

RELIEF VALVE



Serie IVR...



DESCRIPTION

The relief valves with automatic exhaust spring control, absorb and release outside pressure peaks in the flow.

Thanks to their discharge capacity, these overflow valves find ideal application in all civil and industrial methane, buthan, propane and other not corrosive gas users.

- In conformity with the 97/23/EC Directive (PED Directive)

- In conformity with the 94/9/EC Directive (ATEX Directive)

IDENTIFICATION

IVR C 01 02N MA B

Relief valve **series IVR...**

Types

C = COMPACT version (DN15-25)

Pmax

01 = Pmax 1 bar
15 = Pmax 1.5 bar
25 = Pmax 2.5 bar
06 = Pmax 6 bar (DN20-25)

B = biogas

Settings: see next page

MA = spring setting (mbar)
M40 = spring setting (mbar)

Connections

Threaded				Flanged			
Code	GAS	Code NPT	NPT	Code	PN 16	Code ANSI	ANSI PN 16
00	DN 8 (G 1/4")	00N	DN 8 (NPT 1/4")				
02	DN 15 (G 1/2")	02N	DN 15 (NPT 1/2")				
03	DN 20 (G 3/4")	03N	DN 20 (NPT 3/4")				
04	DN 25 (G 1")	04N	DN 25 (NPT 1")	25	DN 25	25A	DN 25 ANSI
05	DN 32 (G 1"1/4)	05N	DN 32 (NPT 1"1/4)	32	DN 32	32A	DN 32 ANSI
06	DN 40 (G 1"1/2)	06N	DN 40 (NPT 1"1/2)	40	DN 40	40A	DN 40 ANSI
07	DN 50 (G 2")	07N	DN 50 (NPT 2")	50	DN 50	50A	DN 50 ANSI

**NOTE: not all combinations are possible
 Please contact the technical department.**

SPRING SETTINGS

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 20	16 ÷ 37	M02	1
	30 ÷ 110	M04	
	100 ÷ 160	M05	
	140 ÷ 215	M06	
	215 ÷ 500	M07	2.5
	200 ÷ 1000*	M12*	
	700 ÷ 2100*	M29*	

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 25	16 ÷ 37	M02	1
	30 ÷ 110	M04	
	100 ÷ 160	M05	
	140 ÷ 215	M06	
	215 ÷ 500	M07	2.5
	200 ÷ 1000*	M12*	
	700 ÷ 2100*	M29*	

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 32	30 ÷ 110	M04	1
	100 ÷ 200	M05	2.5
	160 ÷ 300*	M06*	
	260 ÷ 500*	M07*	

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 40	30 ÷ 110	M04	1
	100 ÷ 200	M05	2.5
	160 ÷ 300*	M06*	
	260 ÷ 500*	M07*	

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 50	35 ÷ 135	M07	1
	130 ÷ 200	M30	2.5
	200 ÷ 400*	M07*	
	320 ÷ 500*	M29*	

* = strengthen diaphragm

COMPACT version

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 15 compact	18 ÷ 40	MA	1
	38 ÷ 90	MB	
	80 ÷ 260	MC	

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 20 compact	25 ÷ 50	MA	1
	48 ÷ 120	MB	
	100 ÷ 300	MC	

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 25 compact	25 ÷ 50	MA	1
	48 ÷ 120	MB	
	100 ÷ 300	MC	

G 1/4" connections version

Connections	Setting (mbar)	Spring code	Pmax (bar)
DN 8	40 ÷ 90	M40	1
	80 ÷ 180	M41	
	100 ÷ 360	M42	
	280 ÷ 500	MA	

