ESKA

ETV-D1 and ETV-S7 SERIES

RELIEF VALVE

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

"Read carefully before all procedures and follow the instructions. Do not carry out any procedure unspecified in this manual."

"Retain this manual for future references."

"The product must only be installed by authorized people."

"This product must be assembled in accordance with current rules, regulations and guidelines."

Rev.0 – 13.08.2024

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The right to make changes in this manual due to technical developments is reserved.

The 2014/68/EU Pressure Equipment Directive has been applied and the manual has been prepared accordingly.

1. GENERAL WARNINGS

All procedures described in this manual must only be performed by expert personnel who have been approved by authorized bodies. Unauthorized individuals must never interfere with the product. Our company shall not be held responsible for any malfunction, damage, accident, or similar situations resulting from actions carried out without complying with the rules and information provided in this manual.

End users and unauthorized individuals must read this instruction manual, follow all relevant safety rules, and under no circumstances should they interfere with, tamper with, attempt to adjust, or physically access the product. In the event of malfunction, detection of gas leakage, or the smell of gas, the inlet valve located in front of the product must be shut off, and the relevant gas distribution company and/or authorized and certified professionals must be notified. The area must be ventilated during this process.

Do not perform any operation if there is electrical voltage or gas pressure present around the product. Necessary interventions must be carried out in accordance with official regulations. It is strictly prohibited to smoke or light a fire within 2 meters of the product. The product must be kept away from chemicals, rain, and water as much as possible. All necessary precautions must be taken against possible exposure to natural events (such as earthquakes, floods, landslides, fires, etc.).

Read this manual and the label on the product carefully before each operation. Keep this manual and the label for future reference. Use the product in accordance with the information stated on the label and the instructions in this manual. If the manual and/or label is missing, do not begin any operation and contact authorized personnel. In the case of any use that is not specified or contradicts the instructions in this manual, the product may malfunction, become damaged, or cause material loss, injury, or death. If there is any doubt before, during, or after any operation, contact the authorized personnel.

Always keep this manual, the product label, and the product packaging at the facility where the product is located and as close to the product as possible. After all operations, store this manual, the label, and the packaging in a safe location. If you cannot access this manual or the label, or if there are any unclear, unknown, or uncertain issues before starting any operation—or if you are unable to perform operations even while following the instructions—contact the authorized personnel. Do not exceed the technical limits stated in this manual or on the product label. Do not begin any procedure before accessing and reading this instruction manual.

The product is designed for its intended use and for other reasonably foreseeable operating conditions and loads. It must only be used under the conditions it was designed and manufactured for. The working limits stated in the technical specifications section must not be exceeded, and the product must not be subjected to pressure higher than its maximum rated pressure. No fluid other than the specified suitable fluids should be used. Determine all operating conditions and select the correct product accordingly. Otherwise, the manufacturer shall not be held responsible. Verify correctness by comparing with the information provided in the manual and on the product label. If all is in order, proceed to the installation phase. If the manual and label information do not match, do not use the product and contact authorized personnel. Do not use the product if it is not suitable for site conditions.

When returning defective products, replacements, or incorrect products to the manufacturer, ensure the product includes its box, relevant fittings, accessories, connectors, gaskets, this user manual, and the product label. Otherwise, the manufacturer reserves the right to reject the return.

Throughout all operations described in this manual and during the product's use, always use appropriate tools and methods. All our products are packaged in specially designed boxes to prevent damage during transport and handling. During transport, handling, and all processes, ensure the products and their packaging are not dropped, thrown, shaken, exposed to excessive load, force, or impact, crushed, stacked with heavy objects, or damaged externally. Ensure external parts and protrusions are not harmed, and prevent the product from getting wet or tipping over. The product and any additional or spare parts must be kept in their original packaging until the installation stage.

After opening the package, inspect the product and its accessories for any damage. If damage is detected, do not carry out any operation, inform the supplier, and leave the product in its original packaging for inspection.

