



Type 483

Safety Relief Valves
– spring loaded



Capacities

LESER

The-Safety-Valve.com

Approvals

Approvals			
Actual Orifice diameter d_0 [mm]		13	25
Actual Orifice area A_0 [mm ²]		133	491
Actual Orifice diameter d_0 [inch]		0,512	0,984
Actual Orifice area A_0 [inch ²]		0,206	0,761
Europe		Coefficient of discharge K_{dr}	
DIN EN ISO 4126-1	Approval No.	07 202 0111 Z 0008/0/20	
	S/G	0,6	0,38
	L	0,4	0,26
Germany		Coefficient of discharge α_w	
AD 2000-Merkblatt A2	Approval No.	TÜV SV 1047	
	S/G	0,6	0,38
	L	0,4	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 $\triangle K \approx 0,521$ G: 1,96 SCFM / psia $\triangle K \approx 0,521$	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) S: 13,97 lb / hr / psia $\triangle K \approx 0,357$ G: 4,96 SCFM / psia $\triangle K \approx 0,357$
	Approval No.	M37156	M37178
	L	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) L: 2,96 GPM $\sqrt{\text{psid}^*)} \triangle K \approx 0,379$	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) L: 7,46 GPM $\sqrt{\text{psid}^*)} \triangle K \approx 0,258$
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 $\triangle K \approx 0,521$ G: 1,96 SCFM / psia $\triangle K \approx 0,521$	Rated slope acc. to ASME VIII, Div. 1 UG-131 (d) (2) S: 13,97 lb / hr / psia $\triangle K \approx 0,357$ G: 4,96 SCFM / psia $\triangle K \approx 0,357$
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China		Coefficient of discharge α_w	
AQSIQ	Approval No.	02301T	
	S/G	0,6	0,38
	L	0,4	0,26
Eurasian Custom Union		Coefficient of discharge α_w	
EAC	Approval No.	For current approval no. see www.leser.com	
	S/G	0,6	0,38
	L	0,4	0,26
Classification societies			
on request			

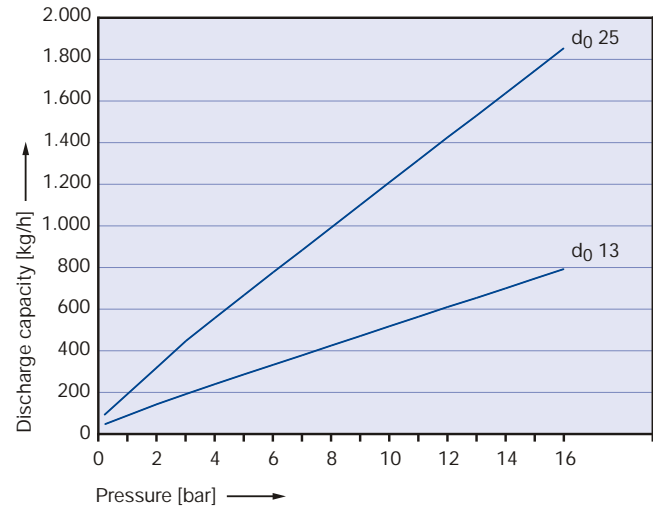
*) psid = Differential pressure P-P_d
P = absolute flow pressure [psia]
P_d = pressure at discharge from valve [psia]

Capacities – Metric Units

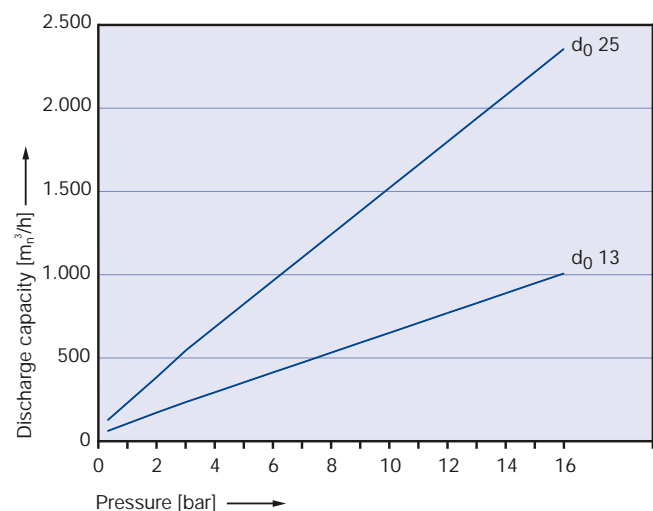
Capacities for saturated steam, air at 0° C and 1013 mbar, water at 20° C according to AD 2000-Merkblatt A2, based on set pressure plus 10% overpressure.