GENERAL DATA

TECHNICAL DATA

- Use:
 - not aggressive gases of the 3 families (dry gases)
- Threaded connections Rp:
 - (DN 8) according to EN 10226
- Threaded connections Rp:
 - (DN 15 ÷ DN 50) according to EN 10226
- Flanged connections PN 16:
 - (DN 25 - DN 32 - DN 40 - DN 50) according to ISO 7005
- On request ANSI 150 flanged connections
- Max. working pressure:
 - 1 bar, 1,5 bar, 2,5 bar or 6 bar
 - (see product label)
- Environment temperature:
 - 15 ÷ +60 °C
- Max superficial temperature:
 - 60 °C

MATERIALS

- Die-cast aluminium (UNI EN 1706)
- OT-58 brass (UNI EN 12164)
- 11S aluminium (UNI 9002-5)
- NBR rubber (UNI 7702)
- Galvanized and 430 F stainless steel (UNI EN 10088)

COMPONENTS

fig. 1: COMPACT version

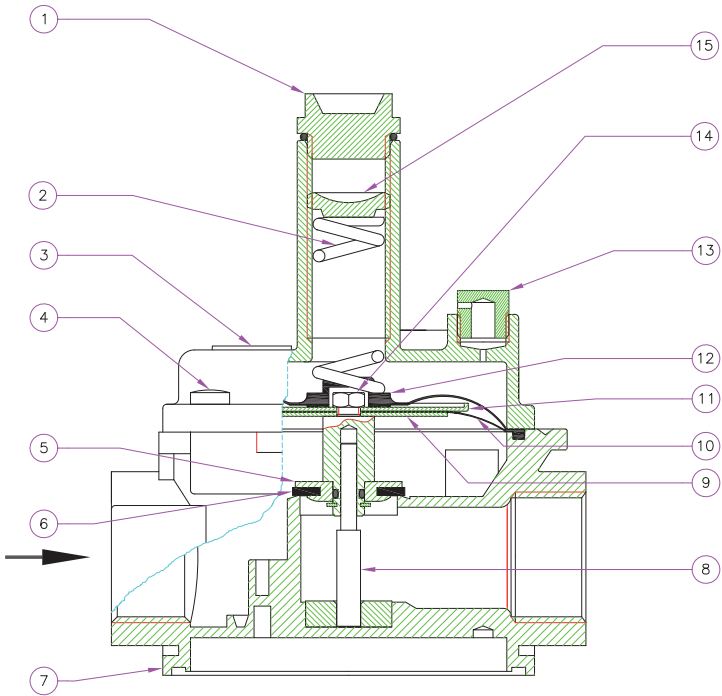
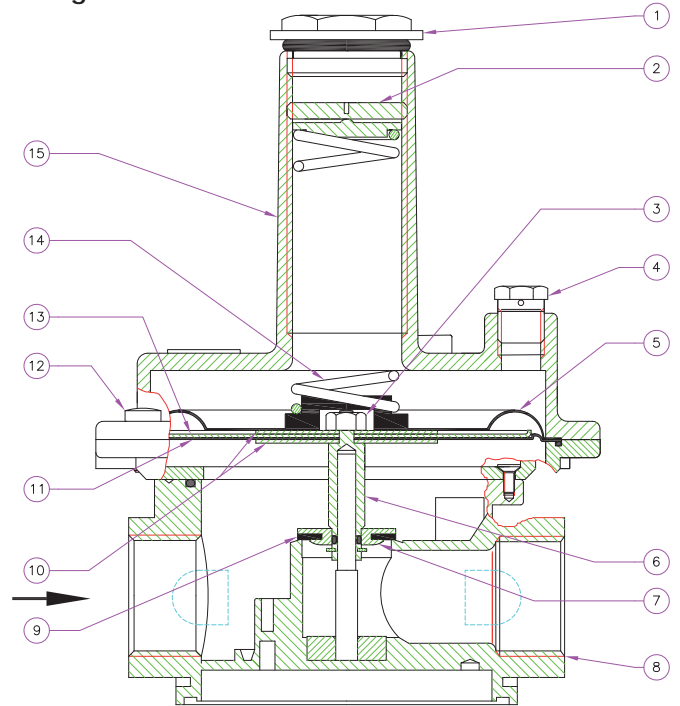


