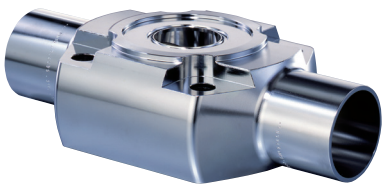
Type 485
Safety Relief Valves – spring loaded

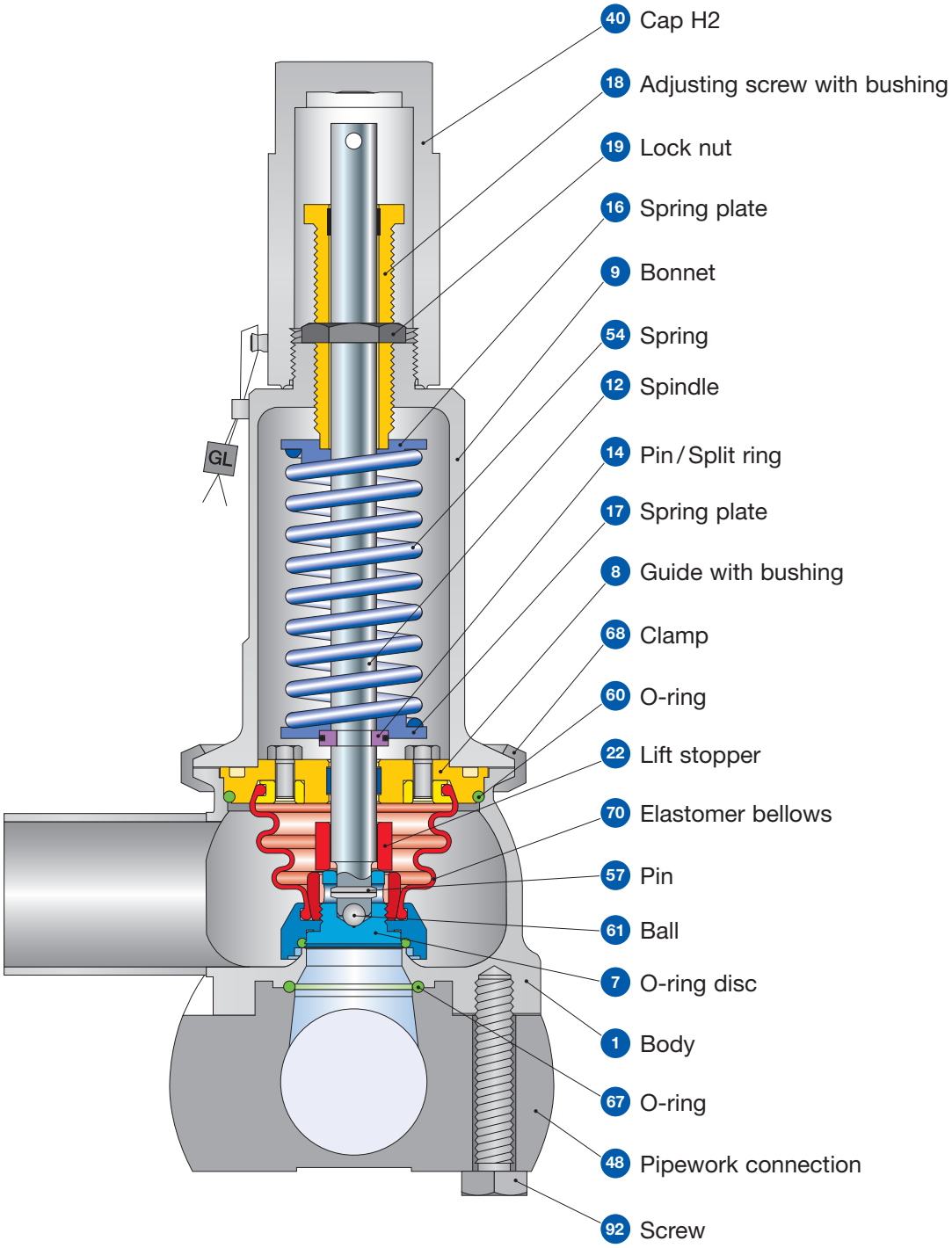
Type 485
Pneumatic lifting device H8
Inlet: Integrated pipework connection Type 5034
Outlet: Flange connection

