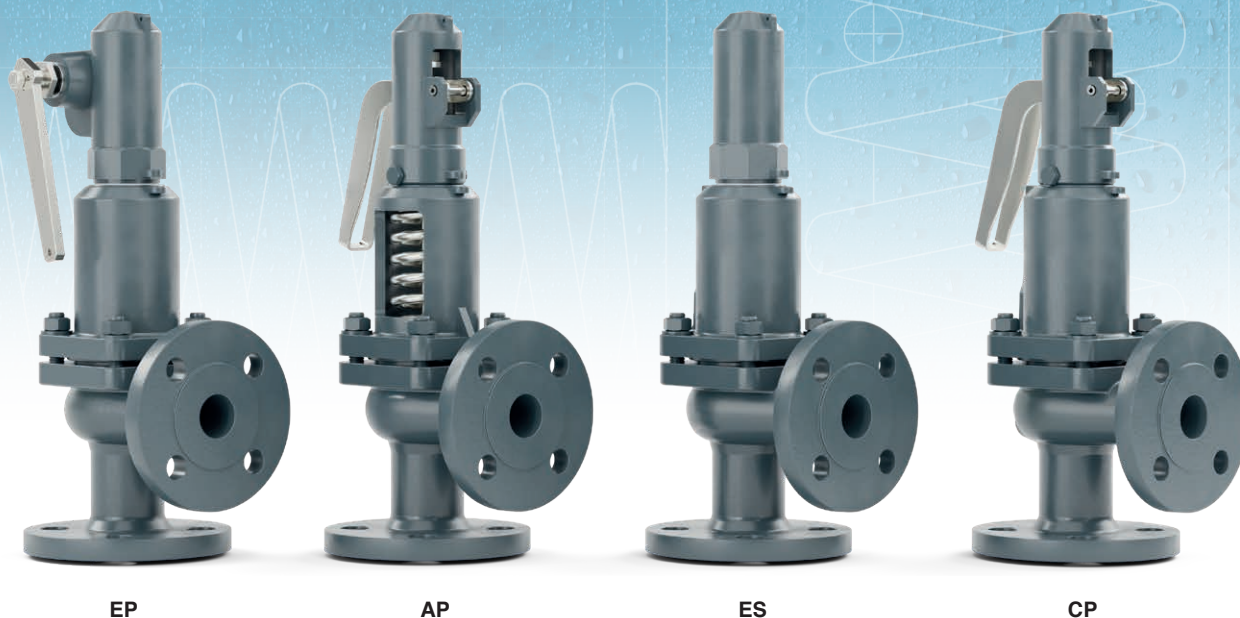




Full lift safety valve with spring loading.(AIT)

Mod. 486 | ASME | SI



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.

Specifications

Size

- 1" x 2" to 8" x 10"

Temperature range

- -29 °C to +450 °C

Applications

- Gas, steam and liquid

Materials

- Cast steel
- Stainless steel

Maximum pressure

- Up to 40 bar

Regulation

- PED 2014/68/EU
- ASME B16.34
- ASME B16.5
- ASME II
- ASME VIII Div.1
- UNE-EN ISO 4126-1
- UNE-EN 12516-2
- API 526 (Distance center to flange)