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 02/07.

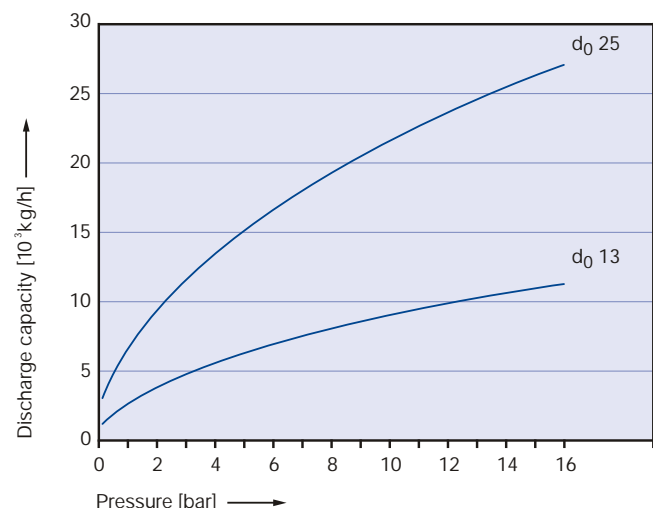
Steam	AD 2000-Merkblatt A2 [kg/h]	
Actual Orifice diameter d ₀ [mm]	13	25
Actual Orifice area A ₀ [mm²]	133	491
LEO _{S/G} ^{*)} [inch²]	0,110	0,279
Set pressure [bar]	Capacities [kg/h]	
1	88	195
2	142	320
3	191	448
4	239	559
Maximum temperature for EPDM soft seal		
5	286	669
6	332	779
7	378	886
8	425	995
9	471	1104
10	518	1213
12	611	1430
14	701	1643
16	794	1860



Air		AD 2000-Merkblatt A2 [m ³ /h]	
Actual Orifice diameter d_0 [mm]		13	25
Actual Orifice area A_0 [mm ²]		133	491
LEO _{S/G} ^{*)} [inch ²]		0,110	0,279
Set pressure [bar]	Capacities [m ³ /h]		
1	105	233	
2	171	386	
3	234	547	
4	293	687	
5	353	827	
6	413	967	
7	472	1106	
8	532	1246	
9	592	1386	
10	651	1526	
12	771	1805	
14	890	2084	
16	1009	2364	



Water		AD 2000-Merkblatt A2 [10 ³ kg/h]	
Actual Orifice diameter d_0 [mm]		13	25
Actual Orifice area A_0 [mm ²]		133	491
LEO _L ^{*)} [inch ²]		0,082	0,302
Set pressure [bar]	Capacities [10 ³ kg/h]		
1	2,83	6,81	
2	4,01	9,63	
3	4,91	11,8	
4	5,66	13,6	
5	6,33	15,2	
6	6,94	16,7	
7	7,49	18	
8	8,01	19,3	
9	8,5	20,4	
10	8,96	21,5	
12	9,81	23,6	
14	10,6	25,5	
16	11,3	27,2	



*) 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.