Type 485
Cap H2
Inlet: Integrated pipework connection Type 5034
Outlet: Welded end connection



Type 5034
Integrated pipework connection

Type 485
HyTight Assembly



Type 485 HyTight
Cap H2
Inlet: Integrated pipework connection Type 5034
Outlet: Welded end connection

Type 485
HyTight Assembly
Materials

Item	Component	Remarks	Type 4854 HyTight
1	Body		1.4435 (BN 2)[1] SA 479 316L
7	Disc	HyTight Assembly	1.4435 316L
7.4	Soft seal O-ring	"D" FDA USP VI	EPDM
		"L" FDA	FKM[2]
		"C" FDA USP VI	FFKM
8	Guide with bushing	PTFE + 15 % glass	1.4435 316L
9	Bonnet		1.4404 316L
12	Spindle		1.4404 316L
14	Pin / Split ring		1.4310 / 1.4404 Stainless steel / 316L
16 / 17	Spring plate		1.4404 316L
18	Adjusting screw with bushing	PTFE + 15 % glass	1.4404 / PTFE 316L / PTFE
19	Lock nut		1.4404 316L
22	Lift stopper		1.4404 316L
40	Cap H2		1.4404 316L
54	Spring		1.4310 Stainless steel
57	Pin	FDA USP VI	1.4310 Stainless steel
60	O-ring		EPDM
61	Ball		1.4401 316
68	Clamp		1.4401 316
70	Elastomer bellows		EPDM
Integrated pipework connection Type 5034			
48	Pipework connection	FDA USP VI	1.4435 (BN 2)[1] SA 479 316L
67	O-ring		EPDM
92	Screw		1.4401 316
–	Blind flange for pressure test		1.4404 316L

[1] The material 1.4435/SA 479 316L fulfils the requirements of the Swiss chemical and pharmaceutical industry Basler Norm (BN 2).
[2] For design with lifting device H8 a max. operating temperature of 50°C is allowed.

Please notice: – Modifications reserved by LESER.
– LESER can upgrade materials without notice.
– Every part can be replaced by other material acc. to customer specification.

Type 485
Article numbers

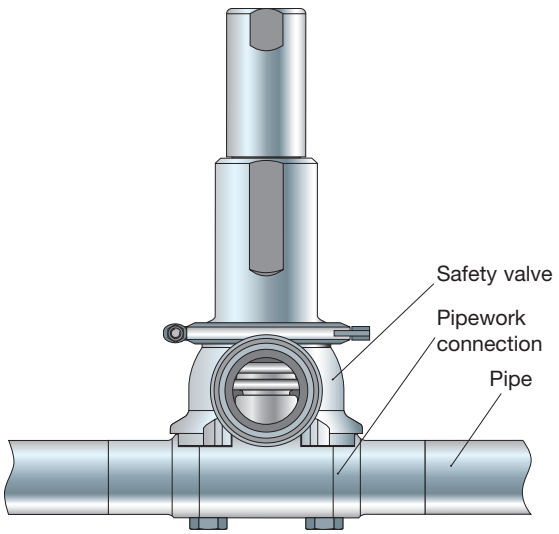
Actual Orifice diameter d_0 [mm]			13	25
Actual Orifice area A_0 [mm²]			133	491
Actual Orifice diameter d_0 [inch]			0,512	0,984
Actual Orifice area A_0 [inch²]			0,206	0,761
O-ring material			EPDM "D" J22	EPDM "D" J22
			FKM "L" J23	FKM[1] "L" J23
			FFKM "C" J20	FFKM "C" J20
Body material: 1.4435 (316L)				
Bonnet closed	**H2**	Art. No. **4854.**	**7742**	**7752**
	H4	Art. No. **4854.**	**7744**	**7754**
	H8	Art. No. **4854.**	**7748**	**7758**
		p [bar] S/G/L	**0,3 – 16**	**0,1 – 16**
		p [psig] S/G/L	**4,4 – 232**	**1,5 – 232**

