



Progressive opening safety relief valve. (AP)

Mod. 195 | EN



Operation

The valve works as an automatic pressure relief regulator acting by the static pressure at the valve inlet.

Regulation

- UNE-EN ISO 4126-1
- UNE-EN ISO 4126-7
- UNE-EN 12516-2
- UNE-EN 12516-4
- 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

- Cast iron
- Nodular iron
- Cast steel
- Stainless steel

Maximum pressure

- Up to 0,2 bar

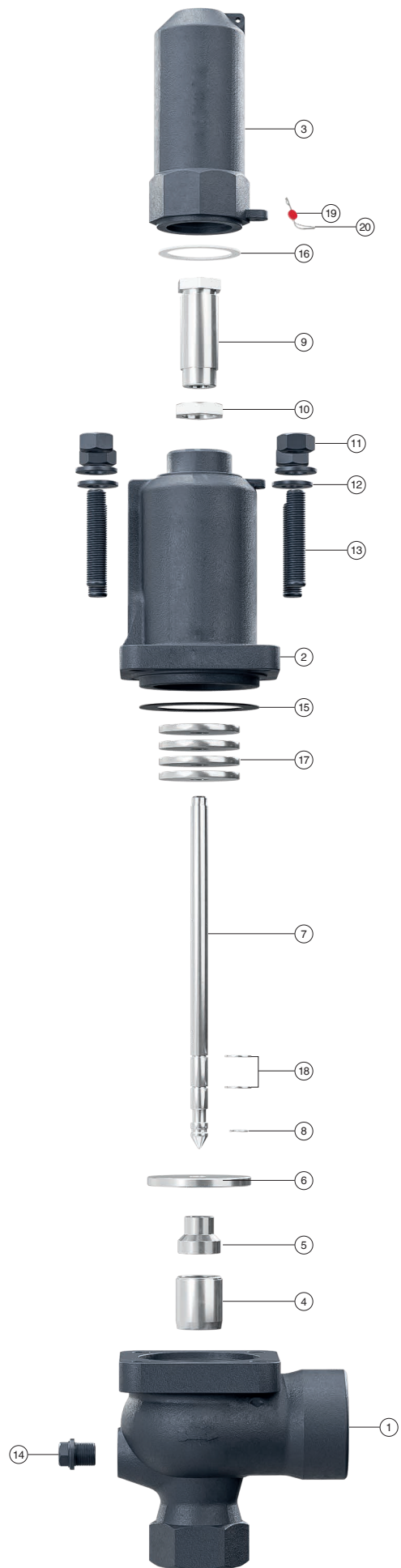
Certification



N°. PIECE	PIECE	MATERIAL			
		CAST IRON	NODULAR IRON	CAST STEEL	STAINLESS STEEL
1	Body	Cast iron (EN-5.1301)	Nodular iron (EN-5.3106)	Carbon 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	Hood	Nodular iron (EN-5.3106)	Nodular iron (EN-5.3106)	Nodular iron (EN-5.3106)	Stainless steel (EN-1.4408)
4	Seating	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4542)
5	Plug	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4542)
6	Guide	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)
7	Rod	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4028)	Stainless steel (EN-1.4401)
8	Safety ring	Stainless steel (EN-1.4310)	Stainless steel (EN-1.4310)	Stainless steel (EN-1.4310)	Stainless steel (EN-1.4310)
9	Hollow screw	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)
10	Hollow screw nut	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)	Stainless steel (EN-1.4305)
11	Nut	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.4401)
12	Washer	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.1141)	Carbon steel (EN-1.4401)
13	Stud	Carbon steel (EN-1.1181)	Carbon steel (EN-1.1181)	Carbon steel (EN-1.1181)	Carbon steel (EN-1.4401)
14	Cap	Carbon steel (EN-1.1181)	Carbon steel (EN-1.1181)	Carbon steel (EN-1.1181)	Carbon steel (EN-1.4401)
15	Body coupling	Graphite	Graphite	Graphite	PTFE (Teflon)
16	Hood coupling	PTFE (Teflon)	PTFE (Teflon)	PTFE (Teflon)	PTFE (Teflon)
17	Calibration disc	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)
18	Clip	Stainless steel (EN-1.4568)	Stainless steel (EN-1.4568)	Stainless steel (EN-1.4568)	Stainless steel (EN-1.4568)
19	Seal	Plastic	Plastic	Plastic	Plastic
20	Sealing whire	Sealing whire	Sealing whire	Sealing whire	Sealing whire
21	Characteristic plate	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)	Stainless steel (EN-1.4301)
R1 x R2		3/4" x 1 1/4" to 1" x 1 1/2"			
PN		16	40	40	40
OPERATING CONDITIONS	PS [bar]	0,2	0,2	0,2	0,2
	MAX. TEMP. [°C]	300	350	450	400
	MIN. TEMP. [°C]	-10	-10	-10	-60