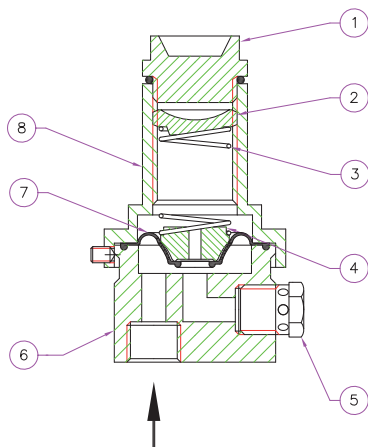
fig. 2



LEGEND

- | | |
|--------------------------------|---------------------------|
| 1 - Aluminium cap | 9 - Seal washer |
| 2 - Regulation screw | 10 - Diaphragm discs |
| 3 - Nut for blocking diaphragm | 11 - Working diaphragm |
| 4 - Antidust cap | 12 - Fixing screws |
| 5 - Safety diaphragm | 13 - Diaphragm upper disc |
| 6 - Central pin | 14 - Setting spring |
| 7 - Obturator | 15 - Funnel |
| 8 - Body | |

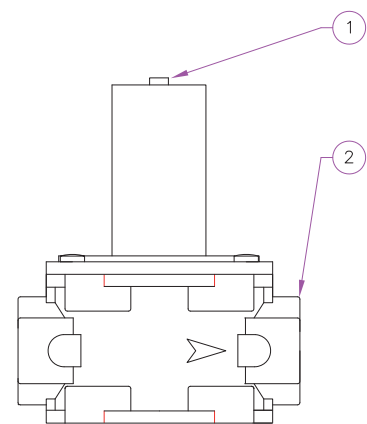
fig. 3:
G 1/4" connections version



LEGEND

- | |
|----------------------|
| 1 - Closing cap |
| 2 - Regulation screw |
| 3 - Setting spring |
| 4 - Obturator |
| 5 - Antidust cap |
| 6 - Body |
| 7 - Diaphragm |
| 8 - Funnel |

fig. 4:
Version 0,3 - 6 bar

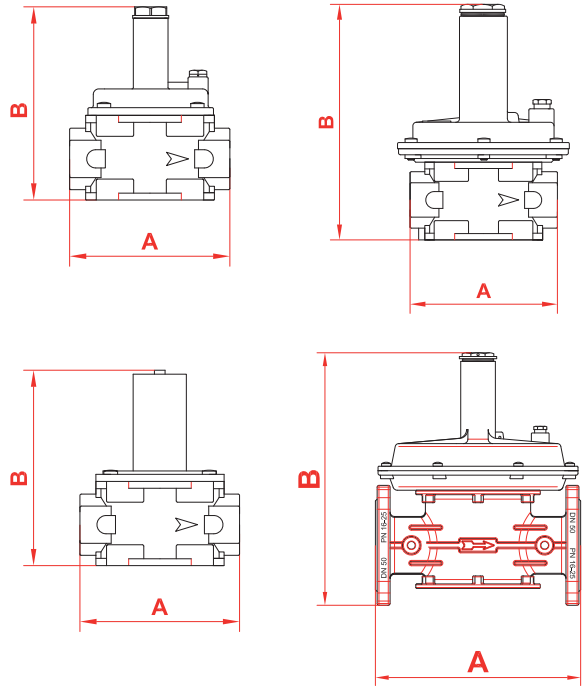


LEGEND

- | |
|----------------------|
| 1 - Regulation screw |
| 2 - Body |

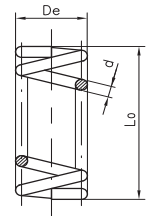
DIMENSIONS

Overall dimensions in mm						
DN	Threaded connections			Flanged connections		
	A	B	Weight (Kg)	A	B	Weight (Kg)
DN 8	45	81	0,2	-	-	-
DN 15 (compact)	120	143	0,7	-	-	-
DN 20 (compact)	120	143	0,7	-	-	-
DN 25 (compact)	120	143	0,7	-	-	-
DN 20 (0,3 ÷ 6 bar)	120	147	1,5	-	-	-
DN 25 (0,3 ÷ 6 bar)	120	147	1,5	-	-	-
DN 20	120	192	1,1	-	-	-
DN 25	120	192	1,1	192	225	3,8
DN 32	160	194	1,6	230	285	2,8
DN 40	160	194	1,6	230	285	2,8
DN 50	160	258	3,1	230	285	4,3