Integrated pipework connection material: 1.4435 (316L)		**Please order separately**		
	DN	**25**	**40**	**50**
DIN 11850	Art. No. **5034.**	**0991**	**0992**	**0993**
ISO 2037	Art. No. **5034.**	**0994**	**0995**	**0996**
DIN EN ISO 1127	Art. No. **5034.**	**0998**	**0999**	**–**

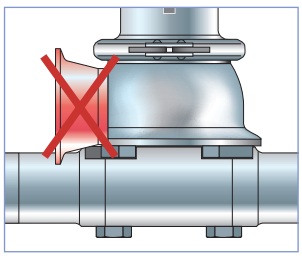
Blind flange for pressure test: 1.4404 (316L)	**Please order separately**	
Art. No.	**138.8949.9000**	**138.8749.9000**

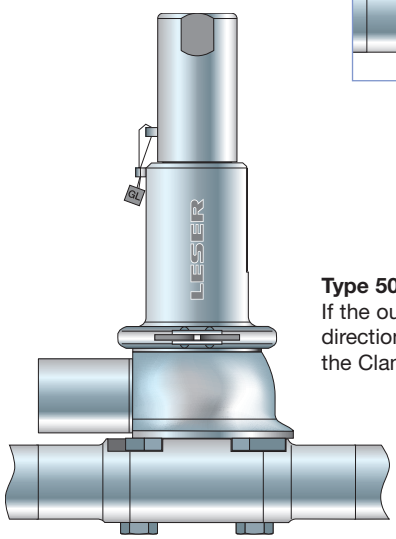
[1] For design with lifting device H8 a max. operating temperature of 50°C is allowed.

Fitting information



Type 5034
Installation: Integrated pipework connection, safety valve





Type 5034
If the outlet has the same direction like the pipe, the Clamp is not possible

Type 485
Available connections

Clamps	Option code inlet
For inlet please select integrated pipework connection Type 5034 as shown on page 74.	

Aseptic screwed connection	Option code inlet

Aseptic flanged connection	Option code inlet

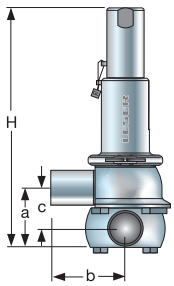
d_0 [mm]		13	25
A_0 [mm^2]		133	491
Clamps		**Option code outlet**	
	DN	**25**	**40**
	SO	L86A16	L86A17
	DO	I74A16	I71A17
	NPS	**1½"**	**2"**
	BO	I76A80	I76A81
	CO	L97A80	L97A81

Aseptic screwed connection		Option code outlet	
Pipe standard	**DN**	**25**	**40**
DIN 11850 / DIN 11866 Range A	00	A85L83A16	A85L83A17
	GS	A85H35A16	A85H35A17
	BS	A85H37A16	A85H37A17
	GT	A85H55A16	A85H55A17
	BT	A85H57A16	A85H57A17
	GO	A85L81A16	A85L81A17
	KO	A85L82A16	A85L82A17
	GD	A85H61A16	A85H61A17
	BD	A85H59A16	A85H59A17
Pipe standard	**DN**	**25**	**40**
DIN EN ISO 1127 / DIN 11866 Range B	GS	A86H35A16	A86H35A17
	BS	A86H37A16	A86H37A17
	GT	A86H55A16	A86H55A17
	BT	A86H57A16	A86H57A17
	GD	A86H61A16	A86H61A17
	BD	A86H59A16	A86H59A17
Pipe standard	**NPS**	**1½"**	**2"**
BS 4825-1 DIN 11866 Range C	GS	A84H35A80	A84H35A81
	BS	A84H37A80	A84H37A81
	GT	A84H55A80	A84H55A81
	BT	A84H57A80	A84H57A81

