

22320 INDJIJA, KRALJA PETRA I b.b.

Tel./fax +381 22 561-630, 555-132
510-064

e-mail: office@gasteh.com; www.gasteh.com

COMPANY FOR MANUFACTURING GAS EQUIPMENT, GENERAL ENGINEERING AND TRADING
I n d j i j a - Serbia

SAFETY BLOW-OFF VALVE, DIAPHRAGM OPERATED TYPE: 212

MEMBRANSKI VENTIL SIGURNOSTI TIP: 212



TECHNICAL MANUAL

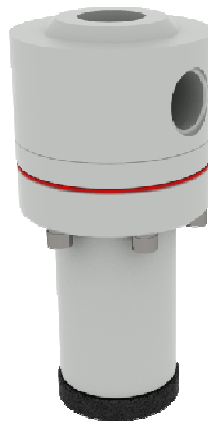
TEHNIČKI KATALOG

INTRODUCTION

The main task of safety blow-off valve is to open seat (if the pressure in installation rises above the permitted), and so pass a certain amount of gas in the atmosphere. Emission of gas lasts until the pressure in the installation does not reduce the projected value. In normal (working) condition, safety valve is closed, and pad unit using the rubber implants lying overlap to the valve seat whose other end is also connection to the exhaust pipe. They can be used with natural gas, LPG, air, nitrogen, etc.

UVOD

Membranski ventil sigurnosti tip: 212 je namenjen za osiguranje gasnih postrojenja i instalacija od prevelikog pritiska. Ispuštanje gasa se vrši sve do trenutka dok pritisak u cevovodu ne dostigne projektovanu (podešenu) vrednost. U normalnom stanju (radnom), ventil sigurnosti je zatvoren, tj. pečurka naleže na sedište ventila. Na izlaznom priključku ventila povezuje se ispusna cev. Ventil sigurnosti tip: 212 se primenjuje za prirodni gas, propan-butan, vazduh, azot, itd.



Picture 1. / Slika 1.

Safety blow-off valve / Sigurnosno ispusni ventil

Type: 212 / Tip: 212

MAIN FEATURES

- Design pressure (PS): 6 bar
- Ambient temperature: $-20^{\circ}\text{C} \div +60^{\circ}\text{C}$
- Set pressure range: $0,5 \div 5$ bar
- Available size: R1/2"-R3/4", R3/4"-R1", R1"-R5/4"
- Valve characteristics:

R	p _{set} [bar]	AC
1/2" - 3/4" 3/4" - 1" 1" - 5/4"	0,5 – 1,0	5
	>1,0 – 5,0	2.5

Table 1.

- Threaded connections according to ISO 7-1

OSNOVNE KARAKTERISTIKE

- Projektni pritisak (PS): 6 bar
- Temperatura okoline: $-20^{\circ}\text{C} \div +60^{\circ}\text{C}$
- Opseg podešavanja pritiska: $0,5 \div 5$ bar
- Dimenzije: R1/2"-R3/4", R3/4"-R1", R1"-R5/4"
- Karakteristike ventila:

R	p _{otv} [bar]	AG
1/2" - 3/4" 3/4" - 1" 1" - 5/4"	0,5 – 1,0	5
	>1,0 – 5,0	2.5

Tabela 1.

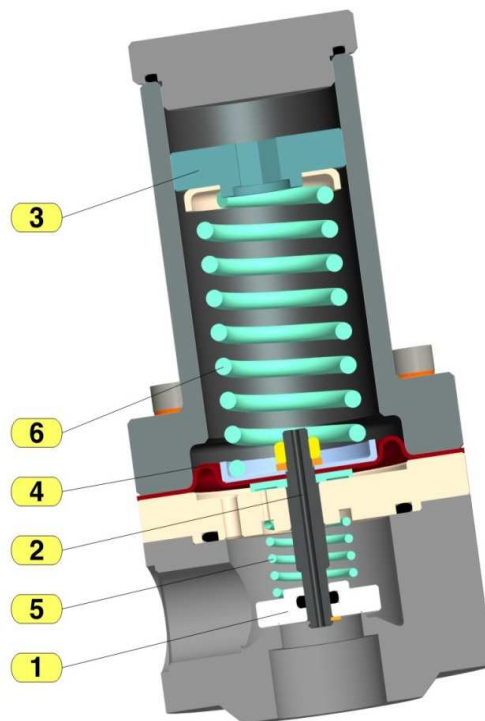
- Navojni priključci u skladu sa ISO 7-1

