressure	p [bar _g] S/G/L	5				93			
Maximum set pressure	p [bar _g] S/G/L	10 only H3 93				180			
Temperature acc. to DIN EN	min [°C]	-10				-10			
	max [°C]	+150				+150			
Temperature acc. to ASME	min [°C]	-29				-29			
	max [°C]	+150				+150			
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 320				PN 320			
Outlet body	Pressure rating	PN 160				PN 160			
Minimum set pressure	p [bar _g] S/G/L	5				68			
Maximum set pressure	p [bar _g] S/G/L	10 only H3 68				180			
Temperature acc. to DIN EN	min [°C]	-45				-45			
	max [°C]	+150				+150			
Temperature acc. to ASME	min [°C]	-268				-268			
	max [°C]	+150				+150			

US Units

		Standard				Long version			
Actual Orifice diameter d_0 [inch]		0,394				0,394			
Actual Orifice area A_0 [inch ²]		0,122				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	72,5				1349		
Maximum set pressure	p [psig] S/G/L	145 only H3 1349				2611			
Temperature acc. to DIN EN	min [°F]	+14				+14			
	max [°F]	+302				+302			
Temperature acc. to ASME	min [°F]	-20				-20			
	max [°F]	+302				+302			
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	72,5				986		
Maximum set pressure	p [psig] S/G/L	145 only H3 986				2611			
Temperature acc. to DIN EN	min [°F]	-49				-49			
	max [°F]	+302				+302			
Temperature acc. to ASME	min [°F]	-450				-450			
	max [°F]	+302				+302			

The temperature is limited by soft seal material. The stated values are valid for EPDM.

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Approvals

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
Europe		Coefficient of discharge K_{dr}
DIN EN ISO 4126-1	Approval No.	0720201110008/0/21-1
	S/G	0,40
	L	0,33
Germany		Coefficient of discharge α_w
AD 2000-Merkblatt A2	Approval No.	TÜV SV 980
	S/G	0,40
	L	0,33
United States		Coefficient of discharge K
ASME Sec. VIII	Approval No.	M 37190
	S/G	0,406
	Approval No.	M 37202
	L	0,322
Canada		Coefficient of discharge K
CRN	Approval No.	OG0772.9C
	S/G	0,406
	L	0,322
China		Coefficient of discharge α_w
CSBQTS	Approval No.	
	S/G	0,40
	L	0,33
Russia		Coefficient of discharge α_w
GGTN/ GOSGOTECHNADZOR GOST R	Approval No.	PPC 00-18458
	S/G	0,40
	L	0,33
Classification societies		Homepage
Bureau Veritas	BV	www.bureauveritas.com
Det Norske Veritas	DNV	www.dnv.com
Germanischer Lloyd	GL	www.gl-group.com
Lloyd' s Register EMEA	LREMEA	www.lr.org
Registro Italiano Navale	RINA	www.rina.org
<p>The valid certification number is changed with every renewal.</p> <p>A sample certificate including the valid certification number can be taken from the homepage of the classification societies.</p>		

Capacities

Capacities 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	
Actual Orifice diameter d_0 [mm]		10	
Actual Orifice area A_0 [mm ²]		78,5	
LEO ^{*)} [inch ²]		S/G = 0,051 L = 0,06	
Set pressure		Capacities	
	Steam saturated	Air 0°C and 1013 mbar	Water 20°C
[bar]	[kg/h]	[m ³ /h]	[10 ³ kg/h]
0,5	Please select Type 439		
1			
2			
3			
4			
5	113	139	3,09
6	131	163	3,39
7	149	186	3,66
8	168	210	3,91
9	186	233	4,15
10	204	257	4,37
12		304	4,79
14		351	5,17
16		398	5,53
18		445	5,87
20		492	6,18
22		539	6,49
24		586	6,77
26		633	7,05
28		681	7,32
30		728	7,57
32		775	7,82
34		822	8,06
36		869	8,3
38		916	8,52
40		963	8,74
42		1010	8,96
44		1057	9,17
46		1104	9,38
48		1151	9,58
50		1198	9,78
60		1434	10,7
70		1669	11,6
80		1904	12,4
90		2140	13,1
100		2375	13,8
110		2610	14,5
120		2846	15,1
130		3081	15,8
140		3316	16,4
150		3552	16,9
160		3787	17,5
170		4022	18
180		4257	18,5