SETTING SPRING

Spring code	Dimensions (mm) (d x De x Lo x it)	Connections	Setting (mbar)
M40	0,8x17x40x6	DN 8	40 ÷ 90
M41	0,9x17x45x7	DN 8	80 ÷ 180
M42	1x17x40x6	DN 8	100 ÷ 360
MA	1x17x70x10	DN 8	280 ÷ 500
MA	1x17x70x10	DN 15 (compact)	18 ÷ 40
MB	1,3x17x70x11	DN 15 (compact)	38 ÷ 90
MC	2x17x54x9	DN 15 (compact)	80 ÷ 260
MA	1x17x70x10	DN 20 - DN 25 (compact)	25 ÷ 50
MB	1,3x17x70x11	DN 20 - DN 25 (compact)	48 ÷ 120
MC	2x17x54x9	DN 20 - DN 25 (compact)	100 ÷ 300
M02	1,6x29x115x12	DN 20 - DN 25	16 ÷ 37
M04	2,2x29x100x12	DN 20 - DN 25	30 ÷ 110
M05	2,5x29x140x18,5	DN 20 - DN 25	100 ÷ 160
M06	2,5x29x155x16	DN 20 - DN 25	140 ÷ 215
M07	3,5x29,8x98x11,5	DN 20 - DN 25	215 ÷ 500
M12*	4x29x98x8	DN 20 - DN 25	200 ÷ 1000
M29*	4,6x29,4x95x9	DN 20 - DN 25	700 ÷ 2100
M04	2,2x29x100x12	DN 32 - DN 40 - DN 50	30 ÷ 110
M05	2,5x29x140x18,5	DN 32 - DN 40 - DN 50	100 ÷ 200
M06*	2,5x29x155x16	DN 32 - DN 40 - DN 50	160 ÷ 300
M07*	3,5x29,8x98x11,5	DN 32 - DN 40 - DN 50	260 ÷ 500
M05	2,5x29x140x18,5	DN 20 - DN 25	20 ÷ 50
M07	3,5x29,8x98x11,5	DN 32 - DN 40 - DN 50	35 ÷ 135
M30	3,5x29,8x150x16	DN 32 - DN 40 - DN 50	130 ÷ 200
M12*	4x29x98x8	DN 32 - DN 40 - DN 50	200 ÷ 400
M29*	4,6x29,4x95x9	DN 32 - DN 40 - DN 50	320 ÷ 500



Dimension Legend

d=diameter
 De = external diameter
 Lo= length
 it = total number of turns

* = strengthen diaphragm

INSTALLATION

The valve is in conformity with the Directive 94/9/CE (Directive ATEX 100 a) as device of group II, category 2G and as device of group II, category 2D; for this reason it is suitable to be installed in the zones 1, 21, 2 and 22 as classified in the attachment I to the Directive 99/92/EC.

The valve is not suitable to be used in zones 0 and 20 as classified in the already said Directive 99/92/EC.

To determine the qualification and the extension of the dangerous zones, see the norm EN 60079-10.

The device, if installed and serviced respecting all the conditions and the technical instructions of this document, is not source of specific dangers: in particular, during the normal working, is forecast, by the solenoid valve, the emission in the atmosphere of inflammable substance only occasionally.