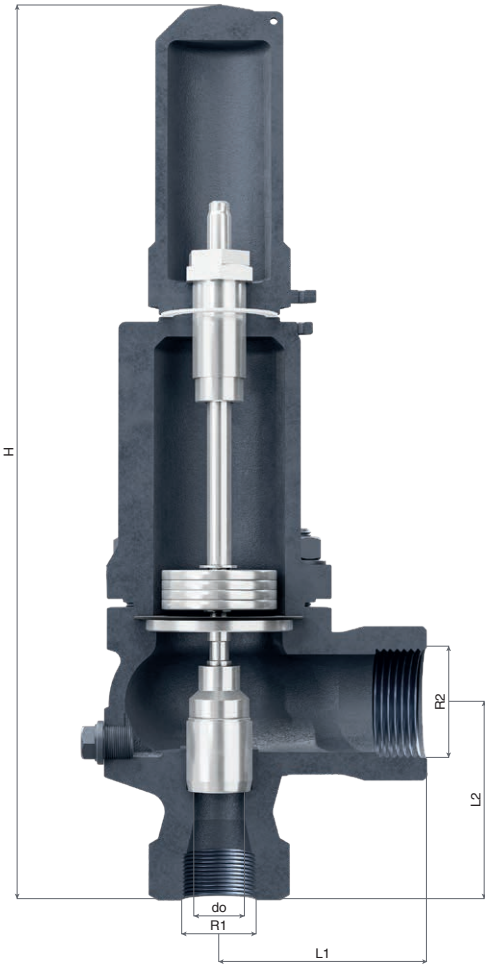


Isometric view



Exploded view

R1 x R2		3/4" x 1 1/4"	1" x 1 1/2"
CONNECTIONS		Whitworth gas-tight cylindrical female thread ISO 228/1 (DIN-259)	
do [mm]		16	20
$Ao = \frac{\pi \cdot do^2}{4}$ [mm ²]		201	314
H [mm]		320	370
L1 [mm]		80	85
L2 [mm]		65	80
R [mm]		1/4"	1/4"
WEIGHT [kg]	CAST IRON	4,4	5,4
	NODULAR IRON	4,4	5,4
	CAST STEEL	4,8	5,9
	STAINLESS STEEL	4,9	5,9
CODE	CAST IRON 2002-195.	53462	51062
	NODULAR IRON 2002-195.	83462	81062
	CAST STEEL 2002-195.	83442	81042
	STAINLESS STEEL 2002-195.	83422	81022



SET PRESSURE				
R1 x R2			3/4" x 1 1/4"	1" x 1 1/2"
SET PRESSURE [barg]	MAXIMUM (LIQUIDS AND GASES)	300 lbs.	0,2	0,2
	MAXIMUM (SATURATED STEAM)	300 lbs.	0,2	0,2
	MINIMUM	STEAM AND GASES	0,05	0,05
		LIQUIDS	0,05	0,05

