

1.0 - GENERAL INFORMATION

This manual shows you how to safely install, operate and use the device.

The instructions for use **ALWAYS** need to be available in the facility where the device is installed.

ATTENTION: installation/maintenance needs to be carried out by qualified staff (as explained in section 1.3) by using suitable personal protective equipment (PPE).

For any information pertaining to installation/maintenance or in case of problems that cannot be solved with the instructions, contact the manufacturer at the address and phone numbers provided on the last page.

1.1 - DESCRIPTION

Device that has the task of absorbing and discharging pressure peaks (water hammers) outside in the open air.

Due to their discharge capacity, the relief valves are ideal for use in all civil and industrial utilities involving methane, butane, propane gases and other non-corrosive gases.

1.2 - KEY TO SYMBOLS



DANGER: In the event of inobservance, this may cause damage to tangible goods.



DANGER: In the event of inobservance, this may cause damage to tangible goods, to people and/or pets.



ATTENTION: Attention is drawn to the technical details intended for qualified staff.

1.3 - QUALIFIED STAFF

These are people who:

- Are familiar with product installation, assembly, start-up and maintenance;
- Know the regulations in force in the region or country pertaining to installation and safety;
- Have first-aid training.



1.4 - USING NON-ORIGINAL SPARE PARTS

- To perform maintenance or change parts (e.g. calibration springs, etc.) **ONLY** manufacturer-recommended spare parts must be used. Using different parts not only voids the product warranty, it could compromise correct device operation.
- The manufacturer is not liable for malfunctions caused by unauthorised tampering or use of non-original spare parts.



1.5 - IMPROPER USE

- The product must only be used for the purpose it was built for.
- It is not allowed to use fluids other than those expressly stated.
- The technical data set forth on the rating plate must not, under any circumstances, be exceeded. The end user or installer is in charge of implementing proper systems to protect the device, which ensure that the maximum pressure indicated on the rating plate is not exceeded.
- The manufacturer is not responsible for any damage caused by improper use of the device.

2.0 - TECHNICAL DATA

- Use : non-aggressive gases of the three families (dry gases)
 - Ambient temperature (TS) : -15 ÷ +60 °C
 - Maximum operating pressure : 1 - 1,5 - 2,5 - 6 - 7 bar (see product label)
 - Mechanical strength : Group 2 (according to EN 13611)
 - Rp Threaded connections : (DN 8 - DN 15 - DN 20 - DN 25 - DN 32 - DN 40 - DN 50) according to EN 10226
 - Flanged connections that can be coupled to PN 16 flanges : (DN 25* - DN 32 - DN 40 - DN 50) according to ISO 7005 / EN 1092-1
 - NPT threaded or ANSI 150 flanged connections : on request
 - In compliance with : PED Directive 2014/68/EU - ATEX Directive 2014/34/EU
- * DN 25 with swivel flanges.

2.1 - MODEL IDENTIFICATION

- MVS/1** : Relief valve - Max P. 1 - 1.5 - 2.5 - 6 bar
MVSP/1 : Compact Relief valve - Max P. 1 - 7 bar

3.0 - COMMISSIONING THE DEVICE



3.1 - OPERATIONS PRIOR TO INSTALLATION

- It is necessary to close the gas upstream of the valve prior to installation;
- Make sure that the line pressure **DOES NOT EXCEED** the maximum pressure declared on the product label;
- Any protective caps (if any) must be removed prior to installation;
- Valve pipes and insides must be clear of any foreign bodies;

If the device is threaded:

- make sure that the pipe thread is not too long, to prevent damaging the body of the device when screwing it on;

If the device is flanged:

- make sure the inlet and outlet counter-flanges are perfectly coaxial and parallel in order to prevent unnecessary mechanical stress to the body. Also calculate the space to insert the seal gasket;
- With regard to tightening operations, equip yourself with one or two calibrated torque wrenches or other controlled locking tools;
- With outdoor installation, it is advisable to install a protective roof to prevent rain from oxidising or damaging parts of the device.



- According to the plant geometry, check the risk of an explosive mixture arising inside the piping;
- If the valve is installed near other devices or as part of an assembly, compatibility between the valve and this other device must be evaluated beforehand;
- Provide protection against impact or accidental contacts if the solenoid valve is accessible to unqualified personnel.



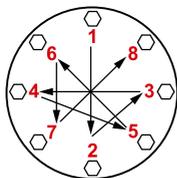
3.2 - INSTALLATION (see example in 3.4)

Threaded devices:

- Assemble the device by screwing it, with the due seals, onto the plant with pipes and/or fittings whose threads are consistent with the connection being attached.
- Do not use the neck of the top cover (**15**) as a lever to help you screw it on, but only use the specific tool;
- The arrow, shown on the body (**8**) of the device, needs to be pointing towards the application;
- Convey the valve discharge outside, in a non-hazardous ventilated area.