SAFETY BLOW-OFF VALVE OPERATION

In normal (working) condition, safety valve is closed. Regulation spring (6) overpowers force which is result of gas pressure action on diaphragm (4) and friction resistance, repressing the rod (2) so that the pad unit (1) under the influence of power spring seat (5) rests on the seat and performs closure. Seat spring is sized to provide necessary force for closing the safety valve and its installation allows to eliminate directly effect force spring of regulation on pad unit, which significantly extends the life of gasket on pad unit. With rising gas pressure at the entrance in safety valve in relation to the set pressure, the force on diaphragm overpowers force of regulation spring, pulls a rod and pad unit also, overmastering seats spring. Gas emerges from the safety valve and through the exhaust pipe goes into the atmosphere, to the moment when the pressure does not reduce the projected value. Then spring force overpowers force on the diaphragm and over rod and pad unit safety valve closes again.

OPIS RADA

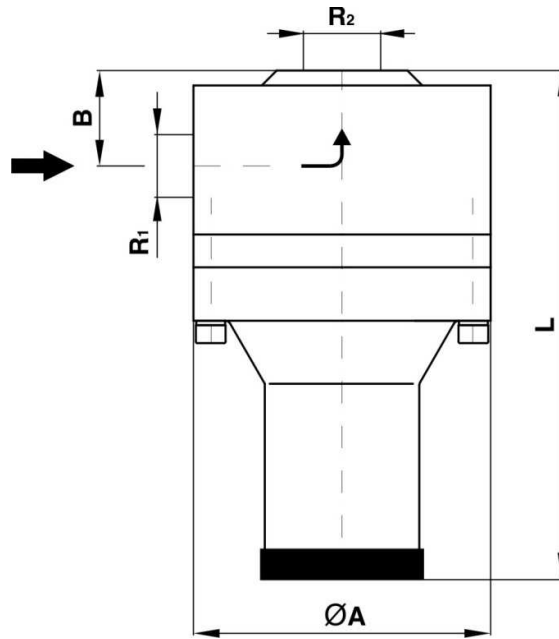
U normalnom stanju (radnom), ventil sigurnosti je zatvoren. Opruga regulacije (6) svojom silom savlađuje silu nastalu delovanjem pritiska gasa na membranu (4) i otpore trenja, potiskujući trn (2) tako da se zatvarač (1) pod dejstvom sile opruge sedišta (5) naslanja na sedište i vrši zatvaranje. Opruga sedišta je dimenzionisana tako da obezbedi potrebnu silu zatvaranja ventila sigurnosti i njena ugradnja omogućava da se eliminiše direktno dejstvo sile opruge regulacije na zatvarač, čime se produžava vek trajanja zaptivača na zatvaraču. Porastom pritiska gasa na ulazu ventila sigurnosti u odnosu na podešeni pritisak otvaranja, sila na membrani savlađuje silu opruge regulacije, povlači trn a tim i zatvarač, savlađujući oprugu sedišta. Gas izlazi iz ventila sigurnosti i preko ispusne cevi odlazi u atmosferu, do trenutka kada se pritisak ne snizi na vrednost projektovanog. Tada sila opruge savlađuje silu na membrani i preko trna i zatvarača ponovo zatvara ventil sigurnosti.



Picture 2. / Slika 2.

Safety blow-off valve type: 212 / Sigurnosno ispusni ventil tip: 212

DIMENSION / DIMENZIJE



Picture 3. / Slika 3.
Dimension / Dimenzije

DN	R ₁	R ₂	ØA	B	L
			[mm]		
15	1/2"	3/4"	80	27	161
20	3/4"	1"	80	32	166
25	1"	5/4"	100	37	176

Table 2. / Tabela 2.