Before, during, and after any operation, and throughout the use of the product, ensure that all required legal permissions have been obtained, all relevant parties are informed and warned, all necessary safety precautions—including personal protection (e.g., goggles, helmets)—are taken, and all procedures comply with current legislation, regulations, and the technical standards accepted by gas organizations. Reassess the safety of the working conditions, take necessary precautions against fire risks, avoid inhaling gas, and implement measures against hazardous combinations. Take sufficient precautions against potential fluid sprays from the pipeline, do not insert foreign objects into the discharge port (if present), do not approach the product with electrically conductive materials, and ensure that the operating area complies with general protection plans and safety signage requirements.

Due to the presence of flammable gas within the product, ensure that there are no open flames, sparks, or smoking near or around the product that may lead to explosion or fire hazards.

Only original parts supplied with the product and its packaging should be used. Non-original parts or components not belonging to our company must not be used. If needed, contact the manufacturer to obtain spare parts. Tampering with the product, using non-original and/or incompatible parts voids the product warranty and jeopardizes the proper functioning of the product. At the end of its service life, the product must be replaced with a new one. During disposal processes such as segregation, recycling, destruction, or elimination of removed products, spare parts, other unusable components, and packaging materials (boxes, cartons, stretch wrap, etc.), comply with applicable laws and regulations.

After the gas supply to the product has been shut off, only an authorized person should check for gas leaks. The product must only be adjusted and put into operation once it has been confirmed that there is no gas leakage. For safety purposes, it is recommended to use our product in gas lines where applicable. The product must only be used when in perfect working condition. Malfunctions or abnormal operation must be rectified immediately.

The end user and/or authorized personnel are responsible for implementing appropriate protective systems to safeguard the product. Measures must be taken to ensure that the product is not tampered with, its covers are not opened, and no objects such as wires, water, or dirt are inserted into its openings. It must be protected against damage from earthquakes, fires, floods, corrosion, and chemical effects. Prevent damage caused by environmental factors (traffic, external sources, electrical causes) and adverse weather conditions (rain, snow, icing, humidity—e.g., condensation). Protect the product from mold, UV radiation, harmful insects, toxic or irritating solvents/fluids (e.g., cutting and cooling liquids), direct sunlight, and corrosive atmospheric influences. Ensure unauthorized access is prevented, and take measures to detect potential gas leaks. Proper protective measures and systems must be implemented against all these influences. Do not damage the product's corrosion protection (paint, surface coatings, etc.), as doing so will shorten its service life and void the warranty.

Any static charge that may occur in the product, in the parts attached to it, or in any other components used in conjunction with it must be prevented by taking protective precautions. It is recommended that static charge levels be measured periodically. Personnel responsible for controlling static charge must work with antistatic protective equipment. It is also recommended that the product be properly grounded.

The manufacturer cannot provide a general statement on noise emission, as it depends on the specific drain valve variation, the facility in which the product is used, the working environment, and operating conditions. Exposure to high noise levels may result in hearing loss or deafness. Therefore, hearing protection must be worn when working near the product.

Depending on the operating environment, the product components and pipelines may become very hot or very cold and may cause burn injuries. Take all necessary precautions.

2. DEFINITIONS and ABBREVIATIONS

Device or Product: ESKA brand Relief Valve
Authorized Authority: The gas distribution company responsible for gas distribution in the relevant city or region
Authorized Installer: A person who is responsible for the installation, commissioning, periodic maintenance, and inspection of the product in accordance with applicable laws, regulations, and standards; who is experienced, trained, knowledgeable about the processes, qualified, technically proficient; who is aware of legal and regulatory obligations related to the work and safety; experienced in taking all necessary precautions; and authorized by official authorities
Breather Line: The line that connects the atmospheric side of the pressure sensing element to the atmosphere. In case of a malfunction in the pressure sensing element, this line may act as an exhaust line.
Exhaust Line: The line that connects the regulator or auxiliary devices to the atmosphere to safely discharge gas in case of a malfunction of any component