Flanged devices:

- Assemble the device by flanging it, with the due seals, onto the plant with pipes whose flanges are consistent with the connection being attached. The gaskets must be free from defects and must be centred between the flanges;
- If, after installing the gaskets, there is still too much space in between, do not try to reduce said gap by excessively tightening the bolts of the device;
- The relief valves are installed downstream of the regulators and can be installed in any position.
- Insert the relative washers inside the bolts in order to prevent damage to the flanges during the tightening stage;
- When tightening, be careful not to “pinch” or damage the gasket;
- Tighten the nuts or bolts gradually, in a “cross” pattern (see the example below);
- Tighten them, first by 30%, then by 60% and finally 100% of the maximum torque (see the table below according to EN 13611);



Diameter	DN 25	DN 32	DN 40	DN 50
Max. torque (N.m)	30	50	50	50

- Tighten each nut and bolt again clockwise at least once, until the maximum torque has been achieved uniformly;

Common procedures (threaded and flanged devices):

- During installation, avoid debris or metal residues from getting into the device;
- To guarantee mechanical tension-free assembly, we recommend using compensating joints, which also adjust to the pipe's thermal expansion;
- If the device needs to be installed in a ramp, it is the installer's responsibility to provide suitable supports or correctly sized supports to properly hold and secure the assembly. Never, for any reason whatsoever, leave the weight of the ramp resting only on the connections (threaded or flanged) of the individual devices;
- In any case, following installation, check the tightness of the plant;

3.3 - INSTALLATION IN PLACES WHERE THERE IS THE RISK OF EXPLOSION (DIRECTIVE 2014/34/EU)

The valve complies with Directive 2014/34/EU as group II equipment, category 2G and as group II equipment, category 2D; consequently, it is suited for installation in zones 1 and 21 (besides zones 2 and 22) as classified in Annex I of Directive 99/92/EC.

The valve is not suitable for use in zones 0 and 20, as defined in aforementioned Directive 99/92/EC.

To determine the qualification and size of the danger zones, please refer to standard IEC EN 60079-10-1.

If installed and subject to maintenance in full compliance with all conditions and technical instructions provided in this manual, the device does not pose a source of specific hazards: in particular, under conditions of normal operation, the valve is expected to emit a flammable substance into the atmosphere only occasionally.

Convey the valve discharge outside, in a non-hazardous ventilated area.

The valve can be dangerous with respect to the presence of other equipment nearby in case of failure, of the operating membrane (**11**) in single diaphragm devices, or in case of failure of both the operating diaphragm (**11**) and the safety diaphragm (**5**) in double membrane appliances: in this case (and only in this case) it constitutes a source of emission of explosive atmosphere of continuous degree and, as such, it can originate dangerous zones 0 as defined in the Directive 99/92/EC.

In particularly critical installation conditions (unattended areas, poor maintenance or poor ventilation) and especially if there are potential sources of ignition and/or hazardous equipment near the valve in regular operation, as they may generate electric arcs or sparks, a preliminary assessment of the compatibility between the valve and such equipment must be carried out.

In any case, every useful precaution must be adopted so as to prevent the valve from generating zones 0: for example, annually verify regular operation, possibility of changing the degree of emission of the source or intervening on the external explosive substance discharge.

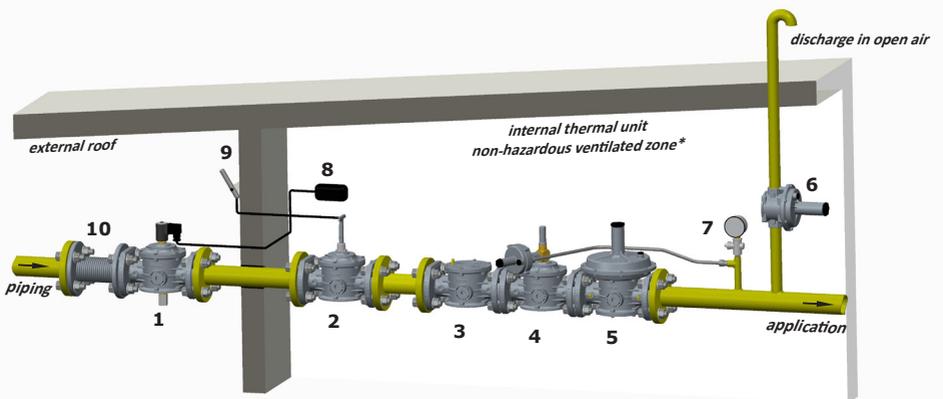
For this purpose the threaded hole of the top cover (**15**) can be connected to the outside (using appropriate fittings and pipe) by removing the dust cap (**4**). The threaded hole connection can be G 1/4 or G 3/8 (see indications in fig. 1, 2, 3, 4 and 5).