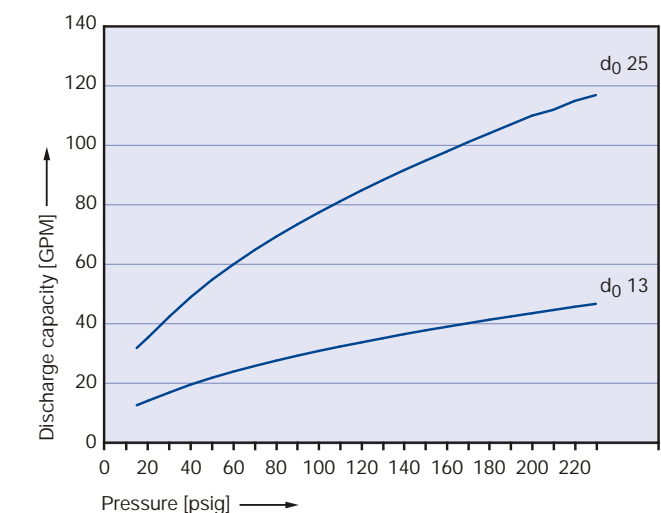
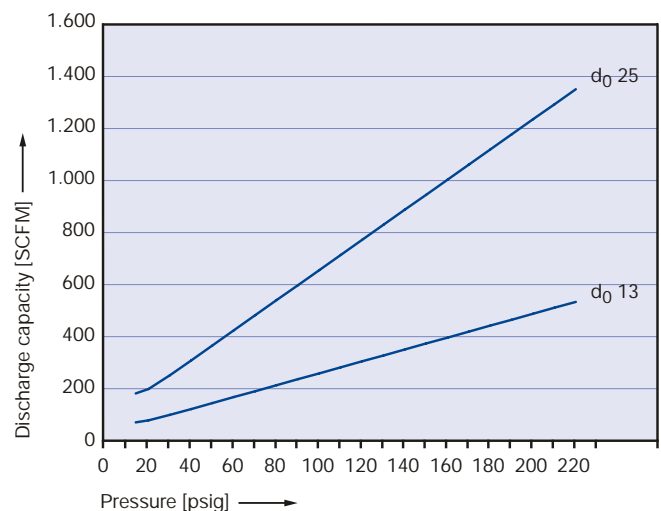
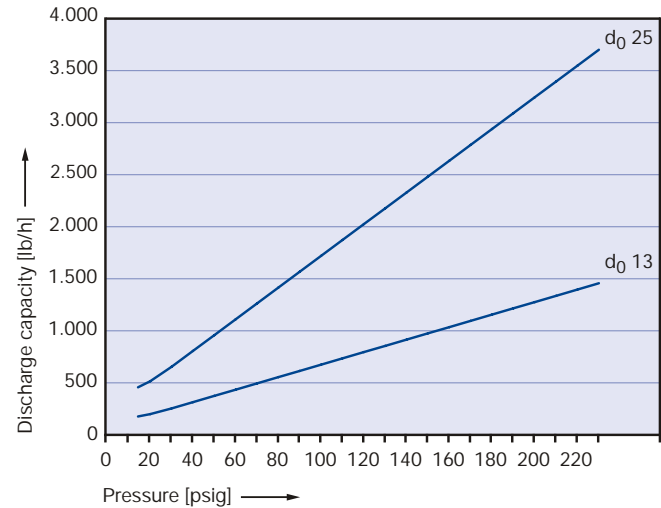
Capacities – US Units

Capacities for saturated steam, air at 60°F and 14,5 psig, water at 70°F according to ASME 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. For pressure range refer to "Pressure temperature ratings" on page 02/07.

Steam	ASME Section VIII [lb/h]	
Actual Orifice diameter d_o [inch]	0,512	0,984
Actual Orifice area A_o [inch ²]	0,206	0,761
LEO _{SG} ¹⁾ [inch ²]	0,110	0,279
Set pressure [psig]	Capacities [lb/h]	
15	180	457
20	208	527
30	263	667
40	324	821
50	385	974
60	445	1128
Maximum temperature for EPDM soft seal		
70	506	1282
80	567	1436
90	627	1590
100	688	1744
120	810	2052
140	931	2359
160	1052	2667
180	1174	2975
200	1295	3283
220	1417	3590
230	1478	3744

Air		ASME Section VIII [SCFM]	
Actual Orifice diameter d_0 [inch]		0,512	0,984
Actual Orifice area A_0 [inch ²]		0,206	0,761
LEO _{SG} ¹⁾ [inch ²]		0,110	0,279
Set pressure [psig]	Capacities [SCFM]		
15	64	163	
20	74	188	
30	94	238	
40	115	292	
50	137	347	
60	159	402	
70	180	457	
80	202	512	
90	224	566	
100	245	621	
120	289	731	
140	332	841	
160	375	950	
180	419	1060	
200	462	1170	
220	505	1279	
230	527	1334	

Water		ASME Section VIII [GPM]	
Actual Orifice diameter d_0 [inch]		0,512	0,984
Actual Orifice area A_0 [inch ²]		0,206	0,761
LEO _L ¹⁾ [inch ²]		0,082	0,302
Set pressure [psig]	Capacities [GPM]		
15	12,6	31,6	
20	14,2	35,7	
30	17	42,8	
40	19,7	49,4	
50	22	55,3	
60	24,1	60,5	
70	26	65,4	
80	27,8	69,9	
90	29,5	74,1	
100	31,1	78,1	
120	34	85,6	
140	36,8	92,5	
160	39,3	98,8	
180	41,7	105	
200	43,9	111	
220	46,1	116	
230	47,1	118	



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

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

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

$$K_{dr} = \alpha_w = f(h/d_0)$$

$d_0 \varnothing 13 \text{ mm}$

A lift restriction is not applicable because the actual design and the certified lift are $\leq 2,5 \text{ mm} / \frac{3}{32} \text{ inch}$.

