



Type 481
Cap H2
Inlet: Clamp connection
Outlet: Threaded connection

Type 481

Type 481

Safety Relief Valves – spring loaded



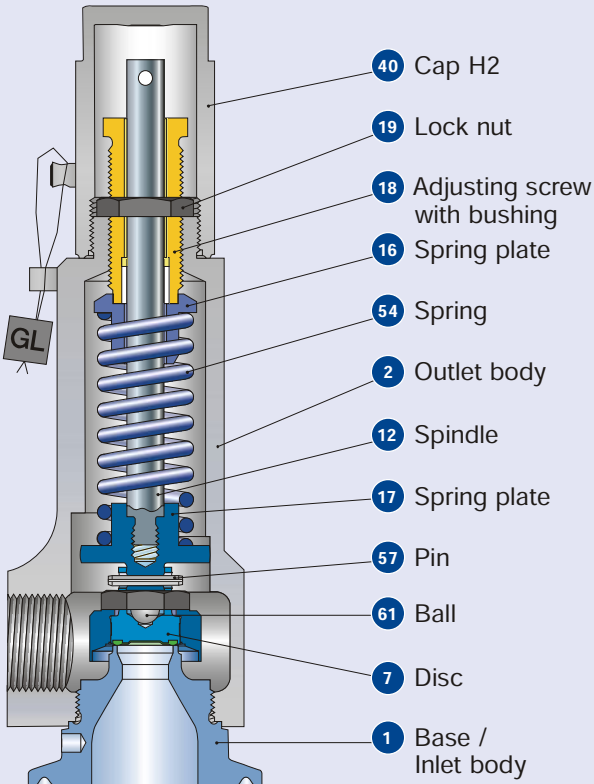
Type 481
Packed knob H4
Inlet: Aseptic clamp and nut
Outlet: Threaded connection

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Conventional design

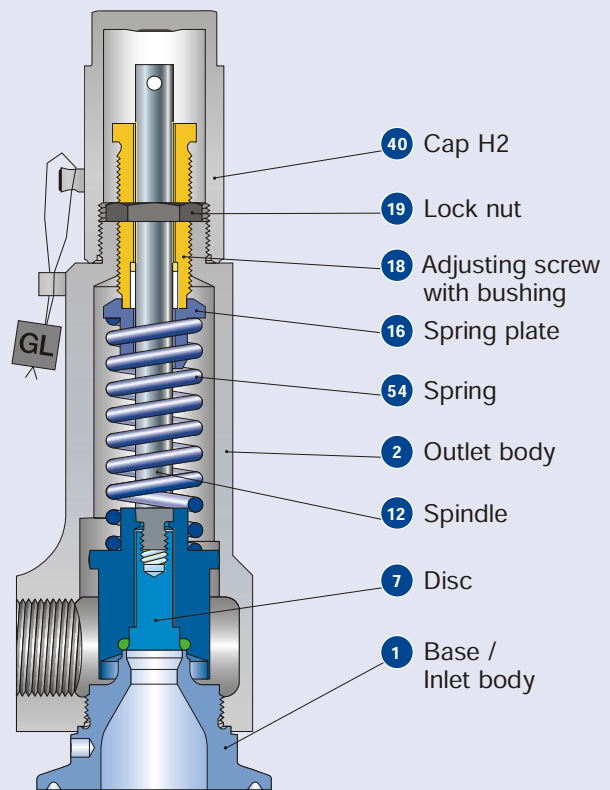
Type 481

Low set pressure








Type 481
with vulcanized soft seal
Cap H2
Set pressure: 0,1 – 16 bar
1,5 – 232 psig
Inlet: Clamp connection
Outlet: Threaded connection

High set pressure



Type 481 with O-ring
Set pressure: 16 – 68 bar
233 – 986 psig
Inlet: Clamp connection
Outlet: Threaded connection

Conventional design

Materials				
Item	Component	Remarks	Type 4814	
			Set pressure	
			0,1 – 16 bar 1,5 – 232 psig	16 – 68 bar 233 – 986 psig
1	Base / Inlet body		1.4404	1.4404
			SA 479 316L	SA 479 316L
2	Outlet body		1.4404	1.4404
			SA 479 316L	SA 479 316L
7	Disc		1.4404	1.4404
			SA 479 316L	SA 479 316L
			Vulcanized soft seal	O-ring soft seal
7.1	Soft seal vucanized or O-ring	"D"  	EPDM	EPDM
		"K"	CR	CR
		"L" 	FKM	FKM
		"N"	NBR	NBR
		"C"  	FFKM	FFKM
12	Spindle		1.4404	1.4404
			316L	316L
16	Spring plate		1.4404	1.4404
			316L	316L
17	Spring plate		1.4404	–
			316L	–
18	Adjusting screw with bushing	PTFE + 15 % glass	1.4404 / PTFE	1.4404 / PTFE
			316L / PTFE	316L / PTFE
19	Lock nut		1.4404	1.4404
			316L	316L
40	Cap H2		1.4404	1.4404
			316L	316L
54	Spring		1.4310	1.4310
			Stainless steel	Stainless steel
57	Pin		1.4310	–
			Stainless steel	–
61	Ball		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.

How to order – Numbering system

Type 481

1

Article Number

1	2	3	4
481	4	769	2

1 Type 481 Types of sealing

Soft seal	Soft seal material
EPDM	Buna-EP®
CR	Neoprene®
FKM	Viton®
NBR	Buna-N®
FFKM	Kalrez®, ISOLAST®

2 Material code

Code	Body material
4	1.4404 (316L)

3 Valve code

Identifies pressure range, orifice and design of soft seal

Code	Soft seal / pressure range
769	Vulcanized soft seal p _{set} = 0,1 – 16 bar p _{set} = 1,5 – 232 psig
768	O-ring disc p _{set} = 16 – 68 bar p _{set} = 233 – 986 psig

Refer to page 01/07

4 Code for lifting device

Code	Lifting device	
2	Screwed cap	H2
4	Packed knob	H4
8	Pneumatic lifting device	H8

4814.7692

Article Number

2

Set Pressure

Please state unit (in gauge)!

