



Full lift safety valve with spring loading.(AIT)

Mod. 495 | EN



EP



AP



ES



CP

Operation

The valve works as an automatic pressure releasing regulator activated by the static pressure existing at the entrance to the valve and is characterized by its ability to open instantly and totally

Regulation

- UNE-EN ISO 4126-1
- UNE-EN 12516-2
- UNE-EN 12266-1

Specifications

Size

- 3/4" x 1 1/4" to 1" x 1 1/2"

Temperature range

- -60 °C to +450 °C

Applications

- Gas, steam and liquids

Materials

- Fundición gris perlítica
- Fundición nodular
- Acero al carbono
- Acero inoxidable

Maximum pressure

- Up to 40 bar

Certification



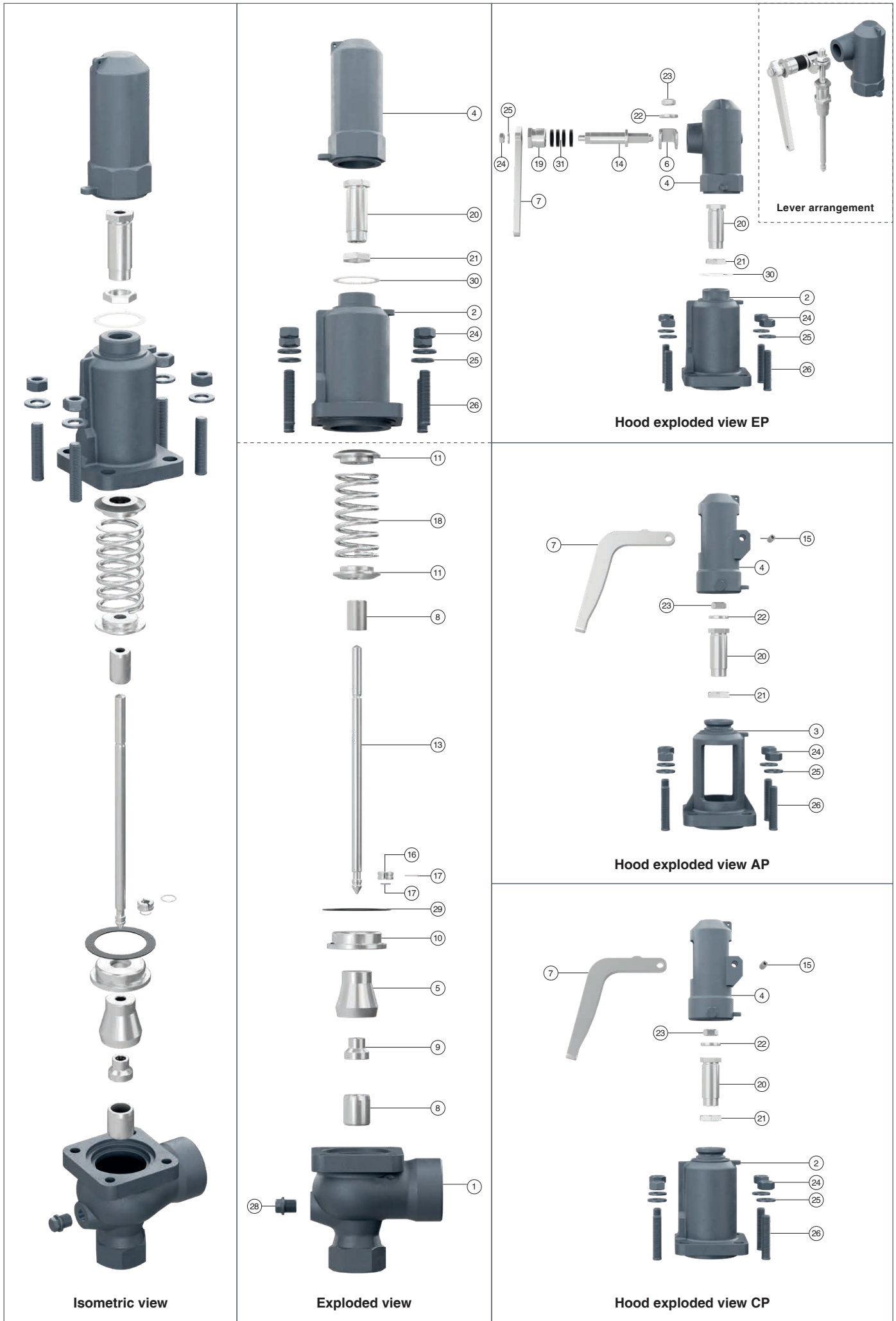
Nº. PIECE	PIECE	MATERIAL																			
		CAST IRON				NODULAR IRON					CAST STEEL						STAINLESS STEEL				
1	Body	Cast iron (EN-5.1301)				Nodular iron (EN-5.3106)					Cast steel (EN-1.0619+N)						Stainless steel (EN-1.4408)				
2	Closed bell	Cast iron (EN-5.1301)				Nodular iron (EN-5.3106)					Nodular iron (EN-5.3106)						Stainless steel (EN-1.4408)				
3	Open bell	Cast iron (EN-5.1301)				Nodular iron (EN-5.3106)					Cast steel (EN-1.0619+N)						Stainless steel (EN-1.4408)				
4	Hood	Nodular iron (EN-5.3106)				Nodular iron (EN-5.3106)					Nodular iron (EN-5.3106)						Stainless steel (EN-1.4408)				
5	Elevator	Nodular iron (EN-5.3106) (1)				Nodular iron (EN-5.3106) (1)					Nodular iron (EN-5.3106) (1)						Stainless steel (EN-1.4408) (4)				
6	Cam	Carbon steel (EN-1.0037 St-37.2) (3)				Carbon steel (EN-1.0037 St-37.2) (3)					Carbon steel (EN-1.0037 St-37.2) (3)						Stainless steel (EN-1.4301)				
7	Lever	Carbon steel (EN-1.0037 St-37.2)				Carbon steel (EN-1.0037 St-37.2)					Carbon steel (EN-1.0037 St-37.2)						Carbon steel (EN-1.0037 St-37.2)				
8	Seating	Stainless steel (EN-1.4028)				Stainless steel (EN-1.4028)					Stainless steel (EN-1.4028)						Stainless steel (EN-1.4542)				
9	Plug	Stainless steel (EN-1.4028)				Stainless steel (EN-1.4028)					Stainless steel (EN-1.4028)						Stainless steel (EN-1.4542)				
10	Lead	Stainless steel (EN-1.4028)				Stainless steel (EN-1.4028)					Stainless steel (EN-1.4028)						Stainless steel (EN-1.4401)				
11	Spring press	Carbon steel (EN-1.1191)				Carbon steel (EN-1.1191)					Carbon steel (EN-1.1191)						Stainless steel (EN-1.4305)				
12	Separator	Stainless steel (EN-1.4028)				Stainless steel (EN-1.4028)					Stainless steel (EN-1.4028)						Stainless steel (EN-1.4401)				
13	Rod	Stainless steel (EN-1.4028)				Stainless steel (EN-1.4028)					Stainless steel (EN-1.4028)						Stainless steel (EN-1.4401)				