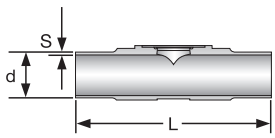
Aseptic flanged connection		Option code outlet	
Pipe standard	**DN**	**25**	**40**
DIN 11850 / DIN 11866 Range A	NF	A85H72A16	A85H72A17
	BF	A85H74A16	A85H74A17
	NG	A85H76A16	A85H76A17
	BG	A85H78A16	A85H78A17
	TN	A85L84A16	A85L84A17
	AF	A85L91A16	A85L91A17
	AN	A85L93A16	A85L93A17
Pipe standard	**DN**	**25**	**40**
DIN EN ISO 1127 / DIN 11866 Range B	NF	A86H72A16	A86H72A17
	BF	A86H74A16	A86H74A17
	NG	A86H76A16	A86H76A17
	BG	A86H78A16	A86H78A17
Pipe standard	**DN**	**1½"**	**2"**
BS 4825-1 DIN 11866 Range C	NF	A84H72A80	A84H72A81
	BF	A84H74A80	A84H74A81
	NG	A84H76A80	A84H76A81
	BG	A84H78A80	A84H78A81

For definitions of connection codes please refer to pages 12 up to 15.

Type 485
Dimensions and weights
Metric Units



Type 485 – Cap H2

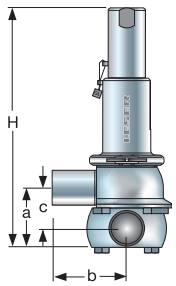


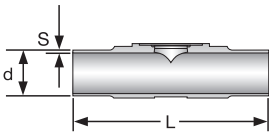
Type 5034 – Integrated pipework connection

Actual Orifice diameter d_0			[mm]	13		25			
Actual Orifice area A_0			[mm²]	133		491			
Integrated pipework connection				**Inlet**		**Inlet**			
			PN	**16**		**16**			
Nominal pipe size tube			**DN**	**25**		**40**		**50**	
Offset		c	[mm]	38		49		55	
Length		L	[mm]	130		180		180	
DIN 11850	Diameter	d	[mm]	30		42,4		54,5	
	Wall thickness	s	[mm]	2		2		2,25	
ISO 2037	Diameter	d	[mm]	26,5		39		52	
	Wall thickness	s	[mm]	2		2		2	
DIN EN ISO	Diameter	d	[mm]	34		48,3		–	
ISO 1127	Wall thickness	s	[mm]	2,25		2,15		–	
Welded connections				**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**
			PN	**16**		**16**		**16**	
Center to face			[mm]	58	80	72	90	84	90
Height – H4		H max.	[mm]	234		331		343	
Height – H8 double piston design		H max.	[mm]	262,2		338,7		350,7	
Clamp connections				**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**
			PN	**16**		**16**		**16**	
Center to face			[mm]	58	102	72	112	84	112
Clamp diameter		d_{inner}	[mm]	For varying clamp diameters please refer to page 16 and 17		For varying clamp diameters please refer to page 16 and 17			
		d_{outer}	[mm]						
Height – H4		H max.	[mm]	234		331		343	
Height – H8 double piston design		H max.	[mm]	262,2		338,7		350,7	
Threaded connections				**Inlet a[1)]**	**Outlet b**	**Inlet a**	**Outlet b**	**Inlet a[1)]**	**Outlet b**
			PN	**16**		**16**		**16**	
Center to face			[mm]	58	120	72	130	84	130
Height – H4		H max.	[mm]	234		331		334	
Height – H8 double piston design		H max.	[mm]	262,2		338,7		350,7	
Flanged connections				**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**
			PN	**16**		**16**		**16**	
Center to face			[mm]	58	126	72	134	84	134
Height – H4		H max.	[mm]	234		331		343	
Height – H8 double piston design		H max.	[mm]	262,2		338,7		350,7	
Weight									
Weight		max.	[kg]	3,0		5,0			