Please do not exceed the pressure range defined in the spring charts.

For pressure range, refer to page 01/07

12 bar

Set Pressure

3

Connections

Please refer to table "Available connections" on pages 00/07 and 01/10.

Please state one option code for each inlet **and** outlet.

I75I78






V70

Connections

4

Options

Type 481 Option code

- O-ring disc or vulcanized soft seal disc
Standard: EPDM "D"   **J22**
- Option: CR "K" **J21**
- FKM "L"  **J23**
- NBR "N" **J30**
- FFKM "C"   **J20**
- Test gag H2 **J70**
(Available for cap H2 only)
- Pneumatic lifting device H8 **J41**
Double piston design
- LESER Surface package
HyClean finish **B51**
Sterile finish **B52**

For detailed information
refer to page 01/13

Option code applies only if not standard

J41

J70

Options

5

Documentation

Please select requested documentation:

Inspections, tests: Option code
DIN EN 10204-3.2: TÜV-Nord
Certificate for test pressure **M33**

**LESER CGA (Certificate
for Global Application)** **H03**
- Inspection certificate 3.1 acc.
to DIN EN 10204
- Declaration of conformity acc.
to PED 97/23/EC

Material test certificate:
DIN EN 10204-3.1

Part Option code
Base / Inlet body **H01**
Outlet body **L34**
Cap / lever cover **L31**
Disc **L23**
Certificate of
surface quality **N04**

H01

L23

Documentation

6

Code and Medium

1 2
2 0

1 Code
1. ASME Section VIII
2. CE / VdTUEV
3. ASME Section VIII
+ CE / VdTUEV

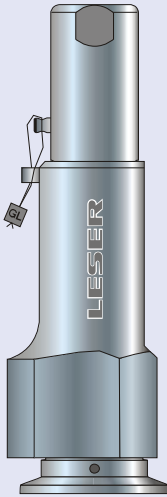
2 Medium
.1 Gases
.2 Liquids
.3 Steam
.0 Steam / Gases / Liquids
(valid only for CE / VdTUEV)

2.0

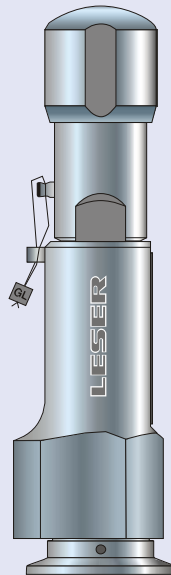
Code and Medium

How to order – Article numbers

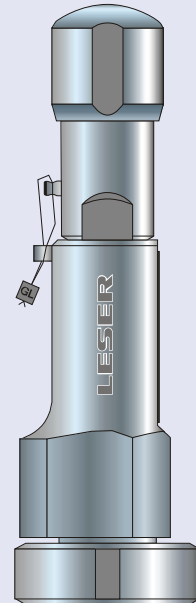
Type 481



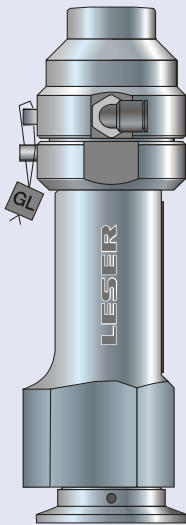
Type 481
Cap H2
Inlet: Clamp connection
Outlet: Threaded connection



Type 481
Packed knob H4
Inlet: Clamp connection
Outlet: Threaded connection

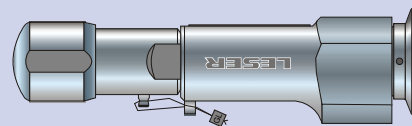


Type 481
Packed knob H4
Inlet: Aseptic clamp and nut
Outlet: Threaded connection



Type 481
Pneumatic lifting device H8
Inlet: Clamp connection
Outlet: Threaded connection

Certified for horizontal fitting.



Attention! Only with outlet
in downward direction.

How to order – Article numbers

Article numbers

		Vulcanized soft seal	O-ring disc
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	0,394
Actual Orifice area A_0 [inch ²]		0,122	0,122
Soft seal material		EPDM "D" J22	EPDM "D" J22
		CR "K" J21	CR "K" J21
		FKM "L" J23	FKM "L" J23
		NBR "N" J30	NBR "N" J30
		FFKM "C" J20	FFKM "C" J20
Base / Inlet body material: 1.4404 (316L)			
Bonnet	H2 Art.-No. 4814.	7692	7682
closed	H4 Art.-No. 4814.	7694	7684
	H8 Art.-No. 4814.	7698	7688
	p [bar] S/G/L	0,1 – 16	16 – 68
	p [psig] S/G/L	1,5 – 232	233 – 986

Pressure temperature ratings

Metric Units

		Vulcanized soft seal	O-ring disc
Actual Orifice diameter d_0 [mm]		10	10
Actual Orifice area A_0 [mm ²]		78,5	78,5
Body material: 1.4404 (316L)			
Inlet / Outlet body	Pressure rating	For pressure ratings please refer to chapter dimensions and weights (page 01/09)	
Minimum set pressure	p [bar] S/G/L	0,1	16
Maximum set pressure	p [bar] S/G/L	16	68
Temperature range¹⁾		Minimum	Maximum
EPDM	[°C]	-45	+150
CR	[°C]	-40	+100
FKM	[°C]	-20	+180
NBR	[°C]	-25	+110
FFKM	[°C]	0	+250

US Units

		Vulcanized soft seal	O-ring disc
Actual Orifice diameter d_0 [inch]		0,394	0,394
Actual Orifice area A_0 [inch ²]		0,122	0,122
Body material: 1.4404 (316L)			
Inlet / Outlet body	Pressure rating	For pressure ratings please refer to chapter dimensions and weights (page 01/09)	
Minimum set pressure	p [psig] S/G/L	1,5	233
Maximum set pressure	p [psig] S/G/L	232	986
Temperature range¹⁾		Minimum	Maximum
EPDM	[°F]	-49	+302
CR	[°F]	-40	+212
FKM	[°F]	-4	+356
NBR	[°F]	-13	+230
FFKM	[°F]	+32	+482

¹⁾ The temperature is limited by the soft seal material. Refer to table "Soft seal selection" on page 99/11.

