

TECHNICAL MANUAL



Instructions for installation and commissioning of seismic valves model: SV

English version 

INDEX

1. General information and warnings for installer staff (page.3)

2. Prescriptions before installation (pag.4)

3. Safety instruction (Pag.5/6)

4. Instructions for installation, use and maintenance of the valve SV (pag.7/8)

5. Commisioning and maintenance (page.9)

6. Reset and activation of the device (pag.10/11)

7. Information indicated on the product (pag. 12)

8. Declaration of conformity CE (pag. 13)

9. Warranty (pag. 14)

10. Contacts (pag. 15)



Before to proceed to installation, commissioning or maintenance, operators must:

- Examine the safety provisions applicable to installation which they must operate;
- Obtain the necessary permits to operate when required;
- Adopt the necessary personal protection equipment.
- Ensure that the area in which they operate is equipped both with means of collective protection provided and the necessary security details; in particular if the gas used is flammable the surrounding area must be ATEX classified.
- In particular, check if the area in which you work is classified for ATEX purposes and corresponding to the product marking (2G = Zone 1)

PRELIMINARY CHECKS FOR PROPER OPERATION

It is advisable to execute a preliminary verify of product at the time of delivery for detect and report any damage incurred during transport and handling. In the event of a claim you should contact our technical assistance office.

GENERAL PRODUCT INFORMATION:

S-TECH used for the marking and distribution of seismic valves model SV. The use of gas valves with automatic seismic action with manual reset is recommended, and it is also, in some cases, a legal obligation, to prevent damage caused by an earthquake from adding other damage due to fire or explosion caused by the consequent gas leaks.

The valves have been designed to automatically intercept the gas in the event of an earthquake according to the internationally recognized American standard ASCE 25-16 and have been subjected to the CE marking according to the following European directives:

- DIRECTIVE 2014/34 / EU (ATEX) in force since 20/4/2016 concerning the approximation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres.
- DIRECTIVE 99/92 / EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 1999 relating to the minimum requirements for improving the protection of the safety and health of workers who may be exposed to the risk of explosive atmospheres.
- DIRECTIVE 2014/68 / EU (PED) implemented with Legislative Decree 26/2016 for the approximation of the laws of the Member States on pressure equipment.

For the purposes of preventing seismic risks and identifying seismic areas, the Presidency of the Council of Ministers issued on 20 March 2003, ordinance N ° 3274, updated with OPCM 3519/06, which provides that they are used as reference standards some technical guides attached to the ordinance, drawn up by experts in the sector.

Some data on seismic risk can also be obtained from the civil protection site:

<https://rischi.protezionecivile.gov.it/it/sismico/attivita/classificazione-sismica>

Once your seismic area has been identified, even if there is no legal obligation (... service systems above 50 m³ / h must be equipped with valves for the automatic interruption of the gas supply...), therefore also for systems with a flow rate of less than 50 m³ / h including domestic, it is recommended to install the seismic valve in order to avoid further dangerous situations in the event of an earthquake.

SV valves have sizes ranging from DN15 up to DN250 with two pressure classes 500mbar and 4bar as prescribed by the Asce25-16 technical standard and can be installed vertically or horizontally.

For the European market, the product is distributed with the CE marking while for markets in the Americas the valves are subjected to the CSA (US + C) marking; both markings are evaluated by the third Notified Body for compliance with the Axes 25-16 technical standard.

PRESCRIPTION BEFORE INSTALLATION

The device consists of a valve with a mechanical seismic actuator, with automatic intervention, with manual reset, which can be installed, depending on the project, in a vertical or horizontal position. In its normal working position, the valve is armed in the open position and closes automatically by releasing the shutter when the mechanical seismic actuator detects stresses like those indicated in the Axes 25-16 technical standard.

The SV valve is designed for installation upstream of the gas system that develops inside both civil and industrial buildings or near the regulation and measurement units to protect them or, in any case, to protect the section of the plant, utilities or equipment located downstream of the SV seismic valve in the case of seismic events or catastrophic damage that can stress the valve like the magnitude of an earthquake (accidental violent shocks, landslides, violent floods, etc.).