[1)] without integrated pipework connection

Type 485
Dimensions and weights
US Units





Type 485 – Cap H2 **Type 5034** – Integrated pipework connection

Actual Orifice diameter d_0 [inch]				0,512		0,984		
Actual Orifice area A_0 [inch²]				0,206		0,761		
Integrated pipework connection				**Inlet**		**Inlet**		
			PN	**16**		**16**		
Nominal pipe size tube			**NPS**	**1"**		**1 1/2"**		**2"**
Offset		c	[inch]	1 1/2		1 15/16		2 5/32
Length		L	[inch]	5 1/8		7 3/32		7 3/32
DIN 11850	Diameter	d	[inch]	1 3/16		1 5/8		2 1/8
	Wall thickness	s	[inch]	3/32		1/8		1/8
ISO 2037	Diameter	d	[inch]	1		1 1/2		2
	Wall thickness	s	[inch]	1/8		1/8		1/8
DIN EN ISO ISO 1127	Diameter	d	[inch]	1 3/8		1 7/8		–
	Wall thickness	s	[inch]	1/8		1/8		–
Welded connections				**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**
			PN	**16**		**16**		**16**	
Center to face			[inch]	2 1/4	3 5/32	2 27/32	3 17/32	3 5/16	3 17/32
Height – H4	H max.		[inch]	9 7/32		13 1/32		13 1/2	
Height – H8 double piston design	H max.		[inch]	10 5/16		13 11/32		13 13/16	
Clamp connections				**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**
			PN	**16**		**16**		**16**	
Center to face			[inch]	2 1/4	4 1/32	2 27/32	4 13/32	3 5/16	4 13/32
Clamp diameter		d_{inner}	[inch]	For varying clamp diameters please refer to page 16 and 17		For varying clamp diameters please refer to page 16 and 17			
		d_{outer}	[inch]						
Height – H4	H max.		[inch]	9 7/32		13 1/32		13 1/2	
Height – H8 double piston design	H max.		[inch]	10 5/16		13 11/32		13 13/16	
Threaded connections				**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**
			PN	**16**		**16**		**16**	
Center to face			[inch]	2 1/4	4 23/32	2 27/32	5 1/8	3 5/16	5 1/8
Height – H4	H max.		[inch]	9 7/32		13 1/32		13 1/2	
Height – H8 double piston design	H max.		[inch]	10 5/16		13 11/32		13 13/16	
Flanged connections				**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**	**Inlet a[1)]**	**Outlet b**
			PN	**16**		**16**		**16**	
Center to face			[inch]	2 1/4	4 31/32	2 27/32	5 9/32	3 5/16	5 9/32
Height – H4	H max.		[inch]	9 7/32		13 1/32		13 1/2	
Height – H8 double piston design	H max.		[inch]	10 5/16		13 11/32		13 13/16	
Weight									
Weight	max.		[lb]	6,6		11,0			

[1)] without integrated pipework connection

Type 485
Pressure temperature ratings

Metric Units

Actual Orifice diameter d_0 [mm]		13		25	
Actual Orifice area A_0 [mm²]		133		491	
Body material: 1.4435 (316L)					
Minimum set pressure	p [bar] S/G/L	0,3		0,1	
Maximum set pressure	p [bar] S/G/L	16		16	
Temperature range[1)]		Minimum	Maximum	Minimum	Maximum
EPDM	[°C]	-45	+150	-45	+150
FKM	[°C]	-18	+150	-18	+150
FFKM	[°C]	0	+150	0	+150