Certification



N°. PIECE	PIECE	MATERIAL													
		CAST STEEL							STAINLESS STEEL						
1	Body	Cast steel (ASTM-A 216 WCB)							Stainless steel (ASTM A351 CF8M)						
2	Closed bell	Cast steel (ASTM-A 216 WCB)							Stainless steel (ASTM A351 CF8M)						
3	Open bell	Cast steel (ASTM-A 216 WCB)							Stainless steel (ASTM A351 CF8M)						
4	Hood	Nodular iron (ASTM-A 536 65-45-12)							Stainless steel (ASTM A351 CF8M)						
5	Elevator	Nodular iron (ASTM-A 536 65-45-12) (1)							Stainless steel (ASTM A351 CF8M) (7)						
6	Cam	Cast steel (ASTM-A 570 36) (6)							Stainless steel (AISI-304)						
7	Lever	Cast steel (ASTM-A 570 36)							Cast steel (ASTM-A 570 36)						
9	Plug	Stainless steel (AISI-420F)							Stainless steel (AISI-360)						
10	Lead	Stainless steel (AISI-420F) (4)							Stainless steel (AISI-316) (5)						
11	Spring press	Cast steel (AISI-1045)							Stainless steel (AISI-303)						
12	Separator	Stainless steel (AISI-420F)							Stainless steel (AISI-316)						
13	Rod	Stainless steel (AISI-420F)							Stainless steel (AISI-316)						
14	Lever shaft	Cast steel (AISI-1045)							Stainless steel (AISI-303)						
15	Gudgeon	Cast steel (AISI-1070)							Stainless steel (AISI-301)						
16	Ring	Stainless steel (AISI-420F)							Stainless steel (AISI-316)						
17	Safety ring	Stainless steel (AISI-301)							Stainless steel (AISI-301)						
18	Spring	Chrome vanadium steel (AISI 6150) (2)							Stainless steel (AISI-301) (3)						
19	Gland	Cast steel (AISI-1045)							Stainless steel (AISI-303)						
20	Hollow screw	Stainless steel (AISI-303)							Stainless steel (AISI-303)						
21	Hollow screw nut	Stainless steel (AISI-303)							Stainless steel (AISI-303)						
22	Buffer nut	Stainless steel (AISI-303)							Stainless steel (AISI-303)						
23	Rod check nut	Cast steel (AISI-1015)							Stainless steel (AISI-316)						
24	Nut	Cast steel (AISI-1015)							Stainless steel (AISI-316)						
25	Washer	Cast steel (AISI-1015)							Stainless steel (AISI-316)						
26	Stud	Cast steel (AISI-1035)							Stainless steel (AISI-316)						
27	Screw	Cast steel (AISI-1045)							Stainless steel (AISI-316)						
28	Cap	Cast steel (AISI-1035)							Stainless steel (AISI-316)						
29	Coupling	Graphite							PTFE (Teflón)						
30	Coupling	PTFE (Teflón)							PTFE (Teflón)						
31	Seal	Graphite							PTFE (Teflón)						
32	Sealing	Cast steel (ASTM-A 105) (7)							Stainless steel (AISI-316TI) (8)						
33	Seal	Plastic							Plastic						
34	Sealing wire	Sealing wire							Sealing wire						
35	Characteristic plate	Stainless steel (AISI-304)							Stainless steel (AISI-304)						
NPS1 x NPS2		1" x 2" to 8" x 10"													
CLASS [lbs]		150							150						
OPERATING CONDITIONS	PS [bar]	16	14	12	10	8	7	5	16	15	14	12	10,2	8	7
	MAXIMUM TEMPERATURE [°C]	150	200	250	300	350	400	450	100	150	200	250	300	350	400
	MINIMUM TEMPERATURE [°C]	-29							-29						
CLASS [lbs]		300							300						
OPERATING CONDITIONS	PS [bar]	40		38		35		23	40	39	36	33	31,6	30	29
	MAXIMUM TEMPERATURE [°C]	300		350		400		450	130	150	200	250	300	350	400
	MINIMUM TEMPERATURE [°C]	-29							-29						

(1) 1"x2" in stainless steel (ASTM A351 CF8M).

(2) Spring steel (ASTM A228) for wire spring Ø <10 mm. Maximum temperature EP, ES and CP 250 °C / AP 400 °C.