PS: Allowable Maximum Inlet Pressure
Pumax: Maximum Inlet Pressure
Bpu: Inlet Pressure Range
TS: Operating Temperature Range
S.N: Serial Number
Wd: Adjustable Range of All Outlet Pressure Set Points (with different springs)
Wds: Adjustable Spring Setting Range for Outlet Pressure (spring used in the regulator)
Prelief: Set Point Pressure of the Relief Valve
AC: Accuracy Class
AG: Safety Shut-off Accuracy Group
DN: Nominal Diameter
Qmax: Maximum Flow Rate
Qmin: Minimum Flow Rate

3. WORKING PRINCIPLE, INTRODUCTORY and BASIC INFORMATION

The technical specification ranges of the products are as follows. These values may vary within the product itself depending on factors such as outlet flow rate, outlet pressure, inlet pressure range, etc. The final technical information of the product is indicated on the label attached to the product. Under no circumstances should the product be used beyond the limitations specified below.

A. GENERAL:

Type-Model-Series: ETV-D1 model and ETV-S7 model
Product Name: Safety Relief Valve
Brand: ESKA VALVE / ESKA
Operating Temperature Range "TS": Operating temperature range from -40°C to 70°C (in accordance with ISO 4126-1:2013)
Application: Used in gas supply systems. Not applicable to safety relief valves locked in the open position or rupture disks.

These valves are suitable for use with pre-filtered, non-corrosive, and non-aggressive dry gases.

Allowable Maximum Pressure-Design Pressure: For ETV-D1 model: PS 2 bar, and for ETV-S7 model: PS 20 bar
Valve Strength Type: ETV-D1 and ETV-S7 model valves are of "Combined Strength IS" type (according to EN 14382:2019).
Test Pressure: PT = PS × 1.5 bar has been applied.
Valve Type: ETV-D1 and ETV-S7 valves are Direct Loaded Type (according to ISO 4126-1:2013).
Valve Class:

Note: Upon request, a safety diaphragm (i.e., double diaphragm) can be provided for ETV-D1 model valves.

Note: Class A: Relief valve with separate connections for discharge and vent lines (safety accessory)

Note: Class B: Relief valve without a separate connection for the vent line (pressure accessory)

Valve Failure Type: ETV-D1 and ETV-S7 valves are of Fail-to-Close type in case of malfunction (according to EN 14382:2019).
Valve Opening Type: ETV-D1 and ETV-S7 valves are proportionally opening type (not necessarily linear) (according to ISO 4126-1:2013).
Sound Pressure Level "Lpa": ETV-D1 and ETV-S7 valves ≤ 35 dB(A)
Maximum Inlet Pressure "Pumax": 2 bar for ETV-D1 model and 20 bar for ETV-S7 model
General Adjustment Range "Wu":
For ETV-D1 model: 10 to 2000 mbar (depending on head type: LP = 10–100 / MP = 100–300 / HP = 300–1000)
For ETV-S7 model: 10 to 7000 mbar (depending on head type: LP = 10–150 / MP = 150–500 / HP = 500–7000)
Response Pressure Accuracy Class "AG": Pus Set pressure; ±%2,5 AG2,5 / ±%3 AG3 / ±%5 AG5 (measured at 200 L/h air flow)
Accuracy Class "AC": Pus Set pressure; +%2,5 AC2,5 / +%5 AC5 / +%10 AC10 / +%20 AC20
Shut-off Pressure Class "SG": Pus Set pressure; -%10 SG10 / +%20 SG20
Shut-off Pressure Zone Class: Area between 0 and 200 L/h air flow rate (under standard conditions)
Note: 200 L/h air = 0.2 m^3/h air = 0.256 m^3/h natural gas