Dimensions – Bestseller

For shortest delivery time please select bestsellers. The specified bestsellers can vary depending on different market requirements

For further available connections please refer to page 01/10.

Metric Units

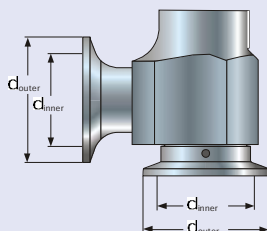
Actual Orifice diameter d_0 [mm]		10	
Actual Orifice area A_0 [mm ²]		78,5	
Clamp connections		Inlet a	Outlet b
COCO		1"	1"
Option code		L96I79L97A79	
Center to face	[mm]	30	65
Clamp diameter	d_{inner} [mm]	23	23
	d_{outer} [mm]	51	51
Height – H4	H max. [mm]	193	
Clamp / Threaded connections		Inlet a	Outlet b
SOXG		15	G 1/2"
Option code		L79I14V65	
Center to face	[mm]	30	30
Clamp diameter	d_{inner} [mm]	16	–
	d_{outer} [mm]	34	–
Height – H4	H max. [mm]	193	
COXG		1"	G 1/2"
Option code		L96I79V65	
Center to face	[mm]	33	37
Clamp diameter	d_{inner} [mm]	23	–
	d_{outer} [mm]	51	–
Height – H4	H max. [mm]	193	

10	
78,5	
Inlet a	Outlet b
–	–
–	–
–	–
Inlet a	Outlet b
25	G 1/2"
L79I16V65	
33	37
26	–
51	–
193	
–	–
–	–
–	–
–	–

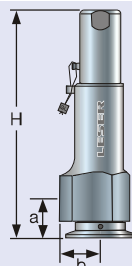
US Units

Actual Orifice diameter d_0 [inch]		0,394	
Actual Orifice area A_0 [inch ²]		0,122	
Clamp connections		Inlet a	Outlet b
COCO		1"	1"
Option code		L96I79L97A79	
Center to face	[inch]	1 ³ / ₁₆	2 ⁹ / ₁₆
Clamp diameter	d_{inner} [inch]	⁷ / ₈	⁷ / ₈
	d_{outer} [inch]	2	2
Height – H4	H max. [inch]	7 ¹⁹ / ₃₂	
Clamp / Threaded connections		Inlet a	Outlet b
SOXG		15	G 1/2"
Option code		L79I14V65	
Center to face	[inch]	1 ³ / ₁₆	1 ³ / ₁₆
Clamp diameter	d_{inner} [inch]	⁵ / ₈	–
	d_{outer} [inch]	1 ¹¹ / ₃₂	–
Height – H4	H max. [inch]	7 ¹⁹ / ₃₂	
COXG		1"	G 1/2"
Option code		L96I79V65	
Center to face	[inch]	1 ⁵ / ₁₆	1 ¹⁵ / ₃₂
Clamp diameter	d_{inner} [inch]	²⁹ / ₃₂	–
	d_{outer} [inch]	2	–
Height – H4	H max. [inch]	7 ¹⁹ / ₃₂	

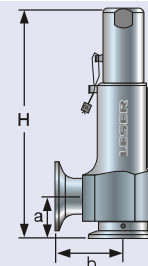
0,394	
0,122	
Inlet a	Outlet b
–	–
–	–
–	–
Inlet a	Outlet b
25	G 1/2"
L79I16V65	
1 ⁵ / ₁₆	1 ¹⁵ / ₃₂
1 ¹ / ₃₂	–
2	–
7 ¹⁹ / ₃₂	
–	–
–	–
–	–
–	–



Type 481 – Clamp diameters



Type 481 – Outlet: Threaded connection



Type 481 – Outlet: Clamp connection

Dimensions and weights

Metric Units			
Actual Orifice diameter d_0 [mm]		10	10
Actual Orifice area A_0 [mm ²]		78,5	78,5
DN		15	25
Clamp connections		Inlet a	
		PN	16
			16
Center to face	Outlet G 1/2 [mm]	40	30
	Outlet G 3/4 [mm]	40	30
	Outlet G 1 [mm]	43	33
Clamp diameter	d_{inner} [mm]	For varying clamp diameters please refer to page 00/11	
	d_{outer} [mm]		
Height – H4	H max. [mm]	203	193
Height – H8 double piston design	H max. [mm]	231	221
Threaded connections		Inlet a	
		PN	16
			16
Center to face (female thread)	Outlet G 1/2 [mm]	–	39
	Outlet G 3/4 [mm]	–	39
	Outlet G 1 [mm]	–	42
Center to face	Outlet G 1/2 [mm]	–	39
	Outlet G 3/4 [mm]	–	39
	Outlet G 1 [mm]	–	42
Height – H4	H max. [mm]	–	202
Height – H8 double piston design	H max. [mm]	–	230
Weight			
Weight	max. [kg]	1,4	1,4
US Units			
Actual Orifice diameter d_0 [inch]		0,394	0,394
Actual Orifice area A_0 [inch ²]		0,122	0,122
Clamp connections		Inlet a	
		PN	16
			16
Center to face	Outlet G 1/2 [inch]	1 9/16	1 3/16
	Outlet G 3/4 [inch]	1 9/16	1 3/16
	Outlet G 1 [inch]	1 11/16	1 5/16
Clamp diameter	d_{inner} [inch]	For varying clamp diameters please refer to page 00/11	
	d_{outer} [inch]		
Height – H4	H max. [inch]	8	7 19/32
Height – H8 double piston design	H max. [inch]	9 3/32	8 11/16
Threaded connections		Inlet a	
		PN	16
			16
Center to face (female thread)	Outlet G 1/2 [inch]	–	1 17/32
	Outlet G 3/4 [inch]	–	1 9/16
	Outlet G 1 [inch]	–	1 21/32
Center to face	Outlet G 1/2 [inch]	–	1 17/32
	Outlet G 3/4 [inch]	–	1 9/16
	Outlet G 1 [inch]	–	1 21/32
Height – H4	H max. [inch]	–	7 15/16
Height – H8 double piston design	H max. [inch]	–	9 1/16
Weight			
Weight	max. [lb]	3,086	3,086