14	Lever shaft	Carbon steel (EN-1.1191)				Carbon steel (EN-1.1191)					Carbon steel (EN-1.1191)						Stainless steel (EN-1.4305)				
15	Gudgeon	Carbon steel (EN-1.1231)				Carbon steel (EN-1.1231)					Carbon steel (EN-1.1231)						Stainless steel (EN-1.4310)				
16	Ring	Stainless steel (EN-1.4028)				Stainless steel (EN-1.4028)					Stainless steel (EN-1.4028)						Stainless steel (EN-1.4401)				
17	Safety ring	Stainless steel (EN-1.4310)				Stainless steel (EN-1.4310)					Stainless steel (EN-1.4310)						Stainless steel (EN-1.4310)				
18	Spring	Spring steel (EN-10270-1-SH) (2)				Spring steel (EN-10270-1-SH) (2)					Spring steel (EN-10270-1-SH) (2)						Stainless steel (EN-1.4310)				
19	Gland	Carbon steel (EN-1.1191 Ck-45)				Carbon steel (EN-1.1191)					Carbon steel (EN-1.1191)						Stainless steel (EN-1.4305)				
20	Hollow screw	Stainless steel (EN-1.4305)				Stainless steel (EN-1.4305)					Stainless steel (EN-1.4305)						Stainless steel (EN-1.4305)				
21	Hollow screw nut	Stainless steel (EN-1.4305)				Stainless steel (EN-1.4305)					Stainless steel (EN-1.4305)						Stainless steel (EN-1.4305)				
22	Buffer nut	Stainless steel (EN-1.4305)				Stainless steel (EN-1.4305)					Stainless steel (EN-1.4305)						Stainless steel (EN-1.4305)				
23	Rod check nut	Carbon steel (EN-1.1141)				Carbon steel (EN-1.1141)					Carbon steel (EN-1.1141)						Stainless steel (EN-1.4401)				
24	Nut	Carbon steel (EN-1.1141)				Carbon steel (EN-1.1141)					Carbon steel (EN-1.1141)						Stainless steel (EN-1.4401)				
25	Washer	Carbon steel (EN-1.1141)				Carbon steel (EN-1.1141)					Carbon steel (EN-1.1141)						Stainless steel (EN-1.4401)				
26	Stud	Carbon steel (EN-1.1181)				Carbon steel (EN-1.1181)					Carbon steel (EN-1.1181)						Stainless steel (EN-1.4401)				
27	Screw	Carbon steel (EN-1.1191)				Carbon steel (EN-1.1191)					Carbon steel (EN-1.1191)						Stainless steel (EN-1.4401)				
28	Cap	Carbon steel (EN-1.1181)				Carbon steel (EN-1.1181)					Carbon steel (EN-1.1181)						Stainless steel (EN-1.4401)				
29	Coupling	Graphite				Graphite					Graphite						PTFE (Teflón)				
30	Coupling	PTFE (Teflón)				PTFE (Teflón)					PTFE (Teflón)						PTFE (Teflón)				
31	Seal	Graphite				Graphite					Graphite						PTFE (Teflón)				
R1 x R2		3/4" x 1 1/4" to 1" x 1 1/2"																			
PN		16				40					40						40				
OPERATING CONDITIONS	PS [bar]	16	13	13	13	40	35	32	28	24	40	35	32	28	24	21	20	40	34	32	29
	MAX. TEMP. [°C]	120	200	250	300	120	200	250	300	350	120	200	250	300	350	400	450	120	200	250	400
	MIN. TEMP. [°C]	-10				-10					-10						-60				