US Units

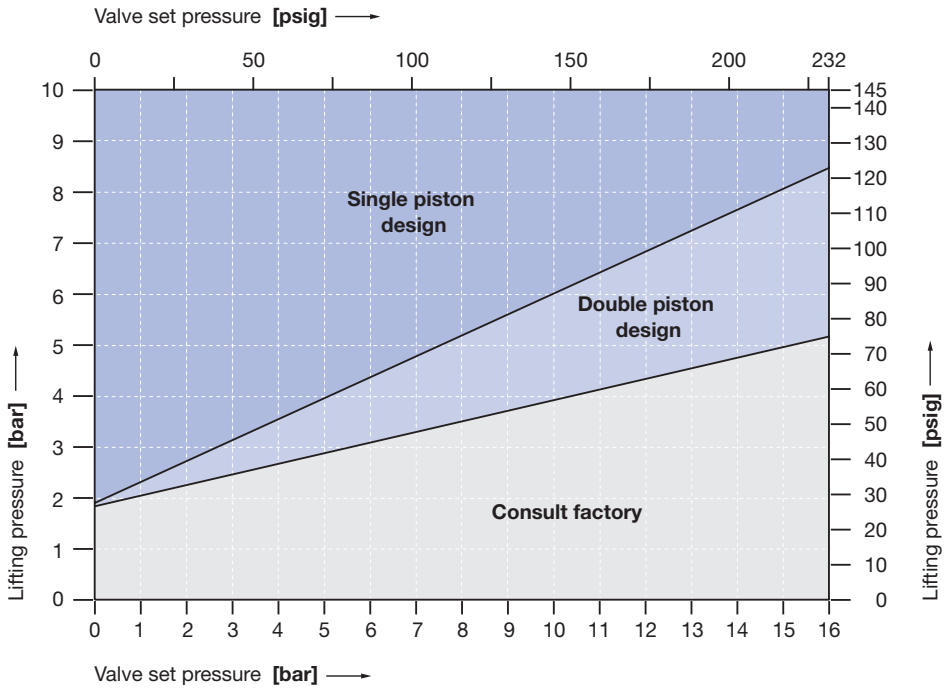
Actual Orifice diameter d_0 [inch]		0,512		0,984	
Actual Orifice area A_0 [inch²]		0,206		0,761	
Body material: 1.4435 (316L)					
Minimum set pressure	p [psig] S/G/L	4,4		1,5	
Maximum set pressure	p [psig] S/G/L	232		232	
Temperature range[1)]		Minimum	Maximum	Minimum	Maximum
EPDM	[°F]	-49	+302	-49	+302
FKM	[°F]	-0,4	+302	-0,4	+302
FFKM	[°F]	+32	+302	+32	+302

[1)] The temperature is limited by the elastomer bellows up to 150 °C / 302 °F.

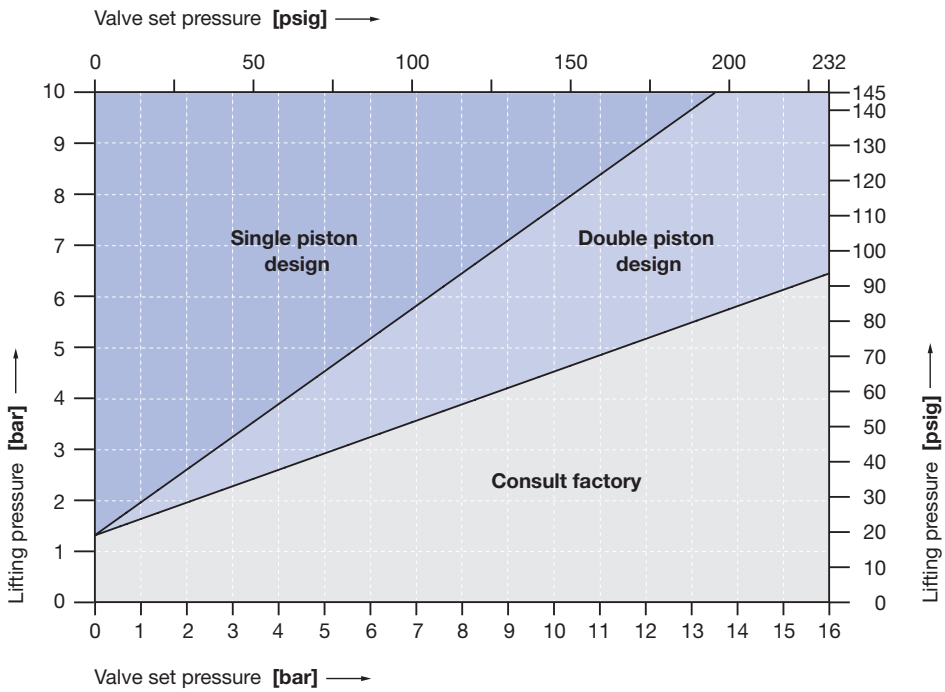
Type 485
Selection chart H8

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.