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

US Units		ASME Section VIII	
Actual Orifice diameter d_0 [inch]		0,394	
Actual Orifice area A_0 [inch ²]		0,122	
LEO ^{*)} [inch ²]		S/G = 0,051 L = 0,06	
Set pressure		Capacities	
	Steam saturated	Air 60°F and 14,5 psig	Water 70°F
[psig]	[lb/h]	[S.C.F.M.]	[US-G.P.M.]
10	Please select Type 439		
20			
30			
40			
50			
60	205	73	12,1
70	233	83	13,1
80	261	93	14
90	289	103	14,8
100	317	113	15,6
120	373	133	17,1
140		153	18,5
160		173	19,8
180		193	21
200		213	22,1
220		233	23,2
240		253	24,2
260		273	25,2
280		293	26,2
300		313	27,1
320		333	28
340		353	28,8
360		373	29,7
380		393	30,5
400		413	31,3
420		433	32
440		453	32,8
460		473	33,5
480		493	34,3
500		513	35
600		613	38,3
700		713	41,4
800		813	44,2
900		913	46,9
1000		1013	49,4
1100		1113	51,9
1200		1213	54,2
1300		1313	56,4
1400		1413	58,5
1500		1513	60,5
1600		1613	62,5
1700		1713	64,5
1800		1813	66,3
1900		1912	68,1
2000		2012	69,9
2500		2512	78,2
2650		2662	80,5

*) LEO_{S/G/L} = LESER Effective Orifice steam/gas/liquids please refer to page 00/11
How to use capacity-sheets refer to page 00/09

Application range of conventional design and long version

Application range

Type 438

Type 4383

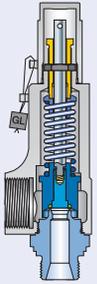
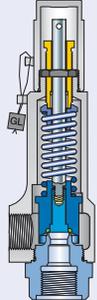
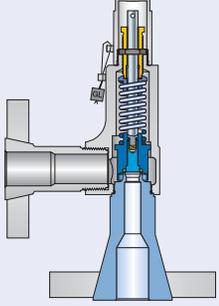
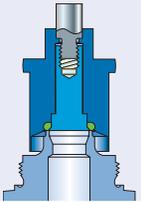
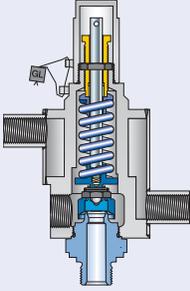
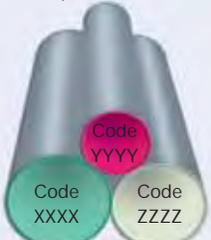
Conventional design		Long version		
S/G/L		S/G/L		
	Act. Orifice diameter	d_0 [mm]	10	
		[inch]	0,394	
	Act. Orifice area	A_0 [mm ²]	78,5	
		[inch ²]	0,122	
Components		Materials		
Base / Inlet Body		1.4104 SA 479 430		
Disc		1.4404 SA 479 316L		
	Act. Orifice diameter	d_0 [mm]	10	
		[inch]	0,394	
	Act. Orifice area	A_0 [mm ²]	78,5	
		[inch ²]	0,122	
Components		Materials		
Base / Inlet Body		1.4104 SA 479 430		
Disc		1.4404 SA 479 316L		
0	986	1349	2611	Set pressure p [psig]
0	68	93	180	Set pressure p [bar]