Before proceeding with the assembly, it must be ensured that the SV seismic valve to be installed is suitable for the place in which it will be used both for the presence of an area classified as dangerous for explosion and for the pressure rating of the piping.

The utmost care must be used during loading, unloading, transport and installation operations in order to safeguard the integrity of all parts of the SV valve.

SV valves must always be used within the standard installation conditions provided by the manufacturer.

For the installation of the SV valve, the environmental conditions must be taken into account to ensure correct operation over time. The manual reset element of the valve, the bubble viewer that indicates the correct installation position and the plate should be easily accessible to operators in charge of operation and maintenance.

Any subsidence / settlement of the ground, corrosion and other risks must be taken into account. The components used for installation must be suitable for the pressures and temperatures that occur under normal operating conditions as well as for pressures up to the declared Maximum Operating Pressure. For any arrangements inside buildings, the fire protection names contained in EN 1775 must be respected.

The installation, use and maintenance of the SV valve in a different way from that foreseen by the manufacturer (see the standard installation conditions and the prescriptions given below) can jeopardize the protection method adopted due to the risk of explosion (with very serious consequences for safety) and the annulment of the EC declaration of conformity, thus invalidating the respective responsibilities on the part of the manufacturer.

The same consequence occurs if modifications of any kind are made to the valve or if it is modified or disassembled having access to the internal parts without authorization or if it is used improperly that does not comply with what is described in this manual.

However, the possibility of using the SV valve in installation conditions other than those indicated is not excluded, unless verified by the manufacturer, but in any case it can only take place with the specific written authorization of the manufacturer.

Requirements for technical staff

Installation and maintenance must be carried out by suitably trained personnel with proven experience and in compliance with the applicable European directives and local regulations and must be carried out by personnel with the qualifications required by Italian law for installation and maintenance. of plants and equipment that use combustible gas.

During these activities, personnel not strictly necessary must be removed and the work space must be appropriately marked, which must highlight the dangerous conditions, prohibitions, behaviors and safety information in accordance with current workplace safety regulations.

ATTENTION!

BEFORE PROCEEDING WITH THE INSTALLATION, IT IS RECOMMENDED TO CAREFULLY READ AND CHECK THE FOLLOWING INSTRUCTIONS IN THIS MANUAL.

SAFETY INSTRUCTION

SV seismic valves must be used in compliance with the following requirements which are essential for protection against the risk of explosion.

Before starting the installation, in agreement with the customer's safety managers, it must be ensured that there is no explosive atmosphere in the area. This situation must be guaranteed for the entire duration of the installation and blank testing operations until the valve is put into operation.

The SV model seismic gas valve is a device whose safety **is provided for use in hazardous areas classified as surface for group IIB gas** (propane, methane, etc...).

The ATEX installation category is 2G (Zone 1, 2) and compliance with the EHSR (Essential Health and Safety Requirements) of the ATEX Directive is guaranteed in accordance with EN ISO 80079-36 and EN ISO 80079-37

Electrostatic discharges

This device is also suitable for installation in a potentially explosive area in accordance with the previous paragraph. In this area, the sparks produced by electrostatic discharges could generate explosions. Although during normal operation there are no potential hazards on the appliance, during installation / maintenance activities we recommend the use of dissipative footwear and a damp cloth ($\rho\% > 65\%$).

Equipotential bonding

Inside buildings, all metal parts that make up the installation of the seismic valve, if they can be the site of electrostatic charges, must be tied and connected to a ground wire in accordance with EN 1775. Care should be taken to avoid interactions between this equipotential bonding and a cathodic corrosion protection system.

Indications provided for marking

This device is designed to meet the protection requirements according to the marking affixed by the manufacturer: **II 2G Ex h IIB T4 Gb**, the temperature range of use, environment and fluid, are between $-23\text{ }^\circ / +66\text{ }^\circ\text{C}$.