The valve can be dangerous as regards to the presence close to it of other devices only in case of damage either of the working diaphragm or of the safety one: only in this case the valve is a source of emission of the continue degree explosive atmosphere and, so, it can originate dangerous areas 0 as defined in the 99/92/EC Directive.

In conditions of particularly critic installation (places not protected, lack of servicing, lacking availability of ventilation) and, especially in presence, close to the valve, of potential sources of primer and/or dangerous devices during the normal working because susceptible to origine electric arcs or sparks, it is necessary to value before the compatibility between the valve and these devices.

In any case it is necessary to take any useful precaution to avoid that the valve could be origin of areas 0: for example yearly periodical inspection of regular working, possibility to change the emission degree of the source or to attend on the exhaust outside the explosive material.

To do so it is possible to connect outside by a copper pipe the threaded hole G 1/4" removing the brass anti-dust cap.



Installation must be in compliance with local legislation in force!

WARNING: Read carefully the instruction sheet of each product before installing.

Installation and maintenance operations must be carried out by qualified personnel.

- The gas supply must be shut off before installation.
- Check that the line pressure **DOES NOT EXCEED** the maximum pressure stated on the product label.
- The relief valves are installed downstream the regulators and can be installed in any position.
- During installation take care not to allow debris or scraps of metal to enter the device.
- If the device is threaded check that the pipeline thread is not too long; overlong threads may damage the body of the device when screwed into place.
- If the device is flanged check that the inlet and outlet counterflanges are perfectly parallel to avoid unnecessary mechanical stresses on the body of the device.

Also calculate the space needed to fit the seal. If the gap left after the seal is fitted is too wide, do not try to close it by over-tightening the device's bolts.

CALIBRATION

Example a calibration of an overflow valve installed downstream a RG/2MC regulator:

- regulator outlet pressure: 20 mbar
- setting closing valve: 50 mbar
- the overflow valve must be set at 40 mbar

Proceed as follows (see fig.2): screw at maximum the regulation screw (2), then set the output regulator pressure (by the setting screw) to the needed overflow pressure value (in this case 40 mbar), unscrew the regulation screw (2) of the overflow valve as long as it starts to exhaust. Then restore the regulator setting value (in this case 20 mbar).

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MAINTENANCE (see fig. 2)

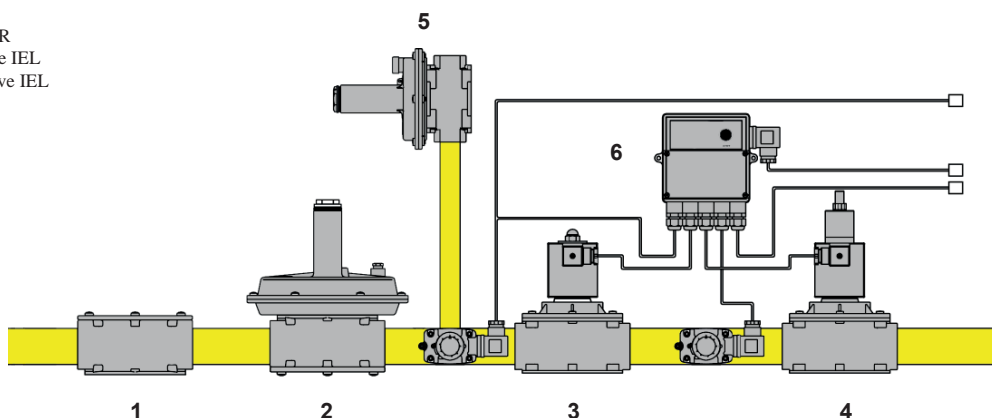
If necessary to check the valve seal component unscrew the closing cap (1) and the setting screw (2) then take off the setting spring (14).

After unscrewing the fixing screws (12) take off the funnel (15) the safety diaphragm (5) and the obturator (7) and check that the diaphragm (11) and the seal component (9) are good. If necessary substitute them.

Reassemble doing backward the same operation.