(1) R.3/4" x 1 1/4" in stainless steel (EN-1.4408).

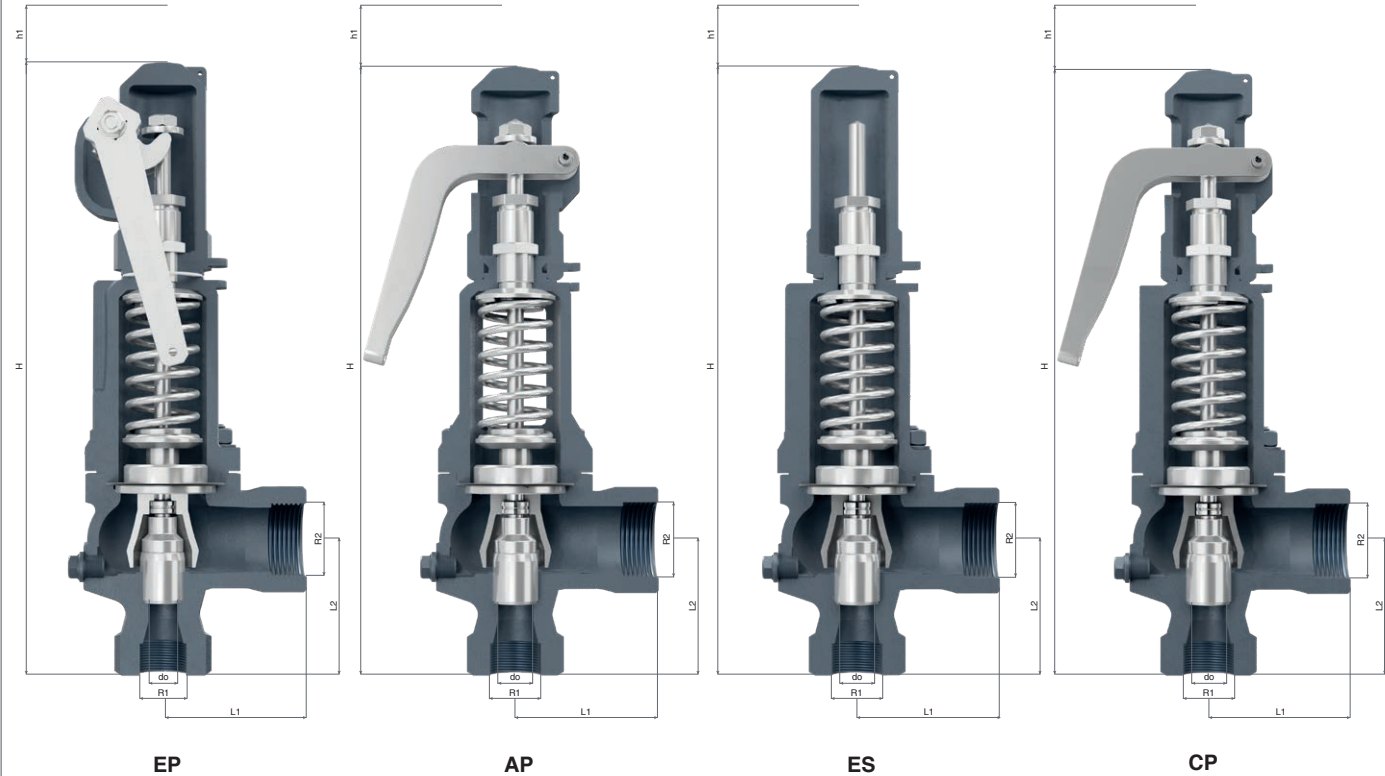
(2) Maximum temperature EP, ES and CP 250 °C / AP 400 °C.