Description of symbols relating to intrinsic safety

TÜV IT 22 ATEX 029 AR	Atex deposit certificate number
CE	CE: product compliant with applicable European Directives
0918	identification code of Notification Body (TUV)
Ex	Ex brand: indicates a product compliant with installation in a hazardous area
II	Group II: surface installation
2G	Category 2 product (zone 1) for gases, fumes, vapors
Ex h	Type of protection adopted
IIB	Group of gases considered (propane, ethylene, natural gas)
T4	Temperature class
Tamb: -25°C ~ +66°C	Temperature for the use of the valve within which the safety of use is guaranteed

Installation near regulation and measurement groups

If the SV valve is installed in the immediate vicinity of regulation and measurement groups and / or is incorporated in the same protection cabin / cabinet, all the precautions and design and safety requirements provided for by the EN 12279 and EN 12186 standards must be respected. particularly for the phases of first start-up, normal operating conditions, decommissioning and restarting of the system.

Requirements according to points 6.1, 6.2 and 6.3 of the EN 12186 standard

6.1 Gas pressure regulating stations must be designed, constructed, positioned, operated and maintained taking into account the safety and environmental requirements of the applicable regulations.

During the initial planning phase of the station, careful consideration must be given to the configuration of the site, the need for security of the site and the possible housing of the installation.

Locations susceptible to impact damage should be avoided, or adequate precautions must be taken to prevent them.

6.2 The area of the site must be adequate to house the equipment,... taking into consideration the safety distance required by the regulations.

..... ..The need to provide emergency exits must be taken into consideration and, where appropriate, these must be installed.

The extent of the hazardous areas must be determined and taken into account when defining the site's battery limits.

6.3 Site Security

The gas pressure regulation stations must be secured against the entry of unauthorized persons.

If using a site safety fence, the equipment should be placed far enough away from the fence to prevent outside interference.

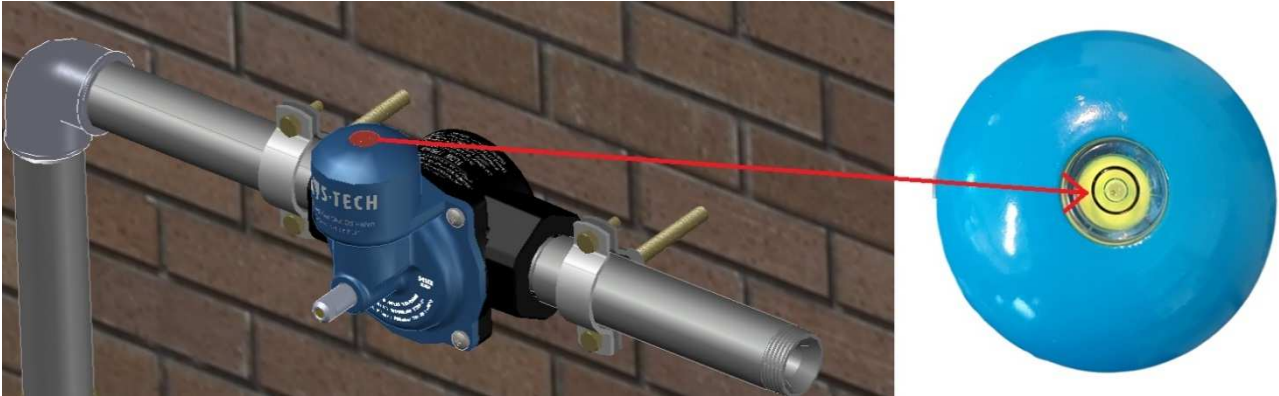
In an area subject to greater risk of interference, an adequate number of security inspections for the station or the use of anti-intrusion devices must be considered.

Clearly visible signs prohibiting smoking and other sources of ignition must be displayed. The entrances to hazardous areas must be marked according to national regulations.