Overpressure Accuracy Class 'AC' and Maximum Flow Rate at This Value "$Q_{max,AC}$":
For ETV-D1 model: Pus Set pressure; +%2,5 AC2,5 / +%5 AC5 / +%10 AC10 / +%20 AC20 Max flow: 225 Sm^3/h Natural Gas
For ETV-S7 model: Pus Set pressure; +%2,5 AC2,5 / +%5 AC5 / +%10 AC10 / +%20 AC20 Max flow: 225 Sm^3/h Natural Gas
Nominal Diameter – End Connection: ETV-D1 and ETV-S7 model valves are equipped with DN25 female threaded connections on the body. Upon request, different thread types can be provided, and modular connections (flanged or male/female threaded) suitable for various DN sizes can be supplied.
Line Connection Directions:
For ETV-D1 model: Straight-through (180 degrees) and For ETV-S7 model: Angled-through (90 degrees)
Product Weight: Approximately 0.995 kg
Product Volume: Max. 0,4 Liters
Gas Types: 1st, 2nd, and 3rd Family Gases (according to EN 437)
Fluid Type: Group 1 and Group 2 (according to 2014/68/EU PED)
Fluid: Town gas, Natural gas, LPG (in gaseous phase), and non-corrosive gases
Welding Process: Not applicable / None
Optional Accessories: For ETV-D1 model: Optional inlet and outlet test nipples upon request,
For ETV-S7 model: Built-in test port on inlet side; optional inlet test nipple upon request
Surface Treatments: Sandblasting or optionally powder-coated

Material Specifications:
For ETV-D1 Model:
Body : Cast aluminum alloy: EN AC 46100, reinforced EN AC 46100, or EN AC 43500 (according to EN 1706)
Covers : Cast aluminum alloy: EN AC 46100, reinforced EN AC 46100, or EN AC 43500 (according to EN 1706)
Diaphragms : Elastomer, Fabric-reinforced or plain NBR (according to EN 549)

For ETV-S7 Model:
Body: Cast aluminum alloy: EN AC 43500 (according to EN 1706)
Covers: Cast aluminum alloy: EN AC 43500 (according to EN 1706)
Diaphragms: Elastomer, Fabric-reinforced or plain NBR (according to EN 549)
Seat: Brass Material, CuZn40Pb2 / CuZn39Pb3 (EN 12164 / EN 12165 / EN 12168)
(Stainless steel available upon request)

***NOTE*:** Alternative materials can be provided upon specific request.

B. CERTIFICATION:

For ETV-D1 and ETV-S7 Models: Both products are categorized as safety accessories.

Applicable Directive: Pressure Equipment Directive (PED) 2014/68/EU
Conformity Assessment Procedure: Category IV, Module B + D
Applied Technical Basis: PED 2014/68/EU Annex I – Essential Safety Requirements
Applied Reference Standards: ISO 4126-1:2013 and/or EN 14382:2019
CE Marking Requirement: CE marking is mandatory.
CE Marking Example:

CE
NB: ****

C. SUMMARY

Safety Relief Valve Summary:

A **safety relief valve** is a device capable of operating without any external energy source other than the relevant process fluid. It remains closed (i.e., in a ready-to-operate state) under normal operating conditions and is defined as a valve that prevents the activation of a safety shut-off device (OPSO), if one exists in the system.

Its primary function is to **automatically initiate the release (venting/discharge) of a certain amount of gas** from the pressurised system through its outlet side when the system pressure increases and reaches the valve's pre-set response pressure.

The valve is also designed to **automatically close again** once normal pressure conditions are restored within the system, in order to prevent further fluid flow.

Safety relief valves are designed to counteract the pressure of the fluid acting beneath the diaphragm solely through a direct mechanical load such as a spring. Under normal operating conditions, no gas is allowed to escape into the atmosphere and/or the installation room.

The product is of the **fail-to-close** type. Therefore, in the event of a malfunction such as rupture, tearing, or perforation of the main diaphragm, the inlet pressure will act upon the upper side of the diaphragm, and together with the force of the spring, will cause the valve flap to close either partially or fully against the orifice.