Type 4384

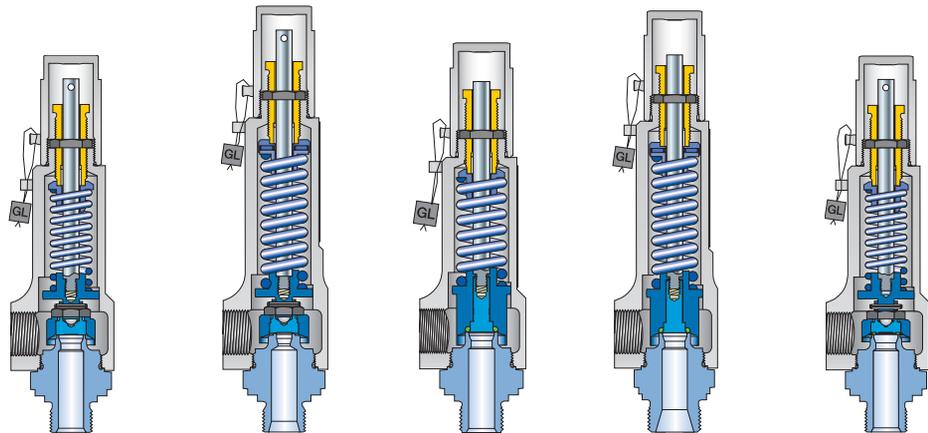
Conventional design		Long version		
S/G/L		S/G/L		
	Act. Orifice diameter	d_0 [mm]	10	
		[inch]	0,394	
	Act. Orifice area	A_0 [mm ²]	78,5	
		[inch ²]	0,122	
Components		Materials		
Base / Inlet Body		1.4404 SA 479 316L		
O-ring disc		1.4404 SA 479 316L		
	Act. Orifice diameter	d_0 [mm]	10	
		[inch]	0,394	
	Act. Orifice area	A_0 [mm ²]	78,5	
		[inch ²]	0,122	
Components		Materials		
Base / Inlet Body		1.4404 SA 479 316L		
O-ring disc		1.4404 SA 479 316L		

Available Options

Type 438

<p>Male thread</p> 	<p>Female thread</p> 	<p>Flanged version</p> 	
<p>Soft seal o-ring disc</p> <p>J30: NBR "N" J21: CR "K" J22: EPDM "D" J23: FKM "L" J20: FFKM "C"</p> 			
<p>Heating jacket H29</p> 			
<p>Special material</p> <p>2.4610 Hastelloy® C4 2.4360 Monel® 400 1.4462 Duplex</p> 			