$$K_{dr} = \alpha_w = f(h/d_0)$$

$d_0 \varnothing 25 \text{ mm}$

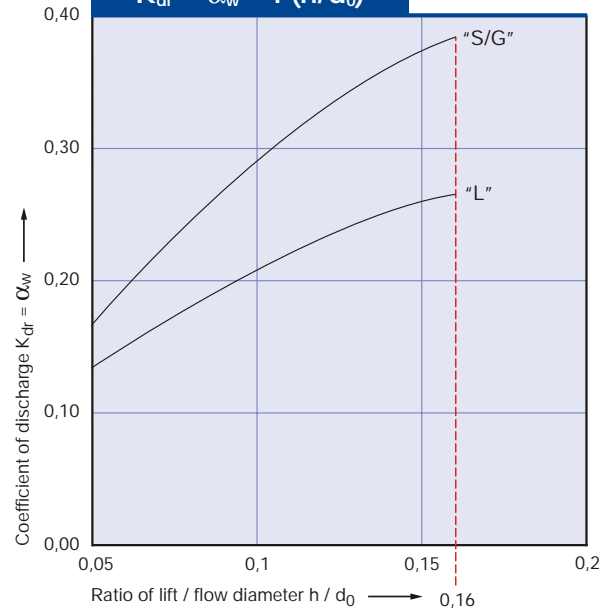
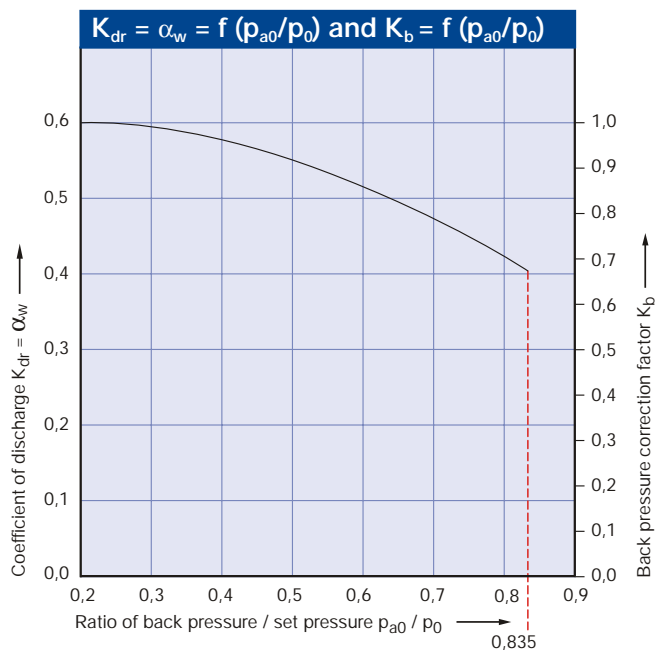
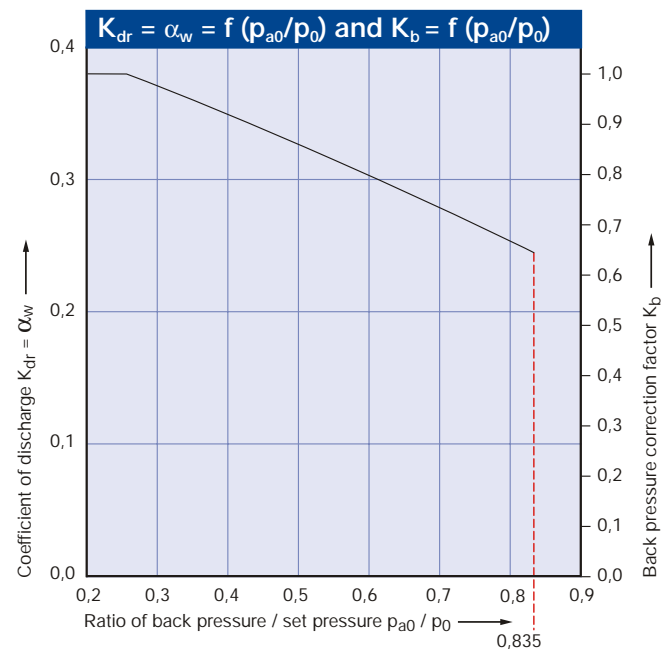


Diagram for evaluation of ratio of the coefficient of discharge ($K_{dr} = \alpha_w$)
in reference to the ratio of back pressure / set pressure (p_{a0}/p_0)

$d_0 \varnothing 13 \text{ mm}$



$d_0 \varnothing 25 \text{ mm}$



How to use please refer to page 00/18