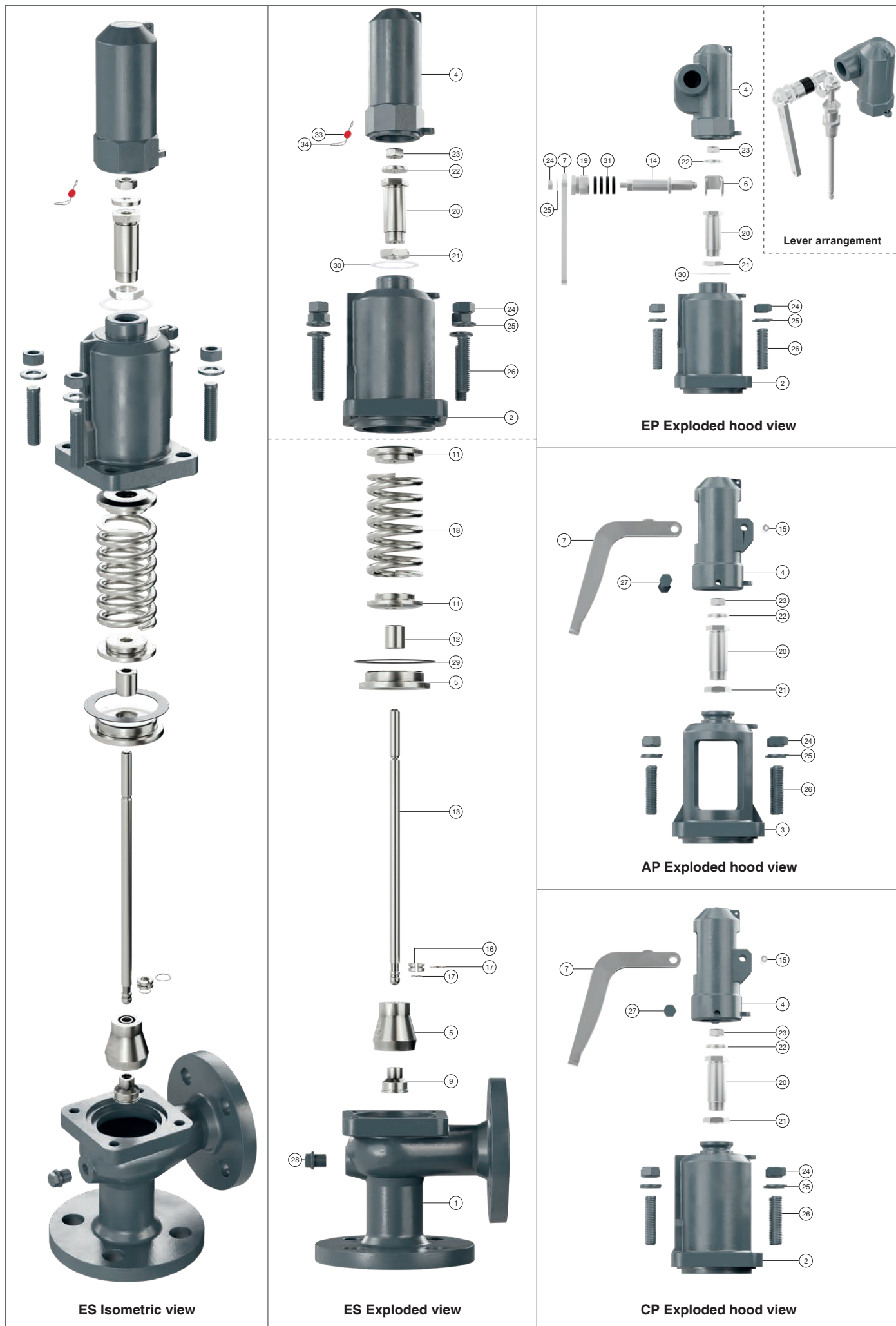
(3) Vanadium chrome steel (AISI 6150) for wire spring Ø >10 mm.

(4) 8" x 10" in Stainless steel (ASTM A743 CA40F).