Overview



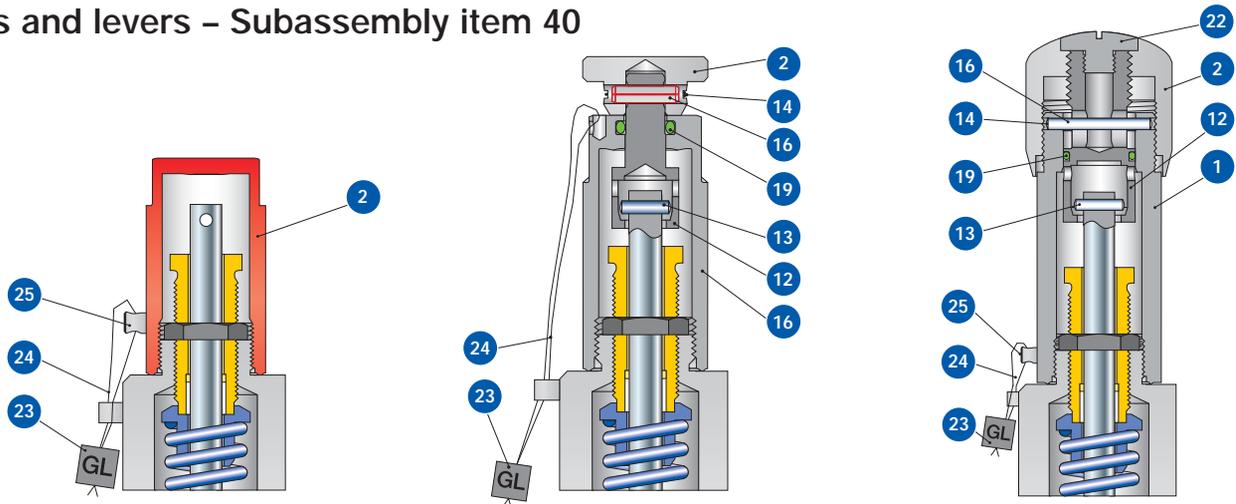
Options

Type	437	437 Long version	438	438 Long version	439	
Base / Inlet body						
Male thread	✓	✓	✓	✓	✓	
Female thread	✓	✓	✓	✓	✓	
Flanged version – DIN ISO 1092-1						
Size DN 15	✓	✓	✓	✓	✓	
Inlet	Flange rating PN 40 – 400					
Outlet	Flange rating PN 40 – 250					
Size DN 20	✓	✓	✓	✓	✓	
Inlet	Flange rating PN 40 + PN 160					
Outlet	Flange rating PN 40 + PN 160					
Size DN 25	✓	✓	✓	✓	✓	
Inlet	Flange rating PN 40 – 400					
Outlet	Flange rating PN 40 – 250					
Flanged version – ASME B16.5						
Size NPS 1/2"	✓	✓	✓	✓	✓	
Inlet	Flange rating class 150 – 2500					
Outlet	Flange rating class 150 – 900					
Size NPS 3/4"	✓	✓	✓	✓	✓	
Inlet	Flange rating class 150 – 2500					
Outlet	Flange rating class 150 – 900					
Size NPS 1"	✓	✓	✓	✓	✓	
Inlet	Flange rating class 150 – 2500					
Outlet	Flange rating class 150 – 900					
Type of sealing						
Metal seat	Metal to metal	✓	✓	-	-	-
	Metal to metal stellite	-	✓	-	-	-
Soft seal	Sealing plate	✓	✓	-	-	-
	O-ring	-	-	✓	✓	-
	Vulcanized soft seal	-	-	-	-	✓
Caps and levers						
H2	✓	✓	✓	✓	✓	
H3	✓	✓	✓	✓	✓	
H4	✓	✓	✓	✓	✓	
Heating jacket						
	✓	✓	✓	✓	✓	

Options

Accessories and Options

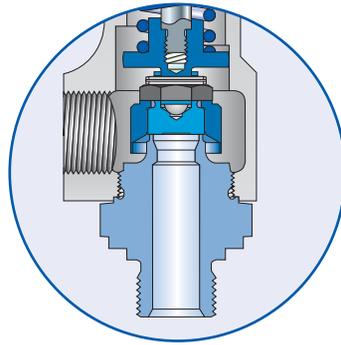
Caps and levers – Subassembly item 40



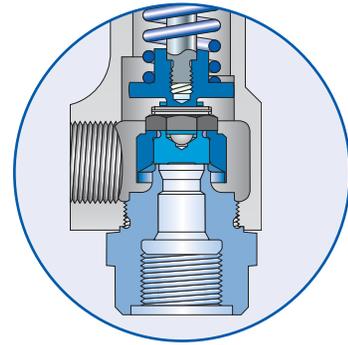
Materials		Steel			Stainless steel	
Item	Component	Cap H2	Pull button H3	Packed knob H4	Cap H2	Packed knob H4
1	Lever cover	-	1.0718 Steel	1.4104 430	-	1.4404 316L
2	Cap	1.0718 Steel	-	1.0718 Steel	1.4404 316L	1.4404 316L
	Knob	-	1.0718 Steel	-	-	-
12	Spindle cap	-	1.4021	1.4021	-	1.4404
		-	420	420	-	31 6L
13	Pin	-	A4	A4	-	A4
		-	Stainless steel	Stainless steel	-	Stainless steel
14	Retaining clip	-	1.4571	1.4571	-	1.4571
		-	316Ti	316Ti	-	316Ti
16	Pin	-	1.4310	1.4310	-	1.4310
		-	Stainless steel	Stainless steel	-	Stainless steel
19	O-ring	-	FKM	FKM	-	FKM
		-	Fluorocarbon	Fluorocarbon	-	Fluorocarbon
22	Stop unit	-	-	1.4104	-	1.4404
		-	-	430	-	316L
23	Seal	Plastic	Plastic	Plastic	Plastic	Plastic
		-"-	-"-	-"-	-"-	-"-
24	Seal wire	1.4541	1.4541	1.4541	1.4541	1.4541
		321	321	321	321	321
25	Sealing nose	1.4435	-	1.4435	1.4435	1.4435
		316L	-	316L	316L	316L

Available connections

For dimensions and weights refer to:
 Type 437 – page 01/08 + 01/10
 Type 438 – page 02/08 + 02/10
 Type 439 – page 03/08 + 03/10