FLOW RATES TABLE St m³/h / TABELA PROTOKA St m³/h

Type 212 R1/2"/R3/4" / Tip 212 R1/2"/R3/4"

p_{set}/p_{pod} [bar]	p [bar]	Q [m ³ /h]
0,6	0,7	33
0,8	1,0	42
1,0	1,2	74
2,0	2,5	272
4,0	4,5	326
5,0	6,0	464

Table 3. / Tabela 3.

Type 212 R3/4"/R1" / Tip 212 R3/4"/R1"

p_{set}/p_{pod} [bar]	p [bar]	Q [St m ³ /h]
0,6	0,7	41
0,8	1,0	52
1,0	1,2	81
2,0	2,5	290
4,0	4,5	457
5,0	6,0	573

Table 4. / Tabela 4.

p_{set}/p_{pod} [bar] – set pressure / pritisak podešavanja

p [bar] – testing pressure / ispitni pritisak

Q [St m³/h] – natural gas flow capacity / protok prirodnog gasa

For other gases with differnt densities, the flow rate must be multiplied by the correction factor: / Za druge gasove, vrednosti iz tabele se množe sa korekcionim faktorom:

$$f = \sqrt{\frac{0,79}{\rho_G}}$$

where ρ_G is gas density at temperature $t = 0$ °C and pressure $p = 1,01325$ bar / gde je ρ_G gustina tog gasa na temperaturi $t = 0$ °C i pritisku $p = 1,01325$ bar.

For usual used gases correction factor is shown in folowing table 8. / Korekциони faktor za najčešće korišćene gasove dat je u tabeli 8.

Gas / Gas	Relative density/ Gustina [kg / Stm ³]	Correction factor f / Korekc. faktor f
Butane / Butan	2,01	0,53
Propane / Propan	1,53	0,62
Air / Vazduh	1	0,77
Nitrogen / Azot	0,97	0,79

Table 5. / Tabela 5.

SET RANGE / OPSEG PODEŠAVANJA

Dimension R1/2" – R3/4" / Dimenzija R1/2" – R3/4"

p_{set}/p_{pod} [bar]	Spring / Opruga [mm]
0,5-1.1	Ø3x11x34x80
1,0-2,5	Ø3,6x11,8x34x80
2,3-4.0	Ø4x11x34x80
3,8-5,0	Ø4,5x11x34x80

Table 6. / Tabela 6.

Dimension R3/4" – R1" / Dimenzija R3/4" – R1"

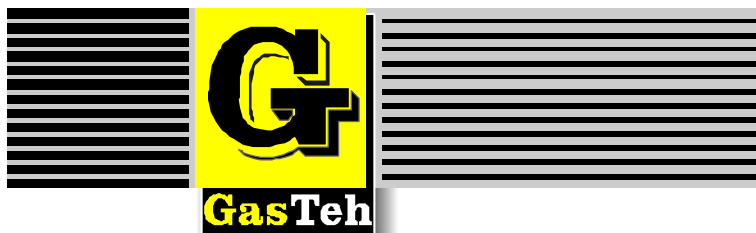
p_{set}/p_{pod} [bar]	Spring / Opruga [mm]
0,5-1,1	Ø3x11x34x80
1,0-2,5	Ø3,6x11,8x34x80
2,3-4,0	Ø4x11x34x80
3,8-5,0	Ø4,5x11x34x80

Table 7. / Tabela 7.

Dimension R1" – R5/4" / Dimenzija R1" – R5/4"

p_{set}/p_{pod} [bar]	Spring / Opruga [mm]
0,5-1.5	Ø3,6x11,8x34x80
1,3-1,8	Ø4x11x34x80
1,6-3,0	Ø4,5x11x34x80
2,8-5,0	Ø5x13,6x34x80

Table 8. / Tabela 8.



"GasTeh" d.o.o.
Kralja Petra I b.b.
22320 Indjija
Serbia
tel/fax: +381022/561-630
e-mail: office@gasteh.com
www.gasteh.com