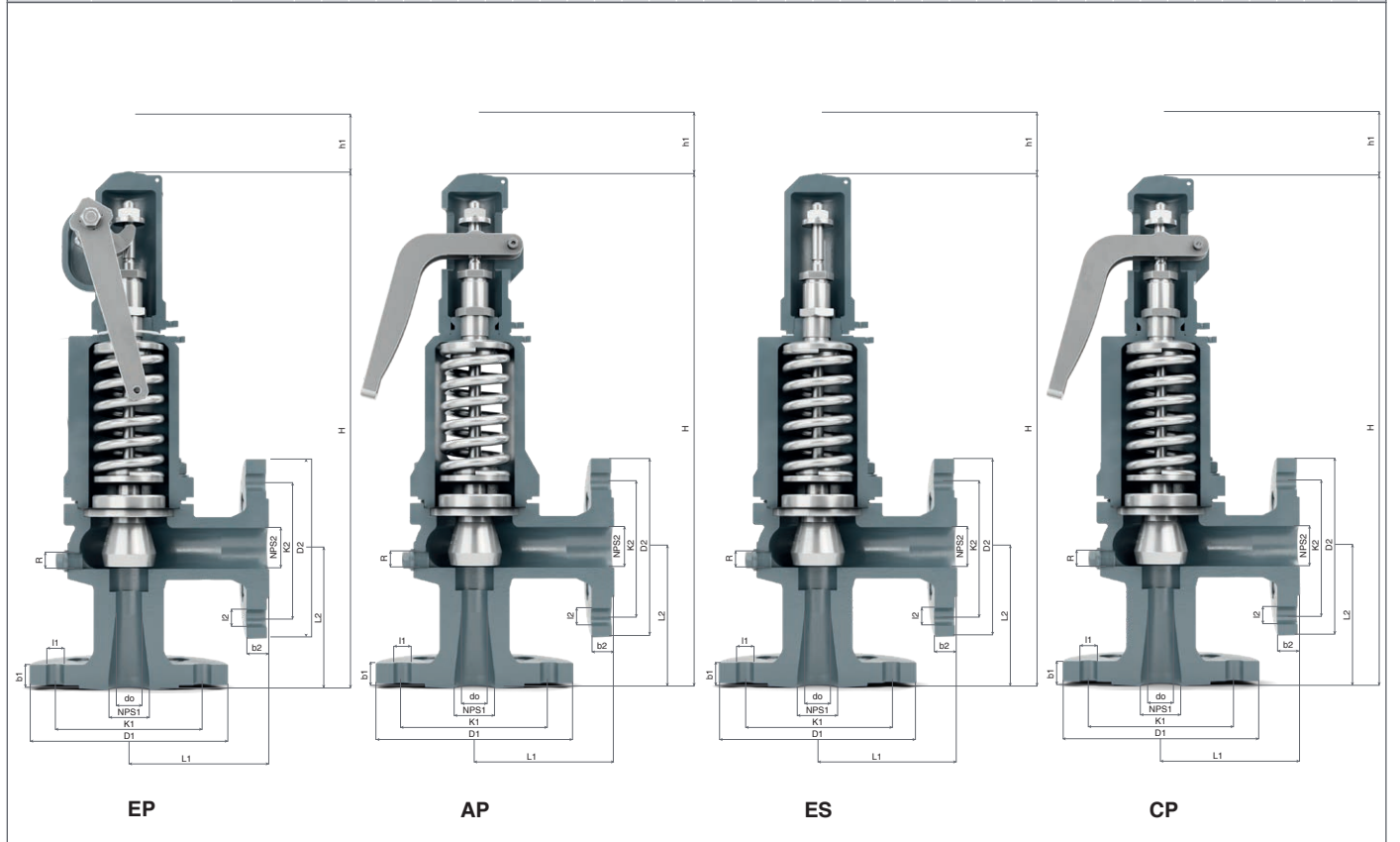
(5) 8" x 10" in Stainless steel (ASTM A351 CF8M).

(6) 1"x2" in Stainless steel (AISI 304)

(7) 11/2"x2" to 4"x 6" L in Stainless steel (AISI 316)