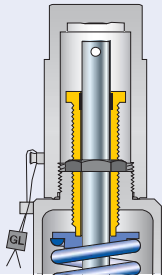
Option codes for available connections

For detailed information about the available connections please refer to "How to use" on page 00/07.

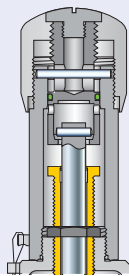
Connections		
d ₀ [mm]	10	
d ₀ [inch]	0,394	
Clamps		
Option code inlet		
DN	15 25	
SO	L79I14 L79I16	
DO	I73I14 I73I16	
NPS	3/4" 1"	
BO	I75I78 I75I79	
CO	- L96I79	
Clamp connections suitable for NA-Connect available		
Threaded connections		
Option code inlet		
DN	-	
XG	-	
XN	-	
Option code outlet		
DN	- 25	
SO	- L86A16	
DO	- I74A16	
NPS	- 1"	
BO	- -	
CO	- L97A79	
Clamp connections suitable for NA-Connect available		
Threaded connections		
Option code inlet		
DN	-	
XG	-	
XN	-	
Option code outlet		
DN	G 1/2 G 3/4 G 1 1/2" NPT 3/4" NPT 1" NPT	
XG	V65 V76 V66 -	
XN	- V70 V77 V71	
Pipe standard		
DN	25	
DIN 11850 / DIN 11866 Range A	GS	H85H34I16
	BS	H85H36I16
	GT	H85H54I16
	BT	H85H56I16
	GO	H85L75I16
	KO	H85L76I16
	GD	H85H60I16
BD	H85H58I16	
Pipe standard		
DN	25	
DIN EN ISO 1127 / DIN 11866 Range B	GS	H86H34I16
	BS	H86H36I16
	GT	H86H54I16
	BT	H86H56I16
	GD	H86H60I16
	BD	H86H58I16
Pipe standard		
NPS	1"	
BS 4825-1 DIN 11866 Range C	GS	H87H34I79
	BS	H87H36I79
	GT	H87H54I79
	BT	H87H56I79

Available options

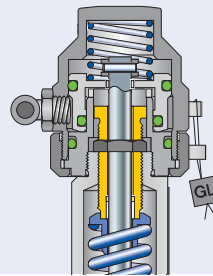
Gastight cap H2
H2



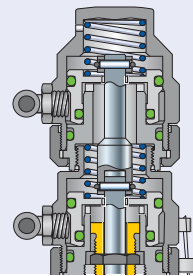
Gastight lifting device H4
Packed knob H4



Pneumatic lifting device H8
H8 single piston design

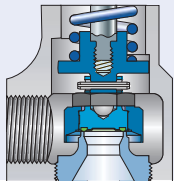


Pneumatic lifting device H8
J41: H8 double piston design



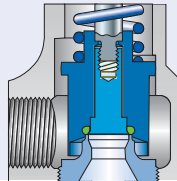
Vulcanized soft seal

- J22: EPDM "D"
- J21: CR "K"
- J23: FKM "L"
- J30: NBR "N"
- J20: FFKM "C"

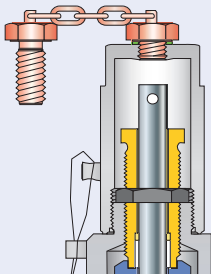


O-ring disc

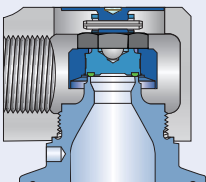
- J22: EPDM "D"
- J21: CR "K"
- J23: FKM "L"
- J30: NBR "N"
- J20: FFKM "C"



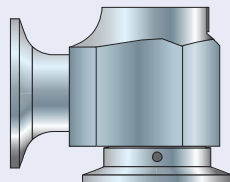
Test gag
J70: H2



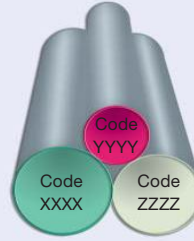
Female NPT outlet
V70: 1/2"
V77: 3/4"
V71: 1"



Clamp connection outlet
Clamp: 1"