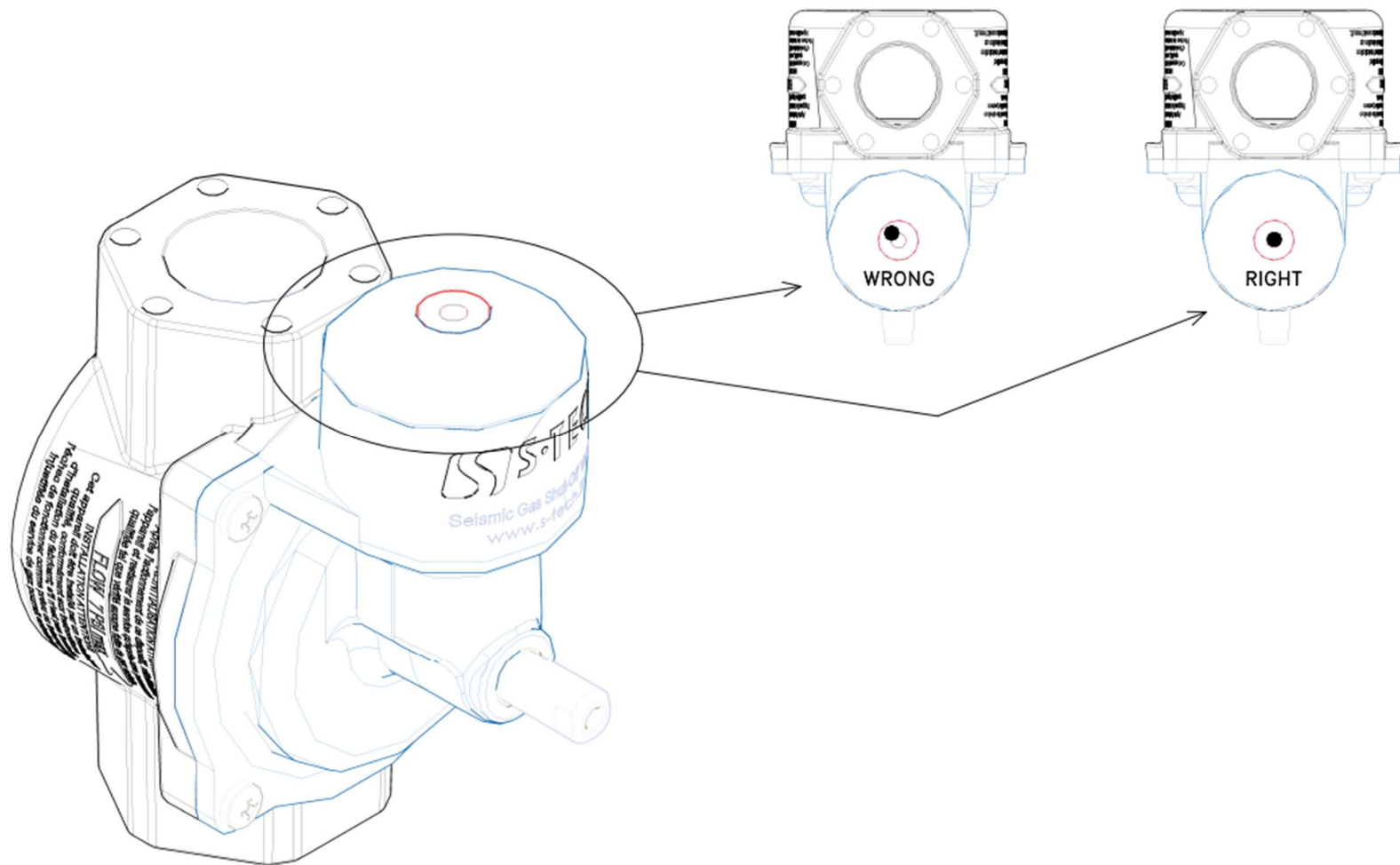
Signs indicating an emergency telephone number must be clearly displayed.