DIMENSIONS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
NPS1 x NPS2			1"x 2"	1 1/2" x 2"	1 1/2"x2 1/2"	1 1/2"x3"(2"x3")*	2"x3"(3"x4")*	3"x4"(4"x6")*	4" x 6"	4" x 6"	6" x 8"	8" x 10"																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
API ORIFICE LETTER			D - E	F	G	H	J	L	N	P	Q	T																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
do [mm]			16	20	25	32	40	50	63	77	110	155																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
Ao: $\frac{\pi \cdot do^2}{4}$ [mm²]			201	314	491	804	1257	1964	3117	4657	9503	18870																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
H [mm]			367	412	436	498	545	665	745	810	1070	1200																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
h1 [mm]			112	129	129	148	148	191	191	191	247	331																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
L1 [mm]			114	121 (152)*	121 (152)*	124	124 (181)*	165 (181)*	209,5	229 (254)*	241	279																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
L2 [mm]			105	124	124	130	136,5 (184)*	155,5 (179)*	197	181 (225)*	240	276																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
R			1/4"	1/4"	1/4"	1/4"	1/4"	3/8"	3/8"	3/8"	3/8"	3/8"																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
			Female thread Gas Whitworth Cilyndrical ISO 228/1 (DIN-259)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
INLET FLANGE (1)	CLASS150 lbs ASME/ANSI B16.5	D1 [mm]	110	125	125	125	150	190	230	280	345																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
		k1 [mm]	79,2	98,6	98,6	98,6	120,7	152,4	190,5	190,5	241,3	298,5																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		l1 [mm]	15,9	15,9	15,9	15,9	19,1	19,1	19,1	19,1	22,2	22,2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		b1 [mm]	14,7	17,9	17,9	17,9	19,5	24,3	24,3	24,3	25,9	29																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		SCREWS N°	4	4	4	4	4	4	8	8	8	8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	CLASS 300 lbs ASME/ANSI B16.5	D1 [mm]	125	155	155	165	210	255	255	255	320	380																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		k1 [mm]	88,9	114,3	114,3	127	168,3	200	200	200	269,9	330,2																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		l1 [mm]	19,1	22,2	22,2	19,1	22,2	22,2	22,2	22,2	22,2	25,4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		b1 [mm]	17,9	21,1	21,1	22,7	29	32,2	32,2	32,2	37	41,7																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		SCREWS N°	4	4	4	8	8	8	8	8	12	12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
OUTLET FLANGE	CLASS 150 lbs ASME/ANSI B16.5	D2 [mm]	150	150	180	190	190 (230)*	230 (280)*	280	280	345	405																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		k2 [mm]	120,7	120,7	139,7	152,4	152,4 (190,5)*	190,5 (241,3)*	241,3	241,3	298,5	362																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		l2 [mm]	19,1	19,1	19,1	19,1	19,1 (19,1)*	19,1 (22,2)*	22,2	22,2	22,2	25,4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		b2 [mm]	19,5	19,5	22,7	24,3	24,3 (24,3)*	24,3 (25,9)*	25,9	25,9	29	30,6																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
		SCREWS N°	4	4	4	4	4 (8)	8 (8)	8	8	8	12																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
MODEL			EP	AP	ES	CP	EP	AP	ES	CP	EP	AP	ES	CP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
WEIGHT [kg]	CAST STEEL STAINLESS STEEL		8,5	7,86	8,07	8,27	10,6	9,8	10,07	10,33	14,87	13,75	14,12	14,38	21,27	19,67	20,2	20,63	28,68	26,52	27,24	27,67	41,48	38,36	39,4	40	58,48	54,09	55,55	56,15	87,15	80,61	82,79	83,39	152,1	144,48	149,3	180,85	250,88	235,94	243,61	246,75																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
CODE	CAST STEEL 2002-486.	150	5104D	5104D	5104D	5104D	5124F	5124F	5124F	5124F	5124G	5124G	5124G	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	5124H	



(1) From 8" x 10" to 16" x 20" class 300 lbs

Center to face dimensions according API-526.
*Dimensions corresponding to 300x150 lbs.

SET PRESSURES AND REGULATING RANGES												
NPS1 x NPS2			1" x 2"	1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3" (2"x3")	2" x 3" (3"x4")	3" x 4" (4"x6")	4" x 6"	4" x 6"	6" x 8"	8" x 10"
API ORIFICE LETTER			D - E	F	G	H	J	L	N	P	Q	T
REGULATION PRESSURE [barg]	MAXIMUM (LIQUIDS AND GASES)	150	19,6	19,6	19,6	19,6	19,6	19,6	19,6	19,6	10	8
		300	40	40	40	32	32	32	25	20	10	8
	MAXIMUM (SATURATED STEAM)	150	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10,2	10	8
		300	32	32	30	24	22	24	20	18	10	8
	MINIMUM	STEAM / GASES	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5	0,5
		LIQUIDS	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
SPRING REGULATING RANGE [barg]	0,20 a 0,68	CODE	56210 56390	56226 56406	56242 56422	56258 56438	56273 56453	56288 56468	56303 56483	56317 56497	56511	56521
	0,66 a 1,00	CODE	56211 56391	56227 56407	56243 56423	56259 56439	56274 56454	56289 56469	56304 56484	56318	56512	56522
	0,95 a 1,40	CODE	56212 56392	56228 56408	56244 56424	56260 56440	56275 56455	56290 56470	56305 56485	56319	56513	56523
	1,30 a 1,90	CODE	56213 56393	56229 56409	56245 56425	56261 56441	56276 56456	56291 56471	56306 56486	56320	56514	56524
	1,80 a 2,60	CODE	56214 56394	56230 56410	56246 56426	56262 56442	56277 56457	56292 56472	56307	56321	56515	56525
	2,50 a 3,60	CODE	56215 56395	56231 56411	56247 56427	56263 56443	56278 56458	56293 56473	56308	56322	56516	56526
	3,50 a 5,00	CODE	56216 56396	56232 56412	56248 56428	56264 56444	56279 56459	56294	56309	56323	56517	56527
	4,80 a 6,30	CODE	56217 56397	56233 56413	56249 56429	56265 56445	56280 56460	56295	56310	56324	56518	56528
	6,00 a 8,00	CODE	56218 56398	56234 56414	56250 56430	56266 56446	56281 56461	56296	56311	56325	56519	56529
	7,50 a 10,00	CODE	56219 56399	56235 56415	56251 56431	56267 56447	56282 56462	56297	56312	56326	56520	
	9,50 a 12,50	CODE	56220 56400	56236 56416	56252 56432	56268 56448	56283	56298	56313	56327		
	12,00 a 16,00	CODE	56221 56401	56237 56417	56253 56433	56269 56449	56284	56299	56314	56328		
	15,00 a 20,00	CODE	56222 56402	56238 56418	56254 56434	56270	56285	56300	56315	56329		
	18,00 a 25,00	CODE	56223 56403	56239 56419	56255 56435	56271	56286	56301	56316			
	23,00 a 32,00	CODE	56224 56404	56240 56420	56256 56436	56272	56287	56302				
	30,00 a 40,00	CODE	56225 56405	56241 56421	56257 56437							