Special material
2.4610 HASTELLOY C4
2.4360 MONEL 400
1.4462 DUPLEX



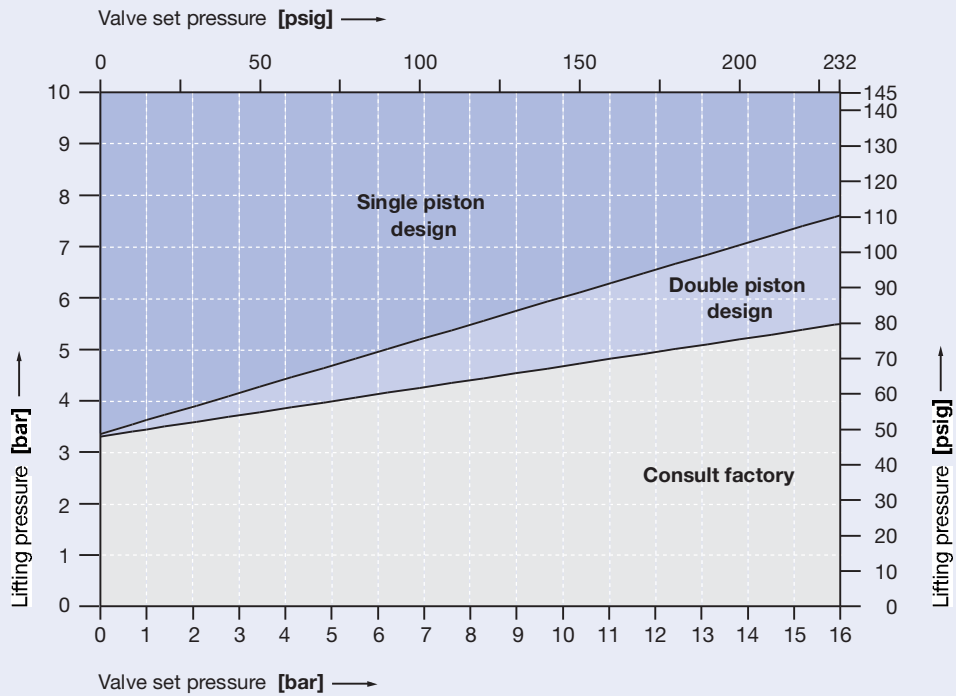
Selection chart H8

Type 481

Depending on the set pressure and lifting pressure (air supply) a double piston lifting device (option code J41) may be required instead of a single piston. The chart below determines the required lifting device.

For information about this chart please refer to "How to use" on page 00/12.

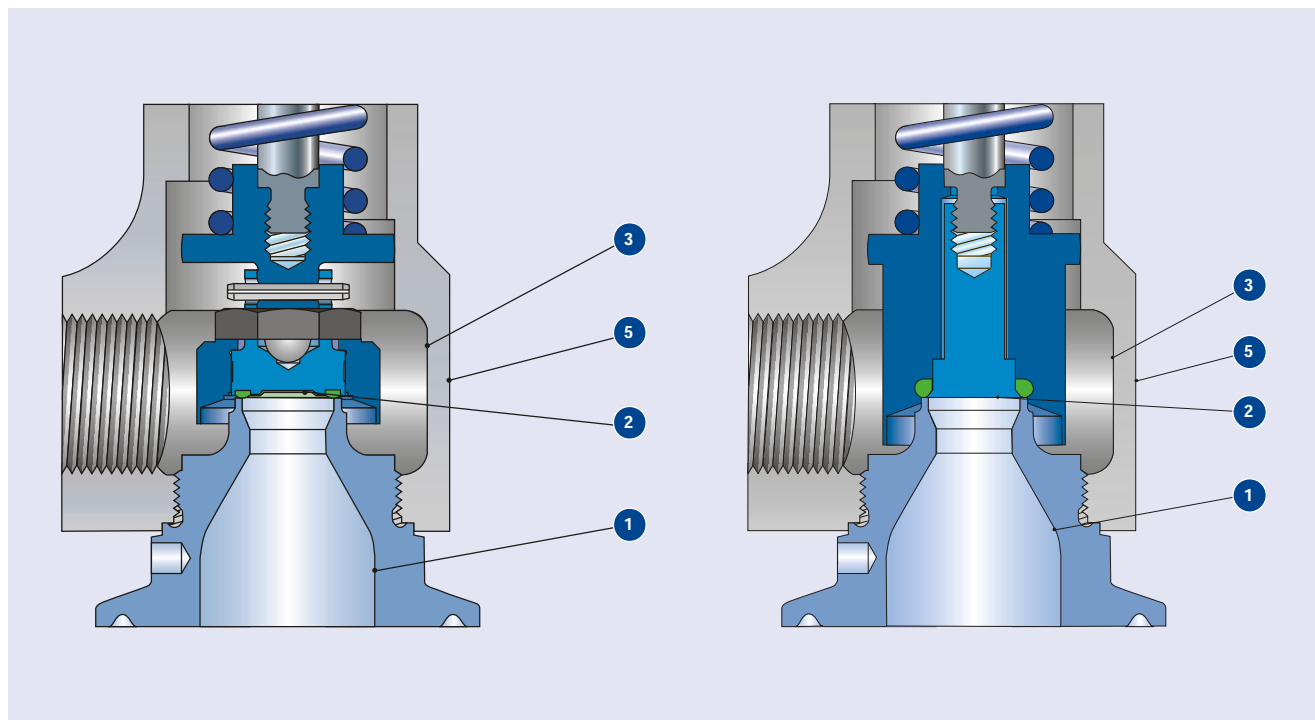
Selection chart lifting device H8, size 0. d₀ 10 mm / 0,394 inch



Surface quality

Surface quality			LESER Surface package			
Type of surface	Area		Option code	Clean finish	HyClean finish	Sterile finish
	Description	No.		B50	B51	B52
				R _a max.	R _a max.	R _a max.
				LESER Surface grade		
Product contact surface	Inlet	1		M4	ME4	ME2
			[μm]	0,750	0,750	0,500
			[μinch]	30	30	20
	Bottom side of disc					
	Soft seal design: Vulcanized	2		Elastomer surface		
Soft seal design: O-ring	3		M4	ME4	ME2	
		[μm]	0,750	0,750	0,500	
			[μinch]	30	30	20
Blow off surface	Inside surface of outlet area	3		M6	ME6	ME6
			[μm]	3,000	3,000	3,000
			[μinch]	120	120	120
Outer surface	Outside surface of inlet and outlet body, cap/lifting device	5		M6	ME6	ME6
			[μm]	3,000	3,000	3,000
			[μinch]	120	120	120

If required surface deviates from standard specify No. and required LESER Surface Grade.

