RECOMMENDED RANGES OF APPLICATION			
MODEL		ES	
FLUID		SATURATED STEAM	
		GASES	*
		LIQUIDS	*
PERMISSIBLE BACK PRESSURE IN % OF SET PRESSURE	INTERNAL OR GENERATED	SATURATED STEAM	15
		GASES	
		LIQUIDS	—
	EXTERNAL CONSTANT (1) (2)	SATURATED STEAM	50
		GASES	
		LIQUIDS	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% or 0,1 bar	The higher of ± 15% or 0,3 bar
LIQUIDS	The higher of ± 3% or ± 0,1 bar	The higher of ± 10% or 0,1 bar	The higher of ± 20% or 0,6 bar

- (1) With constant external back pressure the weights are adjusted by deducting the back pressure from the set pressure.
- (2) If the set pressure <3 bar, the absolute atmospheric pressure (1 bar) must be taken as the constant external back pressure in free unloading.
(1 bar) as constant external back pressure in free discharge.

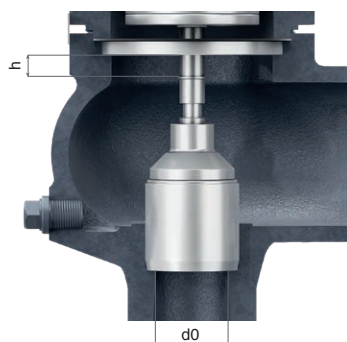
If $p_b > 3.6 p_o$, the plug stroke must be limited and the discharge coefficient K_{dr} reduced accordingly. With the new reduced coefficient we determine the d_o , in order to evacuate the required flow.

p_a = Permissible back pressure (psi) absolute.

p_o = Set pressure (psi) absolute.

K_{dr} = Discharge coefficient.

DISCHARGE COEFFICIENTS			
R1 x R2		3/4" x 1 1/4"	1" x 1 1/2"
d0 [mm]		16	20
h [mm]		4,5	5,5
h/d0 [mm]		0,28	0,28
COEFFICIENT OF DISCHARGE [kdr]	SATURATED STEAM	0,78	
	GASES		
	LIQUIDS	0,60	



DISCHARGE CAPACITY						
R1 x R2	3/4" x 1 1/4"			1" x 1 1/2"		
API ORIFICE	D-E			F		
d0 [mm]	16			20		
$A_0 = \frac{\pi \cdot d_o^2}{4}$ [mm ²]	201			314		
p [barg]	I	II	III	I	II	III
0,050	103	137	3068	161	214	4795
0,055	103	138	3099	161	215	4842
0,060	104	138	3129	162	216	4889
0,065	104	139	3159	163	217	4936
0,070	105	139	3189	163	218	4983
0,075	105	140	3218	164	219	5029
0,080	105	140	3247	165	219	5074
0,085	106	141	3276	165	220	5119
0,090	106	142	3305	166	221	5164
0,095	107	142	3333	167	222	5208
0,100	107	143	3361	167	223	5252
0,105	107	143	3389	168	224	5296
0,110	108	144	3417	169	225	5339
0,115	108	144	3444	169	225	5382
0,120	109	145	3472	170	226	5424
0,125	109	145	3499	170	227	5467
0,130	110	146	3525	171	228	5508
0,135	110	146	3552	172	229	5550
0,140	110	147	3578	172	230	5591
0,145	111	148	3605	173	231	5632
0,150	111	148	3631	174	231	5673
0,155	112	149	3657	174	232	5713
0,160	112	149	3682	175	233	5753
0,165	112	150	3708	176	234	5793
0,170	113	150	3733	176	235	5833
0,175	113	151	3758	177	236	5872
0,180	114	151	3783	178	237	5911
0,185	114	152	3808	178	237	5950
0,190	114	153	3833	179	238	5988
0,195	115	153	3857	179	239	6027
0,200	115	154	3881	180	240	6065

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.- Totally free of oil and grease, to work with oxygen, avoiding possible fire risks (UV-Oxygen-VBG 62).

Specifications

- 90° angular flow.
- Activated by a system of weights.
- 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-ferrous materials.
- Internal body designed to offer favourable flow profile.
- Sealing surfaces treated and balanced, making them extremely tightness, even exceeding API-527 requirements.
- Great discharge capacity.
- Equipped with draining screws for removing condensation.
- Auto-centering plug.
- 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.



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