— Spring steel (ASTM A228). Max. temp. for EP, ES and CP 250 °C/AP 400 °C. — Stainless steel (AISI 301/SA 313-302). Chrome vanadium steel (AISI 6150/SA 304).

RECOMMENDED RANGES OF APPLICATION						
MODEL			EP	AP(1)	ES	CP(1)
FLUID		SATURATED STEAM	*	*		*
		GASES	*		*	
		LIQUIDS	*		*	
PERMISSIBLE BACK PRESSURE IN % OF SET PRESSURE	INTERNAL OR GENERATED	SATURATED STEAM GASES	15			
		LIQUIDS	—			
	EXTERNAL VARIABLE (1)	SATURATED STEAM	5			
		LIQUIDS	—			
	EXTERNAL CONSTANT (1) (2) (3)	SATURATED STEAM GASES	50			
		LIQUIDS	90			

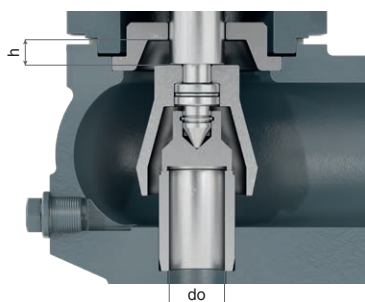
(1) If external backpressure exists, the AP and CP model cannot be used.

(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.

OPENING, OVERPRESSURE AND RESET PRESSURES			
FLUID	OPENING PRESSURE	OVERPRESSURE	RESET PRESSURE
SATURATED STEAM / GASES	The higher of $\pm 3\%$ or $\pm 0,1$ bar	The higher of $\pm 10\%$ or $0,1$ bar	The higher of $\pm 15\%$ or $0,3$ bar
LIQUIDS	The higher of $\pm 3\%$ or $\pm 0,1$ bar	The higher of $\pm 10\%$ or $0,1$ bar	The higher of $\pm 20\%$ or $0,6$ bar

COEFFICIENT OF DISCHARGE												
NPS1 x NPS2			1" x 2"	1 1/2" x 2"	1 1/2" x 2 1/2"	1 1/2" x 3" (2"x3")	2" x 3" (3"x4")	3" x 4" (4"x6")	4" x 6"	4" x 6"	6" x 8"	8" x 10"
API ORIFICE LETTER			D - E	F	G	H	J	L	N	P	Q	T
do [mm]			16	20	25	32	40	50	63	77	110	155
h [mm]			7,1	8,9	11,9	11,9	18,0	18,0	20,1	29,0	36,8	56,1
hL [mm]			2,5	3,3	4,1	5,1	6,6	7,9	9,9	12,4	19,8	27,9
h/do [mm]			0,4	0,5	0,5	0,4	0,5	0,4	0,3	0,4	0,3	0,4
hL/do [mm]			0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2	0,2
DISCHARGE COEFFICIENT [kd]	SATURATED STEAM / GASES		0,78									
	LIQUIDS		0,60									
	LIQUIDS WITH LIFT LIMITER		0,36									