INSTRUCTION FOR INSTALLATION, USE AND MAINTENANCE OF THE SEISMIC VALVE SV

The SV valve incorporates a bubble viewer as in the spirit levels, to indicate its correct positioning and consequently its operation; if the valve is installed correctly, the bubble must be positioned in the center of the viewer, present above the sensitive organ, as shown in the image below:



Further illustrative example:



During the installation you must perform the following operations:

- The installation must be carried out by adequately trained personnel;
- Verify exactly the correspondence of data reported on the label with your requirements;
- Verify that the installation is carried out according to laws in force and according to the rules of good practice in the use of LPG and Natural Gas;
- Make sure that the valve chosen is suitable for the maximum operating pressure and for the classified area declared in the Atex marking;
- The mechanical installation must be made so that in subsequent operation the SV seismic valve itself is not subjected to vibrations, abnormal temperatures, stray currents or currents due to cathodic protection devices;
- Check the available space, that the dimensions are adequate for the intended installation area depending on its horizontal or vertical installation as they have different dimensions depending on the type and that the assembly allows any maintenance of the product itself; (If the space is insufficient (meter mounted in a box or niche in the wall) or it is not possible to interrupt the piping, the valve can be mounted anywhere on the line before entering the house.
- Make sure that the upstream and downstream shut-off valves are closed;
- Stop the flow of gas by closing the inlet valve located before the meter;
- After checking the condition of the pipe, that it is not damaged by corrosion, (otherwise replaced) proceed by cutting it to size and threading the ends;
- Before fixing it on the piping, carry out an intervention test by arming the valve (see instructions on page 9) in a horizontal or vertical position according to the model and shaking it slowly until the activation of the operation audible by the metallic noise produced by the closing of the shutter;
- Make sure that the fluid passing through the valve is suitably filtered and therefore cleaned, if necessary, install a suitable filter upstream of the seismic valve capable of retaining any impurities present in the fluid passage;
- Check that the upstream and downstream pipes are aligned and centered correctly, fixed integrally with the wall by means of special wall fixing collars, making sure that they are able to support the weight of the seismic valve without transmitting bending-torsional stresses to the valve body itself;
- **Check that there is parallelism between the product connections with the pipes before and after the seismic valve in such a way as to make the pipe / valve assembly integral with the wall where it is installed, so that the stresses of the wall in the event of an earthquake are also transmitted to the valve;**
- Check that the pipe has been cleaned of any impurities and that it does not contain dirt, welding residues, slag and paint residues;
- **• Check the correct position of the valve by making sure that the bubble indicator in the upper part of the sensitive element of the valve shows the bubble in the center (this indicates that the ball inside it is perfectly seated in the seat of the sensitive element and the product can function properly);**
- Make sure the seismic valve is installed on the line with the arrow on the body in the same direction as the gas flow.



COMMISSIONING

For installation on the methane gas distribution network, the risk of formation of explosive mixtures (gas / air) inside the pipes must also be considered. After installation, check that the inlet and outlet on-off valves, any by-pass and the relief valve are all closed. Before proceeding with commissioning, it is recommended to check the external tightness of the system, checking for any gas leaks / leaks. In the event of a gas leak, using a soapy solution, bubbles or swellings will form. Although the devices are delivered prepared from the factory, it is possible that these values may undergo possible deviations during transport (due to vibrations, etc.), it is therefore advisable to check the settings according to the procedures listed below.

During commissioning, the risks associated with any discharges into the atmosphere of flammable or noxious gases from sources other than the valve itself must be assessed.

During commissioning, the following steps must be carried out:

It is recommended to operate the opening and closing valves very slowly because too rapid maneuvers could damage the seismic valve.