(3) R.3/4" x 1 1/4" in stainless steel (EN-1.4301).

(4) R.1" x 1 1/2" in stainless steel (EN-1.4401).



R1 x R2		3/4" x 1 1/4"				1" x 1 1/2"			
CONNECTIONS		Whitworth cylindrical female threads ISO 228/1 (DIN-259)							
ORIFICE LETTER API		D-E				F			
do [mm]		16				20			
Ao = $\frac{\pi \cdot do^2}{4}$ [mm²]		201				314			
H [mm]		320				370			
h1 [mm]		112				129			
L1 [mm]		80				85			
L2 [mm]		65				80			
R [mm]		1/4"				1/4"			
		Whitworth cylindrical female threads ISO 228/1 (DIN-259)							
MODEL		EP	AP	ES	CP	EP	AP	ES	CP
WEIGHT [kg]	CAST IRON	5,24	4,64	4,84	5,04	6,60	5,88	6,12	6,32
	NODULAR IRON	5,97	5,31	5,53	5,73	7,47	6,68	6,94	7,14
	CARBON STEEL STAINLESS STEEL	5,65	5,01	5,22	5,42	7,50	6,70	6,97	7,17
CODE	CAST IRON 2002-495.	5346	53461	53462	53463	5106	51061	51062	51063
	NODULAR IRON 2002-495.	8346	83461	83462	53463	8106	81061	81062	81063
	CARBON STEEL 2002-495.	8344	83441	83442	83443	8104	81041	81042	81043
	STAINLESS STEEL 2002-495.	8342	83421	83422	83423	8102	81021	81022	81023



REGULATION PRESSURE				
R1 x R2			3/4" x 1 1/4"	1" x 1 1/2"
REGULATION PRESSURE [bar]	MAXIMUM (LIQUIDS AND GASES)	PN-40	40	40
	MAXIMUM (SATURATED STEAM)	PN-40	32	32
	MINIMUM	STEAM AND GASES	0,5	0,5
		LIQUIDS	0,2	0,2

RECOMMENDED RANGES OF APPLICATION			
MODEL			ES
FLUID		SATURATED STEAM	
		GASES	*
		LIQUIDS	*
PERMISSIBLE BACK PRESSURE IN % OF SET PRESSURE	INTERNAL OR GENERATED	VAPOR SATURADO GASES	15
		LÍQUIDOS	—
	EXTERNAL CONSTANT (1) (2)	VAPOR SATURADO GASES	50
		LÍQUIDOS	90

OPENING, OVERPRESSURE AND RESET PRESSURES			
FLUID	OPENING PRESSURE	OVERPRESSURE	RESET PRESSURE
SATURATED STEAM AND GASES	The higher of ±3% or ±0,1 bar	The higher of +10% o +0,1 bar	The higher of -15% o -0,3 bar
LIQUIDS	The higher of ±3% o ±0,1 bar	The higher of +10% o +0,1 bar	The higher of -20% o -0,6 bar