hL: Lift limiter



Fluid Dynamics

DISCHARGE CAPACITY															
NPS1 x NPS2	1"x 2"			1 1/2" x 2"			1 1/2" x 2 1/2"			1 1/2" x 3" (2" x 3")			2" x 3" (3" x 4")		
API ORIFICE	D-E			F			G			H			J		
d0 [mm]	16			20			25			32			40		
$A_0 = \frac{\pi \cdot d_0^2}{4}$ [mm²]	201			314			491			804			1257		
p [barg]	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
1	163	236	6457	255	369	10088	398	577	15763	652	945	25826	1019	1477	40354
1,5	206	298	7908	322	466	12356	502	728	19306	823	1193	31630	1286	1864	49422
2	249	360	9131	388	563	14267	607	879	22292	994	1440	36523	1553	2250	57068
2,5	291	422	10209	455	659	15951	711	1030	24923	1165	1688	40834	1821	2637	63804
3	334	484	11183	522	756	17473	816	1181	27302	1336	1935	44732	2088	3024	69894
3,5	377	546	12079	589	853	18873	920	1332	29490	1508	2183	48316	2356	3411	75494
4	420	608	12913	656	949	20177	1025	1483	31526	1679	2430	51652	2623	3797	80706
4,5	463	669	13696	723	1046	21400	1129	1634	33438	1850	2678	54785	2891	4184	85602
5	505	731	14437	790	1143	22558	1234	1785	35247	2022	2925	57749	3159	4571	90232
6	591	855	15815	924	1336	24711	1443	2088	38611	2365	3420	63260	3695	5344	98844
7	677	979	17082	1058	1529	26691	1653	2390	41705	2708	3915	68329	4232	6118	106764
8	763	1103	18262	1192	1723	28534	1863	2692	44584	3052	4410	73047	4769	6891	114136
9	849	1226	19369	1327	1916	30265	2073	2994	47289	3396	4905	77478	5307	7665	121059
10	935	1350	20417	1461	2110	31902	2283	3296	49847	3741	5400	81669	5845	8438	127608
12	1108	1598	22366	1731	2496	34947	2704	3900	54604	4430	6391	89464	6922	9985	139787
14	1280	1845	24158	2000	2883	37747	3126	4505	58979	5121	7381	96632	8002	11532	150987
16	1453	2093	25826	2271	3270	40353	3548	5109	63052	5813	8371	103304	9083	13079	161412
18	1627	2340	27393	2542	3657	42801	3972	5713	66876	6507	9361	109570	10167	14626	171203
20	1800	2588	28874	2813	4043	45116	4396	6318	70494	7202	10351	115497	11253	16173	180464
22	1975	2835	30284	3085	4430	47318	4821	6922	73935	7898	11341	121134	12341	17720	189273
24	2149	3083	31630	3358	4817	49422	5247	7526	77222	8596	12331	126521	13431	19267	197689
26	2324	3330	32922	3631	5204	51440	5673	8131	80375		13321	131687		20814	205761
28	2499	3578	34165	3905	5590	53382	6101	8735	83409		14311	136658		22361	213528
30	2674	3825	35364	4179	5977	55256	6529	9339	86337		15301	141455		23908	221023
32	2850	4073	36523	4454	6364	57068		9943	89168		16291	146094		25455	228271
34		4320	37647		6751	58824		10548	91913						
36		4568	38739		7137	60530		11152	94577						
38		4815	39800		7524	62188		11756	97169						
40		5063	40834		7911	63804		12361	99693						

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:

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

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 ASME VIII Div.1/API 520 with 10% overpressure.