Selection chart lifting device H8, size 0. d_0 13 mm / 0,512 inch



Selection chart lifting device H8, size I. d_0 25 mm / 0,984 inch



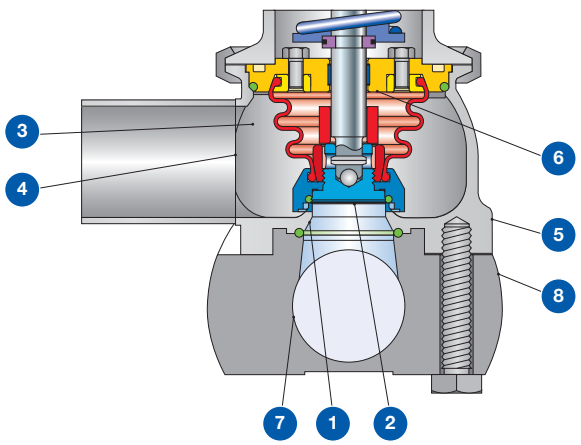
Type 485
Surface quality

Type of surface	Area			LESER Surface package		
			Option code	Clean finish B62	HyClean finish B63	Sterile finish B64
	Description	No.		R_a max.	R_a max.	R_a max.
				LESER Surface grade		
Product contact surface	Inlet	1		ME4	ME2	ME1
			[µm]	0,750	0,500	0,375
			[µinch]	30	20	15
	Bottom side of disc	2		ME4	ME2	ME1
			[µm]	0,750	0,500	0,375
			[µinch]	30	20	15
Blow off surface	Inside surface of outlet area	3		ME4	ME3	ME2
			[µm]	0,750	0,625	0,500
			[µinch]	30	25	20
	Welding seam	4		ME6	ME5	ME4
			[µm]	3,000	1,500	0,750
			[µinch]	120	60	30
Outer surface	Outside surface of body, bonnet and cap/lifting device	5		ME5	ME4	ME4
			[µm]	1,500	0,750	0,750
			[µinch]	60	30	30
Shielded surface	Surface never in contact with the product because it is shielded by the bellows	6		No definition		

Type 5034 Integrated pipework connection

Type of surface	Area			LESER Surface package		
			Option code	Clean finish B65	HyClean finish B66	Sterile finish B67
	Description	No.		R_a max.	R_a max.	R_a max.
				LESER Surface grade		
Product contact surface	Pipework side	7		M4	M2	M1
			[µm]	0,750	0,500	0,375
			[µinch]	30	20	15
Outer surface	Outside surface	8		M5	M4	M4
			[µm]	1,500	0,750	0,750
			[µinch]	60	30	30

If required surface deviates from standard clean finish please specify option code and required LESER Surface package.