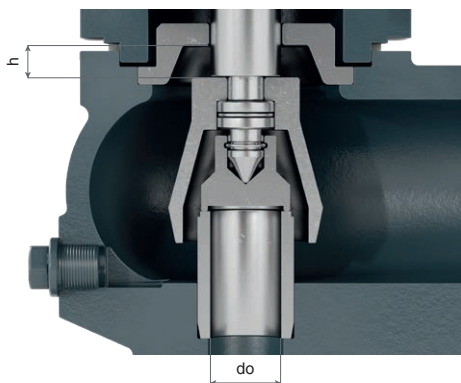
- (1) If external backpressure exists, the AP and CP model cannot be used.
- (2) With external constant backpressure, the spring is adjusted deducting the backpressure from the set pressure.
- (3) If the set pressure < 3 bar we must consider the total atmospheric pressure (1 bar) as external constant backpressure being freely released.
If $p_a > 0,25 p_o$, we must limit plug speed with the consequent reduction of the ad coefficient of discharge. With the new reduced coefficient we determine the d_0 , in order to remove the necessary volume.

p_a = Backpressure permitted [bar] absolute.

p_o = Set pressure [bar] absolute.

Kdr = Coefficient of discharge.

DISCHARGE COEFFICIENTS			
R1 x R2		3/4" x 1 1/4"	1" x 1 1/2"
d_0 [mm]		16,0	20,1
h [mm]		4,6	5,6
h/ d_0 [mm]		0,28	0,28
DISCHARGE COEFFICIENTS [kdr]	SATURATED STEAM / GASES	0,78	
	LIQUIDS	0,60	
	LIQUIDS WITH RAPID LIMITER	0,36	



DISCHARGE CAPACITIES						
R1 x R2	3/4" x 1 1/4"			1" x 1 1/2"		
API ORIFICE	D-E			F		
d_0 [mm]	16			20		
$A_0 = \frac{\pi \cdot d_0^2}{4}$ [mm²]	201			314		
p [bar]	I	II	III	I	II	III
1,0	163	236	6457	255	369	10088
1,5	206	298	7908	322	466	12356
2,0	249	360	9131	388	563	14267
2,5	291	422	10209	455	659	15951
3,0	334	484	11183	522	756	17473
3,5	377	546	12079	589	853	18873
4,0	420	608	12913	656	949	20177
4,5	463	669	13696	723	1046	21400
5,0	505	731	14437	790	1143	22558
5,5	548	793	15142	857	1239	23659
6,0	591	855	15815	924	1336	24711
6,5	634	917	16461	991	1433	25720
7,0	677	979	17082	1058	1529	26691
7,5	720	1041	17682	1125	1626	27628
8,0	763	1103	18262	1192	1723	28534
9,0	849	1226	19369	1327	1916	30265
10,0	935	1350	20417	1461	2110	31902
11,0	1021	1474	21414	1596	2303	33459
12,0	1108	1598	22366	1731	2496	34947
13,0	1194	1721	23279	1865	2690	36374
14,0	1280	1845	24158	2000	2883	37747
15,0	1367	1969	25006	2136	3076	39072
16,0	1453	2093	25826	2271	3270	40353
17,0	1540	2216	26621	2406	3463	41595
18,0	1627	2340	27393	2542	3657	42801
20,0	1800	2588	28874	2813	4043	45116
22,0	1975	2835	30284	3085	4430	47318
24,0	2149	3083	31630	3358	4817	49422
25,0	2236	3206	32282	3494	5010	50441
26,0	2324	3330	32922	3631	5204	51440
28,0	2499	3578	34165	3905	5590	53382
30,0	2674	3825	35364	4179	5977	55256
32,0	2850	4073	36523	4454	6364	57068
34,0		4320	37647		6751	58824
36,0		4568	38739		7137	60530
38,0		4815	39800		7524	62188
40,0		5063	40834		7911	63804

I - Saturated steam [kg/h].

II - Air to 0 °C and 1.013 bar [Nm³/h].

III - Water to 20 °C [l/h].

For other, not so dense liquids, other than water at 20 °C apply:

$$V_L = \sqrt{\frac{\rho_A}{\rho_L}} \cdot V_A \quad \text{ó} \quad V_A = V_L \cdot \sqrt{\frac{\rho_L}{\rho_A}}$$

V_A = Water flow according to table.

V_L = Liquid flow.