DISCHARGE CAPACITY															
NPS1 x NPS2	3" x 4" (4" x 6")			4" x 6"			4" x 6"			6" x 8"			8" x 10"		
API ORIFICE	L			N			P			Q			T		
d0 [mm]	50			63			77			110			155		
$A_0 = \frac{\pi \cdot d_0^2}{4}$ [mm²]	1964			3117			4657			9503			18870		
p [barg]	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III
1	1592	2308	63052	2528	3664	100102	3776	5473	149535	7707	11169	264484	14517	21039	525142
1,5	2010	2912	77222	3190	4623	122598	4766	6906	183140	9727	14093	323921	18322	26548	643158
2	2427	3516	89168	3853	5582	141564	5756	8339	211472	11748	17018	374032	22129	32057	742655
2,5	2845	4120	99693	4517	6542	158273	6747	9772	236433	13769	19943	418181	25938	37567	830313
3	3263	4725	109209	5180	7501	173380	7738	11205	258999	15792	22868	458094	29748	43076	909562
3,5	3681	5329	117959	5844	8460	187271	8730	12638	279751	17816	25792	494798	33559	48586	982440
4	4099	5933	126103	6508	9420	200202	9722	14071	299067	19840	28717	528961	37373	54095	1050272
4,5	4518	6538	133753	7172	10379	212346	10714	15505	317208	21865	31642	561048	41188	59604	1113982
5	4936	7142	140988	7837	11338	223832	11707	16938	334367	23891	34567	591397	45004	65114	1174240
6	5774	8350	154444	9167	13257	245196	13694	19804	366280	27946	40416	647843	52642	76133	1286315
7	6612	9559	166819	10498	15176	264842	15682	22670	395628	32004	46266	699750	60287	87152	1389379
8	7452	10768	178337	11830	17095	283128	17672	25536	422944	36066	52115	748064	67938	98170	1485309
9	8292	11976	189155	13164	19013	300302	19665	28403	448600	40132	57965	793442	75597	109189	1575408
10	9132	13185	199387	14499	20932	316546	21658	31269	472866	44201	63814	836361	83262	120208	1660626
12	10816	15602	218417	17172	24770	346759	25651	37002	517998	52350	75513	916188	98612	142246	1819125
14	12503	18019	235918	19850	28607	374543	29652	42734	559502	60514	87212	989596			
16	14193	20436	252207	22533	32445	400403	33660	48467	598133						
18	15886	22853	267505	25221	36282	424692	37676	54199	634416						
20	17583	25271	281976	27914	40120	447664	41699	59932	668733						
22	19283	27688	295738	30613	43957	469514		65664	701373						
24	20986	30105	308889		47795	490392									
26		32522	321502		51632	510416									
28		34939	333638												
30		37356	345348												
32		39774	356674												
34															
36															
38															
40															

I - Saturated steam [kg/h].

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

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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.

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(ρ_A = 998 kg/m³)

ρ_L = Liquid density.

ATTENTION: Flow rates according to ASME VIII Div.1/API 520 with 10% overpressure.

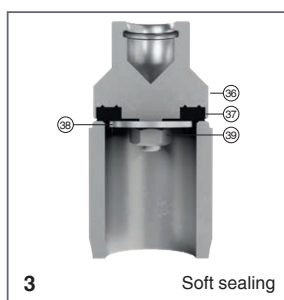
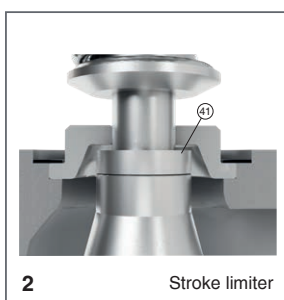
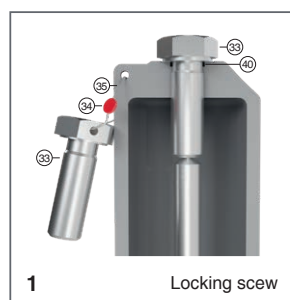
DEPENDING ON DEMAND

- 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 (Vitón) seals, Silicone's rubber, PTFE (Teflón)... etc., achieving leakage levels less than: $0,3 \times 10^{-3} \frac{\text{Pa cm}^3}{\text{seg.}}$

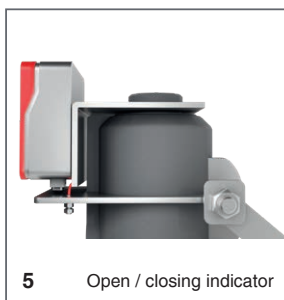
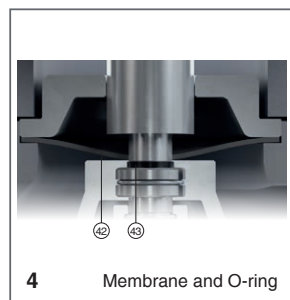
The ranges of application allow certain flexibility although we recommend limiting them to:

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

- 4.- Fluorelastomer (Vitón) 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 whire
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 API-527 requeriments.
- 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.