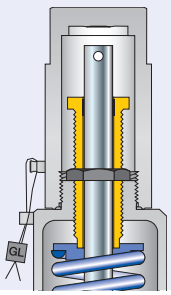
Type 485
Approvals

Actual Orifice diameter d_0 [mm]		13	25
Actual Orifice area A_0 [mm²]		133	491
Actual Orifice diameter d_0 [inch]		0,512	0,984
Actual Orifice area A_0 [inch²]		0,206	0,761
Europe		**Coefficient of discharge K_{dr}**	
DIN EN ISO 4126-1, PED	Approval No.	07 202 0111 Z 0008/0/20	
	S/G	0,58	0,4
	L	0,39	0,26
Germany		**Coefficient of discharge α_w**	
AD 2000-Merkblatt A2, PED	Approval No.	TÜV SV 1047	
	S/G	0,58	0,4
	L	0,39	0,26
United States		**Coefficient of discharge K**	
ASME Sec. VIII	Approval No.	M37145	M37167
	S/G	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) S: 5,52 lb / hr / psia ≙ K ≈ 0,521 G: 1,96 SCFM / psia ≙ K ≈ 0,521	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) S: 13,97 lb / hr / psia ≙ K ≈ 0,357 G: 4,96 SCFM / psia ≙ K ≈ 0,357
	Approval No.	M37156	M37178
	L	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) L: 2,96 GPM $\sqrt{psid}$*) ≙ K ≈ 0,379	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) L: 7,46 GPM $\sqrt{psid}$*) ≙ K ≈ 0,258
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: 5,52 lb / hr / psia ≙ K ≈ 0,521 G: 1,96 SCFM / psia ≙ K ≈ 0,521	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) S: 13,97 lb / hr / psia ≙ K ≈ 0,357 G: 4,96 SCFM / psia ≙ K ≈ 0,357
	L	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) L: 2,96 GPM $\sqrt{psid}$*) ≙ K ≈ 0,379	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) L: 7,46 GPM $\sqrt{psid}$*) ≙ K ≈ 0,258
China		**Coefficient of discharge α_w**	
AQSIQ	Approval No.	For current approval no. see www.leser.com	
	S/G	0,58	0,4
	L	0,39	0,26
Eurasian Custom Union		**Coefficient of discharge α_w**	
EAC	Approval No.	For current approval no. see www.leser.com	
	S/G	0,58	0,4
	L	0,39	0,26
Classification societies			
		on request	

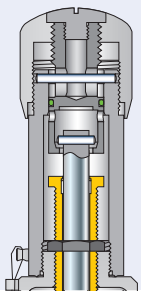
*) psid = Differential pressure P-P_d
P = absolute flow pressure [psia]
P_d = pressure at discharge from valve [psia]

Type 485
Available options

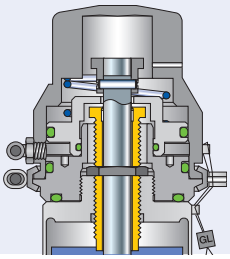
Gastight cap H2
H2



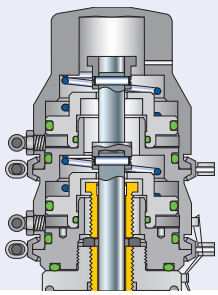
Gastight lifting device H4
Packed knob H4



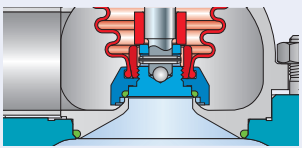
Pneumatic lifting device H8
H8 single piston design



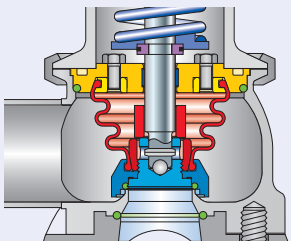
Pneumatic lifting device H8
J41: H8 double piston design



O-ring-disc
J22: EPDM "D"
J23: FKM "L"
J20: FFKM "C"

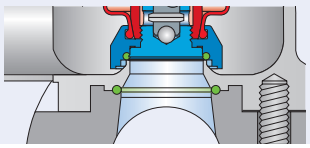


Bellows FFKM "C"
S70 – only for $d_0$13
and liquid application

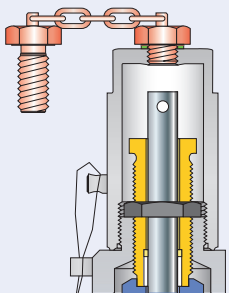


Blind flange for presure test
Material No. 138.8949.9000 (d_0 13)
Material No. 138.8749.9000 (d_0 25)

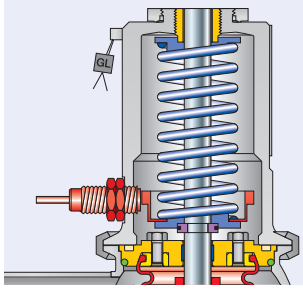
O-ring for integrated pipework connection
EPDM "D"
Material No. 502.0180.3041 (d_0 13)
Material No. 502.0300.3041 (d_0 25)



Test gag
J70: H2



Lift indicator placed in bonnet
J38 + J93



Special material
2.4610 HASTELLOY C4
2.4360 MONEL 400
1.4462 DUPLEX