ρ_A = Water density at a 20 °C.

(ρ_A = 998 kg/m³)

ρ_L = Liquid density.

ATTENTION: Flow rates according to UNE EN ISO 4126-7 with 10% overpressure.

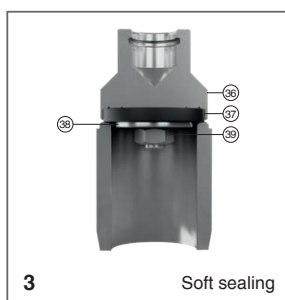
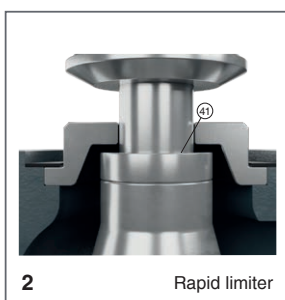
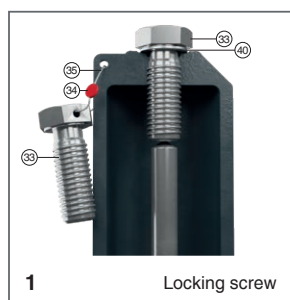
Depending on demand

- 1 - Blocking screw which facilitates hydrostatic testing of the container which to be protected.
- 2 - Rapid limiter to reduce the coefficient of discharge.
- 3 - Fluorelastomer (Viton) seals, Silicone's rubber, PTFE (Teflon)... etc., achieving leakage levels less than: $0,3 \times 10^{-3} \frac{\text{Pa cm}^3}{\text{seg.}}$

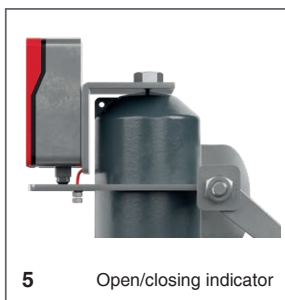
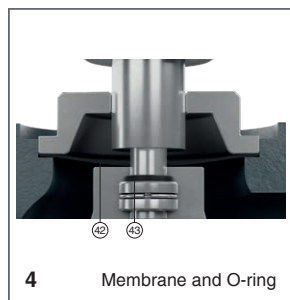
The ranges of application allow certain flexibility although we recommend limiting them to:

		TEMPERATURE RANGE OF THE SEALS [°C]	
SEALS		MINIMUM	MAXIMUM
SILICONE'S RUBBER	S	-60	200
FLUORELASTOMER (Viton)	V	-20	200
PTFE (Teflon)	T	-200	260

- 4 - Fluorelastomer (Viton) membrane and O-ring isolating the rotating or sliding parts from the working fluid.
- 5 - Electrical contact indicating open/closed.
- 6 - Balance bellows to:
 - Protect the spring from atmospheric influences.
 - Ensure outside of valve body is totally tightness.
 - Level out external or self-generated back pressure.
- 7 - Possibility of manufacture in other types of material, for special operating conditions (high temperatures, fluids, etc.).
- 8 - Totally free of oil and grease, to work with oxygen, avoiding possible fire risks (UV-Oxygen-VBG 62).
- 9 - Special springs for critical temperatures.



33	Screw
34	Seal
35	Sealing wire
36	Plug
37	Sealing disk
38	Washer
39	Nut
40	Joint
41	Limiter
42	Membrane
43	O-ring



Specifications

- 90° angular flow.
- Activated by direct action helicoid spring.
- Simplicity of construction ensuring minimum maintenance.
- Materials carefully selected for their resistance to corrosion. With the exception of washers and couplings, the valves are free of non-ferric materials.
- Internal body designed to offer favourable flow profile.
- Sealing surfaces treated and balanced, making them extremely tightness, even exceeding EN 12266-1.
- Great discharge capacity. For liquids typically used with openings similar to proportional safety valves.
- Equipped with draining screws for removing condensation.
- Auto-centering plug.
- Threaded shaft with lever positioner facilitating immediate manual action.
- Elevator, independent of the seal, designed facilitate sudden opening when the steam expands and, with any fluid, guarantees absolute opening and closing precision.
- All the valves are supplied sealed at the set pressure requested, simulating operational conditions, and are vigorously tested.
- All components are numbered, registered and checked. If requested in advance, material, casting, test and efficiency certificates will be enclosed with the valve, and the instruction manual, in accordance with P.E.D. 2014/68/EU.



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