3.4 - GENERIC EXAMPLE OF AN INSTALLATION

1. M16/RM N.C. Manual reset solenoid valve
2. SM jerk ON/OFF valve
3. FM gas filter
4. OPSO series MVB/1 MAX shut off valve
5. RG/2MC pressure regulator

6. MVS/1 relief valve

7. Pressure gauge and relative button
8. Gas detector
9. SM remote jerk ON/OFF valve lever control
10. Expansion joint/anti-vibration mount



* if the zone is ATEX classified follow the indications of 3.3



4.0 - FIRST START-UP



- Before start-up, make sure that all the instructions on the rating plate, including the direction of flow, are observed;
- After having gradually pressurised the system, check the tightness and operation of the valve.



4.1 - RECOMMENDED PERIODIC CHECKS

- Use a suitable calibrated tool to ensure the bolts are tightened as indicated in 3.2;
- Check the tightness of the flanged/threaded connections on the system;
- Check the tightness and operation of the valve;

The final user or installer is responsible for defining the frequency of these checks based on the severity of the service conditions.



5.0 - CALIBRATION

Calibration example for a relief valve installed downstream of a RG/2MC regulator:

- regulator outlet pressure: 20 mbar
- block valve calibration: 50 mbar
- relief valve calibration: 40 mbar

Proceed as follows (see fig. 1):

- Loosen and remove the closing cap (1);
- Tighten the adjustment screw (2) to the maximum;
- Adjust the regulator outlet pressure (using the adjustment screw) to the desired relief pressure value (in this case 40 mbar);
- Loosen the adjustment screw (2) of the relief valve until it starts to discharge gas;
- The valve is now calibrated, restore the calibration valve of the regulator (in this case 20 mbar) and close the closing caps of the devices.



5.1 - REPLACING THE SPRING



The step must be carried out without gas inside the valve.

Replace the spring as follows:

- Unscrew and remove the cap (**1**) from the top cover (**15**);
- Completely loosen and remove the adjustment screw (**2**);
- Remove the spring washer (if any);
- Remove the spring (**14**) from the top cover (**15**) and replace it with the new spring;
- Place the washer on the new spring again;
- Tighten the adjustment screw (**2**) and after starting the system as shown in 4.0, perform calibration to the desired value shown in 5.0;
- Screw the cap (**1**) back on and if necessary, seal it in that position using the appropriate seal holes (if present);

• **NOTE:** The operation is not carried out in versions with max P. = 6 bar (see fig. 7).



6.0 - MAINTENANCE



- No maintenance operations need to be carried out inside the device. If it is necessary to perform operations inside the device (spring change, membrane replacement, etc.) we recommend contacting the Technical Department. In any case, before carrying out any dismantling operation on the device, make sure that there is no pressurised gas inside.

7.0 - TRANSPORT, STORAGE AND DISPOSAL

- During transport the material needs to be handled with care, avoiding any impact or vibrations to the device;
- If the product has any surface treatments (ex. painting, cataphoresis, etc) it must not be damaged during transport;
- The transport and storage temperatures must observe the values provided on the rating plate;
- If the device is not installed immediately after delivery it must be correctly placed in storage in a dry and clean place;
- In humid facilities, it is necessary to use driers or heating to avoid condensation.
- At the end of its service life, the product must be disposed of in compliance with the legislation in force in the country where this operation is performed.

7.0 - WARRANTY

The warranty conditions agreed with the manufacturer at the time of the supply apply.

Damage caused by:

- Improper use of the device;
- Failure to observe the requirements described in this document;
- Failure to observe installation rules;
- Tampering, modification and use of non-original spare parts;

are not covered by the rights of the warranty or compensation for damage.

The warranty also excludes maintenance work, the assembly of devices of other manufacturers, making changes to the device and natural wear.

9.0 - RATING PLATE DATA

The rating plate data (see examples provided here) includes the following:

- Manufacturer's name/logo and address
(any distributor name/logo)
- Mod.: = device name/model
followed by the connection diameter
- P.max = Maximum pressure at which product operation is guaranteed
- PS = Allowable pressure
- Who = Relief pressure range
- TS = Temperature range that product operation is guaranteed within
-  = In compliance with PED directive followed by the no. of the Notified Body
-  = In compliance with ATEX Dir. followed by the protection mode
- year = Year of manufacture
- Lot = Product serial number (see explanation below)
 - U1802 = Lot issued in year 2017 in the 45th week
 - 1065 = progressive job order number for the specified year
 - 00001 = progressive number referring to the quantity of the lot