Type 481 – Vulcanized soft seal

Type 481 – O-ring disc

Order information – Spare parts

Type 481

Spare parts			
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	
Inlet body (Item 1)			Material-No. / Art.-No.
Inlet body	CO	Connection size	$\frac{3}{4}$ "
		1.4404	–
			136.4649.9265
SO	Connection size	DN 15	
	1.4404	136.4649.9271	
		DN 25	
		136.4649.9263	
Disc with vulcanized soft seal (Item 7)			Material-No. / Art.-No.
Disc	1.4404	EPDM "D"  	200.9049.9041
		CR "K"	200.9049.9051
		FKM "L" 	200.9049.9071
		NBR "N"	200.9049.9081
		FFKM "C"  	200.9049.9091
Disc – soft seal with O-ring (Item 7)			Material-No. / Art.-No.
Disc	1.4404	EPDM "D"  	200.8349.9741
		CR "K"	200.8349.9751
		FKM "L" 	200.8349.9771
		NBR "N"	200.8349.9781
		FFKM "C"  	200.8349.9721
O-ring – soft seal (Item 7.4)			Material-No. / Art.-No.
O-ring		EPDM "D"  	502.0107.2641
		CR "K"	502.0107.2651
		FKM "L" 	502.0107.2671
		NBR "N"	502.0107.2681
		FFKM "C"  	502.0107.2621

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.	07 202 0111 Z 0008/0/21-2	
	S/G	0,45 (\leq 16 bar)	0,4 (> 16 bar)
	L	0,37 (\leq 16 bar)	0,33 (> 16 bar)
Germany		Coefficient of discharge α_w	
AD 2000-Merkblatt A2	Approval No.	TÜV SV 980	
	S/G	0,45 (\leq 16 bar)	0,4 (> 16 bar)
	L	0,37 (\leq 16 bar)	0,33 (> 16 bar)
United States		Coefficient of discharge K	
ASME Sec. VIII	Approval No.	M 37190	
	S/G	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) S: 2,55 lb / hr / psia Δ K \approx 0,406 G: 0,904 SCFM / psia 8 Δ K \approx 0,406	
	Approval No.	M 37202	
	L	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) L: 1,49 GPM $\sqrt{\text{psid}^*}$ Δ K \approx 0,322	
Canada		Coefficient of discharge K	
CRN	Approval No.	OG0772.9C	
	S/G	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) S: 2,55 lb / hr / psia Δ K \approx 0,406 G: 0,904 SCFM / psia Δ K \approx 0,406	
	L	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) L: 1,49 GPM $\sqrt{\text{psid}^*}$ Δ K \approx 0,322	
China		Coefficient of discharge α_w	
AQSIQ	Approval No.	02301T	
	S/G	0,45 (\leq 16 bar)	0,4 (> 16 bar)
	L	0,37 (\leq 16 bar)	0,33 (> 16 bar)
Russia		Coefficient of discharge α_w	
GGTN/ GOSGORTECHNADZOR	Approval No.	PPC 00-18458	
GOST R	Approval No.	1989-06	
	S/G	0,45 (\leq 16 bar)	0,4 (> 16 bar)
	L	0,37 (\leq 16 bar)	0,33 (> 16 bar)
Belarus		Coefficient of discharge α_w	
PROMATOMNADZOR	Approval No.	15-171-2006	
	S/G	0,45 (\leq 16 bar)	0,4 (> 16 bar)
	L	0,37 (\leq 16 bar)	0,33 (> 16 bar)
Classification societies			
on request			

*) psid = Differential pressure P-P_d
 P = absolute flow pressure [psia]
 P_d = pressure at discharge from valve [psia]

Capacities – Metric Units

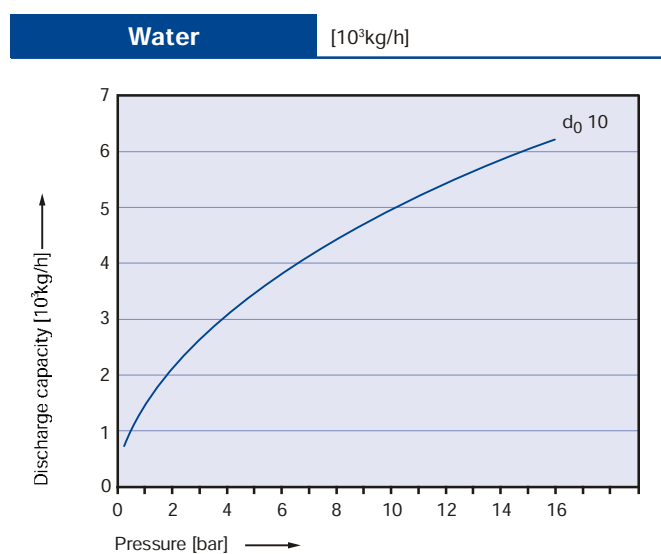
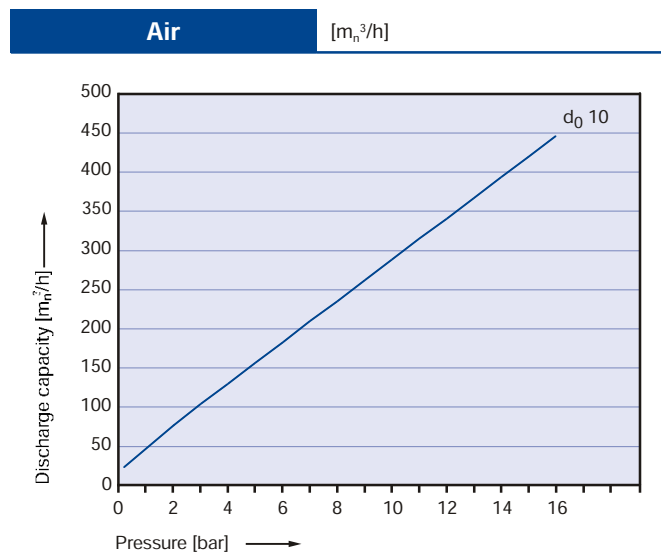
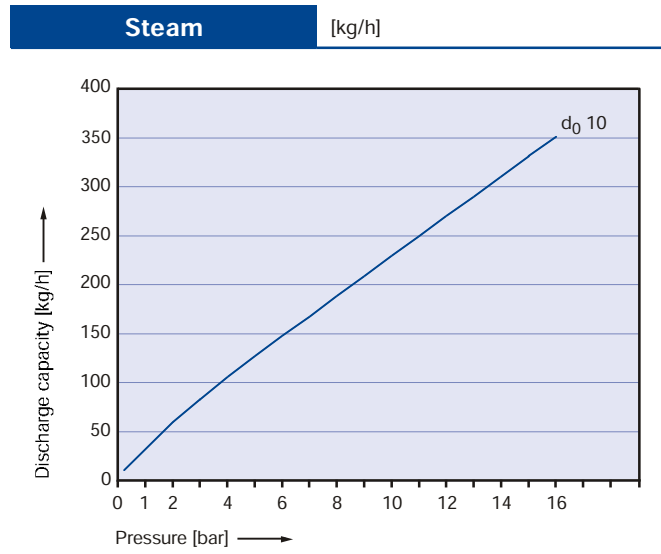
Capacities according to AD 2000-Merkblatt A2, based on set pressure plus 10 % overpressure.