1. Commissioning must be carried out by suitably trained personnel.
2. After all safety checks, slowly open the upstream shut-off valve until pressure stabilization is achieved;
3. After completing the hydraulic connections, carry out the required tests to check the tightness of the discontinuity points of the gas circuit.
4. Once the product installation is complete, proceed with the reset. (See page 9 for reset instructions).
5. Once the seismic valve has been armed, replace the pin covering the reset stem correctly screwed backwards on the body of the device. (In this way the reset stem of the device is protected from deterioration of the rubber seals due to the deposit of dust, water and / or other corrosive agents, extending the useful life of the device).
6. Slowly open the downstream on-off valve until pressure stabilization is reached and carry out the safety checks relating to the valve outlet seal;
7. **Having checked that there are no gas leaks, the valve remains in operation armed for its purpose.**
8. It is of fundamental importance that the valve remains mounted correctly with the bubble viewer in the correct position, verifying over time any deviations due to subsidence of the ground.
9. **If the valve is installed improperly, it could cause the failure or intentional or unjustified interruption of the gas supply service.**



MAINTENANCE

A specific periodic maintenance of the device is not necessary if correctly installed and if corrosive gases are not used.

RESET AND DEVICE ACTIVATION

Please inform the competent authorities in case the device is activated following an earthquake.
Before proceeding with the reset, you must check that there are no gas leaks.

Procedure for resetting, see the images below:





- Figure 1 shows how the product will be delivered (seismic valve and pin in the same packaging but separate).
- Figure 2 shows how the pin is screwed into the stem to proceed with the reset.
- Figure 3 shows how the reset is activated by pulling the pin screwed onto the reset stem.
- Figure 4 shows the direction to reposition the pin.
- Figure 5 demonstrates how the pin must be repositioned correctly in order to protect the device. In this way, the reset stem of the device is protected from deterioration of the rubber seals due to the deposit of dust, water and / or other corrosive agents, prolonging the useful life of the device.

GENERAL INFORMATION INDICATED IN THE PRODUCT

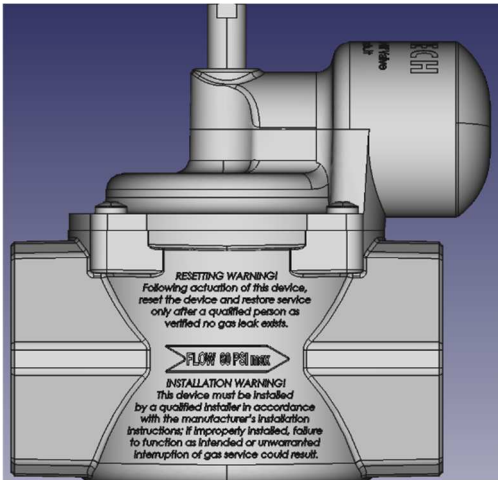
The plate shows

- the identification data of the single valve (code, connections, year of production);
- the data relating to the parameters for use in an area classified for Atex purposes and their symbols;
- reports information about the installation position and the pressure and temperature limits;
- the CE marking and the identification number of the Notified Body;
- name or trademark identification of the manufacturer.

Example of label:



WARNINGS / INDICATIONS ON THE PRODUCT



ATTENTION! This device must be installed by a qualified technician according to the regulations in force; if installed improperly, it could cause non-functioning such as intentional or unjustified interruption of the gas supply service.

FLOW / ARROW = the seismic valve must be installed respecting the flow direction indicated by the line with the arrow on the body, paying attention to the maximum operating pressure.

Notice for recovery:

ATTENTION! Following activation of the device, it can only be reset after a qualified technician has checked that there are no gas leaks.

LIST OF SYMBOLS USED IN THE PRODUCT AND IN THE CERTIFICATES

CE = compliance with applicable European Directives

0918 = Notification Body (TUV) identification code

Ex = indicates a product compliant with installation in a hazardous area, for further Atex indications check page 5

TS: -25°C ~ +66°C = Temperature range within which compliance and intrinsic safety is guaranteed

S.N. = Serial number

DN = size connections

P. Max = Maximum working pressure

Position = Working position (that can be horizontal and vertical)

YEAR = production year

It is possible to consult the technical data of the valve in the body of the product itself, and in the packaging label.