Male thread



Female thread

Threaded connections

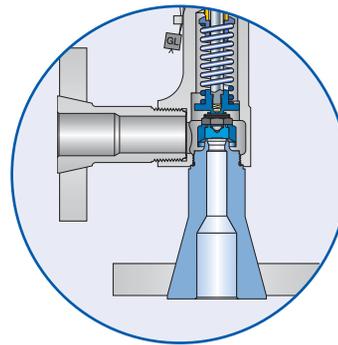
Available for complete 437 series

Valve size		Option code	Inlet	Option code	Outlet
Male thread DIN ISO 228-1					
G	3/8"	V49	✓	-	-
	1/2"	V54	✓	-	-
	3/4"	V55	✓	-	-
	1"	V56	✓	-	-
Female thread DIN ISO 228-1					
G	1/2"	V50	✓	V65	✓
	3/4"	V51	✓	V76	✓
	1"	V52	✓	V66	✓
Male thread DIN ISO 7-1/BS 21					
R/BSPT	1/2"	V30	✓	-	-
	3/4"	V31	✓	-	-
	1"	V32	✓	-	-
Female thread DIN ISO 7-1/BS 21					
Rc/BSPT	1/2"	V38	✓	V34	✓
	3/4"	V39	✓	V35	✓
	1"	V40	✓	V36	✓
Male thread ANSI/ASME B1.20.1					
NPT	1/2"	V61	✓	-	-
	3/4"	V62	✓	-	-
	1"	V63	✓	-	-
Female thread ANSI/ASME B1.20.1					
NPT	1/2"	V58	✓	V70	✓
	3/4"	V59	✓	V71	✓
	1"	V60	✓	V72	✓

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

Available connections

For dimensions and weights refer to:
 Type 437 – page 01/09 + 01/11
 Type 438 – page 02/09 + 02/11
 Type 439 – page 03/09 + 03/11



Flanged version

Flanged connections

Available for complete 437 series

	PN	Option code	Inlet	Option code	Outlet
DIN ISO 1092-1 (PN > 100: DIN 2501)					
DN 15	40	I21	✓	I40	✓
	160	I22	✓	I41	✓
	250	I23	✓	I42	✓
	320	I24	✓	–	–
	400	I25	✓	–	–
DN 20	40	I26	✓	I43	✓
	160	I27	✓	I44	✓
	250	–	–	–	–
DN 25	40	I31	✓	I46	✓
	160	I32	✓	I47	✓
	250	I33	✓	I48	✓
	320	I34	✓	–	–
	400	I35	✓	–	–

	Class	Option code	Inlet	Option code	Outlet
ANSI/ASME B 16.5					
NPS 1/2"	150	V01	✓	V24	✓
	300	V02	✓	V13	✓
	600	V02	✓	V13	✓
	900	V03	✓	V14	✓
	1500	V03	✓	–	–
	2500	V04	–	–	–
NPS 3/4"	150	V05	✓	V15	✓
	300	V06	✓	V16	✓
	600	V06	✓	V16	✓
	900	V07	✓	V17	✓
	1500	V07	✓	–	–
	2500	V08	✓	–	–
NPS 1"	150	V09	✓	V18	✓
	300	V10	✓	V19	✓
	600	V10	✓	V19	✓
	900	V11	✓	V20	✓
	1500	V11	✓	–	–
	2500	V12	✓	–	–

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

Sealing surface

Types 437, 438, 439 – Soft seal

LESER soft seal solutions allow for superior tightness.

Features and benefits

- 3 different designs for a wide variety application
- large selection of soft seal materials to best adapt to the application
- increased service life of sealing surfaces compared to a metal to metal seat
- simple replacement of the soft seal reduces maintenance costs
- standard ARP O-ring sizes for easy worldwide procurement
- one standard durometer per O-ring material for all set pressures to reduce stocking expenses

Soft seal solutions		Series 437		
Type	437 – sealing plate	438 – O-ring disc	439 – Vulcanized soft seal disc	
Requirements	Improved tightness related to metal seat is required and the temperature is lower than -20°C / -4°F	Superior tightness is required and the set pressure is higher than 5 bar / 75 psig.	Superior tightness is required and the set pressure is below 16 bar / 230 psig.	
Tightness according to LWN 220.01	$9,4 \times 10^{-2}$ mbarl/s	9×10^{-5} mbarl/s	9×10^{-5} mbarl/s	
Example application	Liquefied gases	Gas storage tanks, compressors	Glass systems at laboratories	