Capacities at 1 bar (14,5 psig) and below are based on 0,1 bar (1,45 psig) overpressure. For pressure range refer to "Pressure temperature ratings" on page 01/07.

Type 481

Metric Units		AD 2000-Merkblatt A2	
Actual Orifice diameter d_0 [mm]		10	
Actual Orifice area A_0 [mm ²]		78,5	
LEO ^{a)} [inch ²]		S/G = 0,051 L = 0,06	
Set pressure		Capacities	
[bar]	Steam saturated [kg/h]	Air 0° C and 1013 mbar [m ³ /h]	Water 20° C [10 ³ kg/h]
Vulcanized soft seal			
1	41	49	1,55
2	63	76	2,19
3	85	104	2,69
4	106	130	3,1
5	127	157	3,47
6	148	183	3,8
7	168	210	4,1
8	189	236	4,38
9	209	263	4,65
10	230	289	4,9
12	271	342	5,37
14	311	395	5,8
16	352	448	6,2
O-ring soft seal			
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	7,75
32		775	7,82
34		822	8,06
36		869	8,3
38		916	8,52
40		963	8,74
50		1198	9,78
60		1434	10,7

^{a)} LEO_{S/G/L} = LESER Effective Orifice steam/gas/liquids please refer to page 00/17.
How to use capacity-sheets refer to page 00/15.



Capacities - US Units

Capacities according to ASME Section VIII, 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. For pressure range refer to "Pressure temperature ratings" on page 01/07.

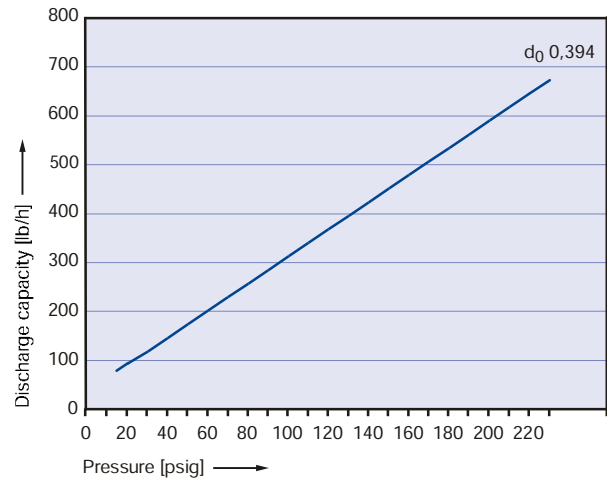
US Units		ASME Section VIII	
Actual Orifice diameter d_0 [inch]		0,394	
Actual Orifice area A_0 [inch ²]		0,122	
LEO ¹⁾ [inch ²]		S/G = 0,051 L = 0,06	
Set pressure		Capacities	
[psig]	Steam saturated [lb/h]	Air 60° F and 14,5 psig [SCFM]	Water 70° F [GPM]
Vulcanized soft seal			
15 ²⁾	83	30	6,32
20	96	34	7,15
30	121	43	8,56
40	149	53	9,89
50	177	63	11,1
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	429	153	18,5
160	485	173	19,8
180	541	193	21
200	597	213	22,1
220	653	233	23,2
O-ring soft seal			
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
500		513	35
600		613	38,3
700		713	41,4
800		813	44,2
900		913	46,9

¹⁾ LEO_{S/G/L} = LESER Effective Orifice steam/gas/liquids please refer to page 00/17. How to use capacity-sheets refer to page 00/15.

²⁾ For steam and air/gas startin g from 20 psig the safety valve is certified acc. to ASME Code Sec. VIII, Div. 1.