EXAMPLE OF INSTALLATION

1. gas filter IF
2. filter regulator IFR
3. fast opening valve IEL
4. slow opening valve IEL
5. relief valve IVR
6. leak tester



FOR FORWARD INFORMATION PLEASE CONTACT OUR TECHNICAL OFFICE.

CALIBRATION

Before starting the system, pay attention that the standard regulation spring is suitable with the needed regulation pressure.

After removing the cap (1), calibrate the regulator (2) at the minimum (completely unscrewed), then start the system and checking the regulation pressure, screw the regulator (2) up to the needed pressure.

OFF SERVICE

Unscrew the cap (1) and screw the regulator (2) to its end.

MAINTENANCE

Before disassembling the device make sure that there is no pressured gas inside.

Check or substitute the diaphragms: (see fig. 1, 2 and 3)

unscrew the fixing screws (7) and remove the funnel (4), take off the safety diaphragm (6), unscrew the central nut (25) that fixes the working diaphragm (22) (between two discs) to the central pin (9).

Reassemble doing backward the same operation, paying attention when tightening the nut (25) not to turn the diaphragms (stop the disc (21) on the diaphragm (22) with the free hand).

Check the filtering organ (11) on threaded body: (see fig. 1 and 2)

unscrew the fixing screws (15) and remove the bottom cover (14).

Remove the filtering component (11), clean it with water and soap, blow it with compressed air or substitute it if is necessary. Reassemble it in its original position in its special guide (as in the picture below).

Reassemble the bottom (14) being sure that the central pin (9) is centred in the bottom hole (14).

Check the filtering organ (11) on flanged body: (see fig. 3)

unscrew the fixing screws (15) and remove the bottom cover (14).

Remove the filtering component (11), clean it with water and soap, blow it with compressed air or substitute it if is necessary.

Reassemble it in its original position being sure, when reassembling the bottom (14), that the filter (11) is positioned inside the special guides of the same bottom (14) (see fig. 3).

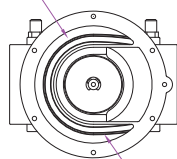
Assembling the bottom (14), pay attention to the teflon ring (17), it must be put inside the special guide (18).



All operations must be carried out only by qualified technicians.

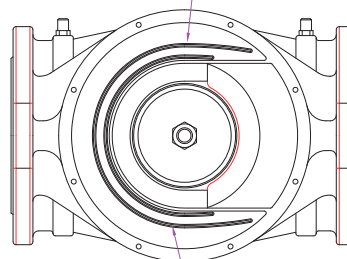
VIEW: threaded body without bottom

Filtering organ guides



Filtering organ must be put inside these guides

Filtering organ guides



Filtering organ must be put inside these guides

THE CHOICE OF THE REGULATOR

The choice of a regulator is very important; first of all you need to know:

1. **The available input pressure (P1)** in the distribution net.
2. **The output pressure (P2)** necessary at the starting of the burner's ramp to grant the required (Q) potential (Kcal or m³/h).

Then an ideal filter regulator should be chosen considering that the flux speed mustn't exceed 30 m/s (see ideal maximum values in following table).

If you need to exceed these flows we suggest to install an overflow valve.

Connections	Q. max (Nm ³ /h)	Flux speed
DN 15	~ 19	~ 30 m/s
DN 20	~ 34	~ 30 m/s
DN 25	~ 53	~ 30 m/s
DN 32	~ 87	~ 30 m/s
DN 40	~ 136	~ 30 m/s
DN 50	~ 212	~ 30 m/s
DN 65	~ 358	~ 30 m/s
DN 80	~ 543	~ 30 m/s
DN 100	~ 848	~ 30 m/s

- From the diagram ΔP - FLOW of regulators you must choose the smallest regulator assuring the necessary flow (Q) a load loss ΔP lower than the difference between the net pressure (P1) and the necessary pressure at the starting of the burner's ramp (P2).

FOR FURTHER INFORMATION PLEASE CONTACT OUR TECHNICAL OFFICE.