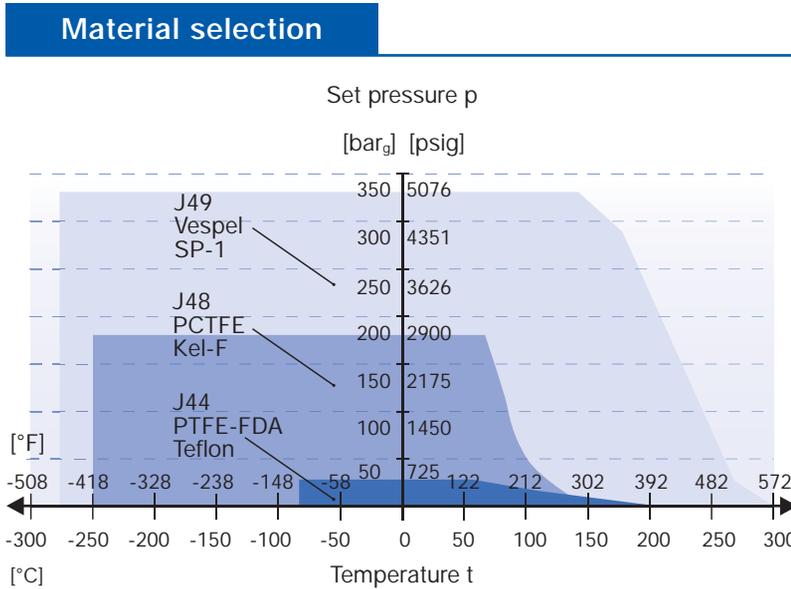
Subassembly of the disc (item 7), bill of materials

Component						
Disc	Item 7.1	1.4404	Item 7.1	1.4404	Item 7.1	1.4404
		SA 479 316L		SA 479 316L		SA 479 316L
Soft seal Materials refer to next page	Item 7.3	sealing plate	Item 7.3	O-ring		vulcanized disc
Lifting aid	Item 7.2	1.4404	Item 7.2	1.4404	Item 7.2	1.4404
		316L		316L		316L
Lock nut		-		-	Item 7.5	1.4404
		-		-		316L

For temperature limits and medium resistance please refer to the soft seal material selection, page 04/08.