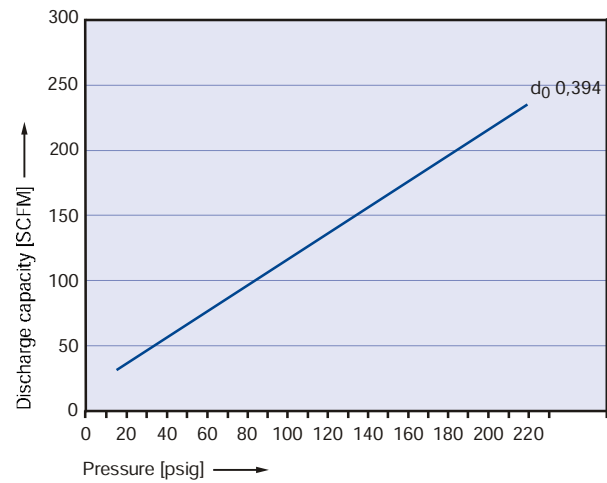
Steam

[lb/h]



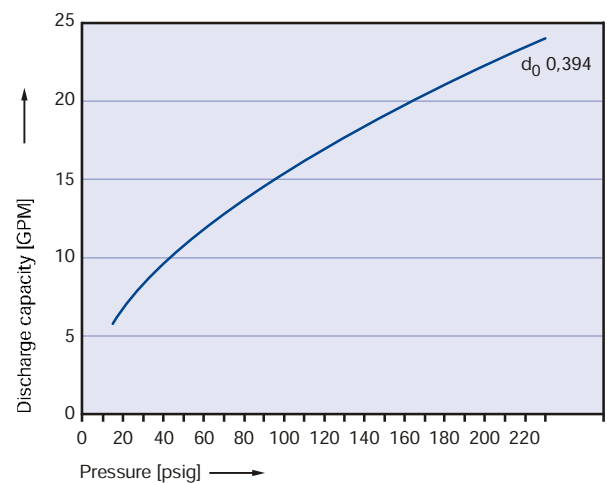
Air

[SCFM]



Water

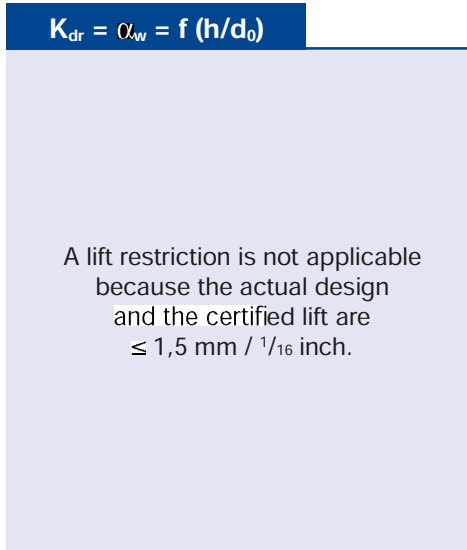
[GPM]



Determination of coefficient of discharge in case of lift restriction or back pressure

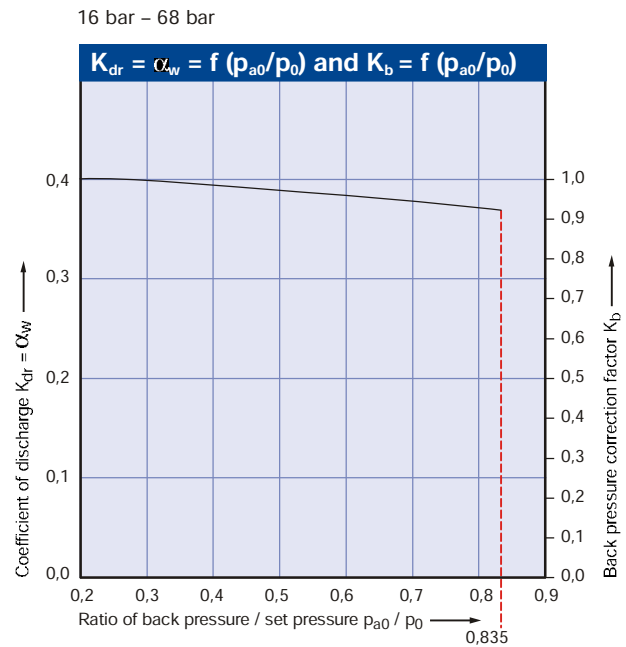
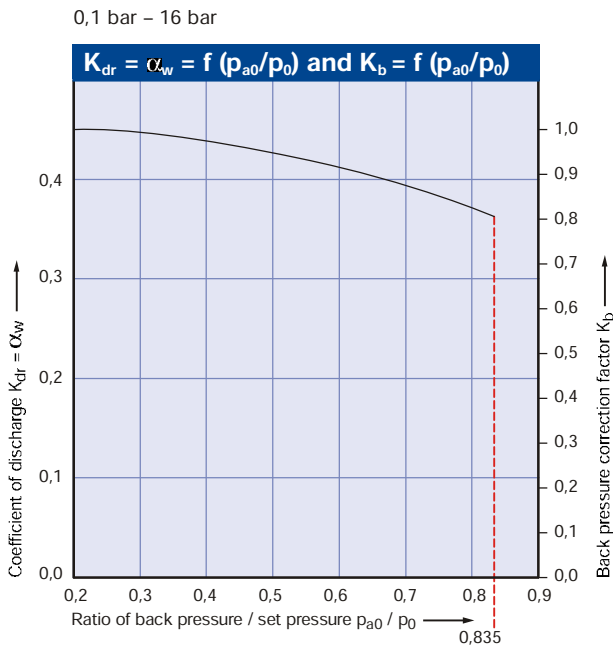
Type 481

Diagram for evaluation of ratio of lift / flow diameter (h/d_0) in reference to the coefficient of discharge ($K_{dr} = \alpha_w$)



- h = Lift [mm]
- d_0 = Flow diameter [mm] of selected safety valve, refer to table article numbers
- h/d_0 = Ratio of lift / flow diameter
- p_{a0} = Back pressure [bar_a]
- p_0 = Set pressure [bar_a]
- p_{a0}/p_0 = Ratio of back pressure / set pressure
- K_{dr} = Coefficient of discharge acc. to DIN EN ISO 4126-1
- α_w = Coefficient of discharge acc. to AD 2000-Merkblatt A2
- K_b = Back pressure correction factor acc. to API 520 topic 3.3

Diagram for evaluation of ratio of the coefficient of discharge ($K_{dr} = \alpha_w$) in reference to the ratio of back pressure / set pressure (p_{a0}/p_0)



How to use please refer to page 00/18