Soft seal material selection

Type 437 – Sealing plate



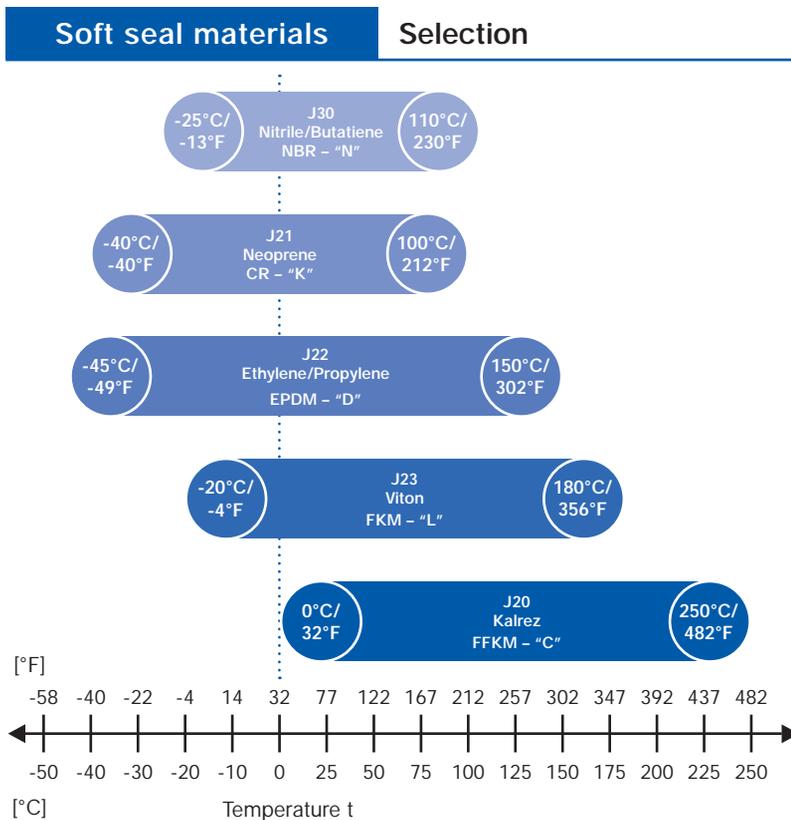
Option code

Option code	Code letter ¹⁾	Application ²⁾
J44	PTFE-FDA "A"	Nearly all chemicals
J48	PCTFE "G"	Cryogenic and refrigeration applications, flammable media applications (e.g. gaseous oxygen) up to 50 bar, 725 psig at 60°C, 140°F
J49	VESPEL-SP1 "T"	High temperature and high pressure applications (no steam), for chemical resistance see www.DuPont.com
Other	"X"	For other materials please contact: your local representative or sales@leser.com

Type 438 – O-ring disc

Type 439 – Vulcanized soft seal disc

The LESER compact performance valves with soft seal disc and broad elastomer material selection represents the ultimate solution for critical applications with special tightness requirements.



Option code

Option code	Code letter ¹⁾	Application ²⁾
J30	NBR "N"	Hydraulic oil, vegetable and animal grease and oil
J21	CR "K"	Parafin oil, silicone oil and grease, water and water based solvents, refrigerants, ozone
J22	EPDM "D"	Hot water and superheated steam up to 150 °C, 302 °F, some organic and inorganic acids, silicone oil and grease, FDA compliant
J23	FKM "L"	High temperature service (no superheated steam), mineral oil and grease, silicone oil and grease, vegetable and animal grease and oil, ozone, FDA compliant compound available on request
J20	FFKM "C"	Nearly all chemicals, standard O-ring compound for type 438 is Kalrez® 6375 with steam resistance, FDA compliant compound available on request. For type 439 the FDA compliant ISOLAST J9515 is standard
Other then listed	"X"	For other materials contact: your local representative or sales@leser.com

¹⁾ The code letters will be stamped on the disc.

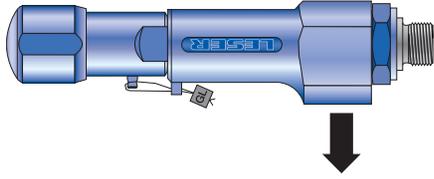
²⁾ Pressure and temperature service must be considered in any case.

Chemical resistance information is supplied by the O-ring manufacturer.

Installing instructions

Horizontal fitting

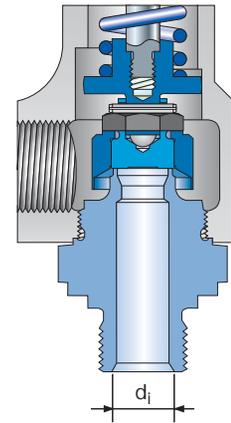
For horizontal fitting certified



Attention! Only with outlet in direction downwards.

Inlet pipe dimension

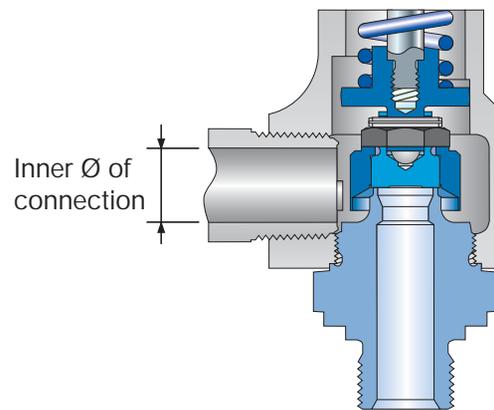
Actual orifice diameter d_0	[mm]	6	10
	[inch ²]	0,236	0,394
Actual orifice area A_0	[mm ²]	28,3	78,5
	[inch ²]	0,044	0,122
Inner \varnothing of pipe d_i	[mm]	10	12,5
	[inch]	3/8"	1/2"



Outlet connection

Caution!

To achieve the certified function and capacity it is important to use an outlet pipe or an outlet connection with an inner diameter \geq than 16 mm / ⁵/₈" inch.



Screwed plugs – DIN ISO 228 / G

Male

Design of diameter d_3 according to DIN 3852 – Part 2, form A for small gasket.

Female

Design of diameter d_4 according to DIN 3852 – Part 2, form Y for small gasket.