Safety relief valves are typically equipped with a **vent hole** and a **vent connection**. In such cases, if the main diaphragm fails, any resulting pressure buildup can be discharged through an exhaust connection system attached to the vent port. Upon request, these valves can also be manufactured **without a vent hole or vent connection**.

ETV-D1 models are manufactured with a double-diaphragm configuration (i.e., with a protective diaphragm). This design prevents gas from escaping through the vent hole in the event of a main diaphragm failure. Upon request, the protective diaphragm can be omitted.

For both **ETV-D1 and ETV-S7 models**, the standard production configuration does **not include test nipples**.

Additionally, **ETV-D1 and ETV-S7 models offer three different adjustment head systems** to enable more precise pressure regulation. These are the **LP (Low Pressure), MP (Medium Pressure), and HP (High Pressure)** models.

Relief Valve Summary:

The valve functions by opening when the line pressure exceeds the pre-set limit, thereby discharging excess pressure. It maintains the controlled variable—**outlet pressure (P_{ds})**—within the desired/set value and within the specified tolerance range.

The relief valve helps ensure the safe operation of downstream equipment by **temporarily discharging gas to the atmosphere** in the event of undesired high pressure in the gas line. *(In this context, all necessary safety measures regarding the discharged gas must be taken prior to installation.)*

The relief valve operates based on **direct action (spring force)**.

The product is of the **fail-to-close** type. Therefore, in case of a malfunction—such as tearing or perforation of the main diaphragm, or an excessive drop in outlet pressure for any reason—the valve flap will partially or fully close, stopping further discharge.

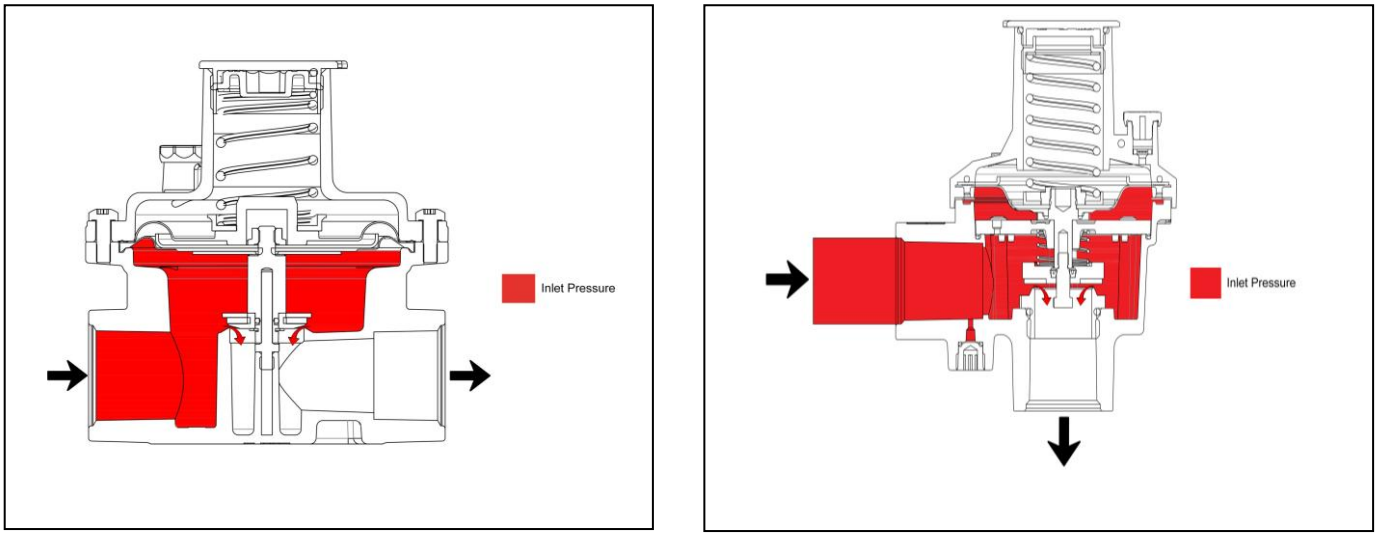
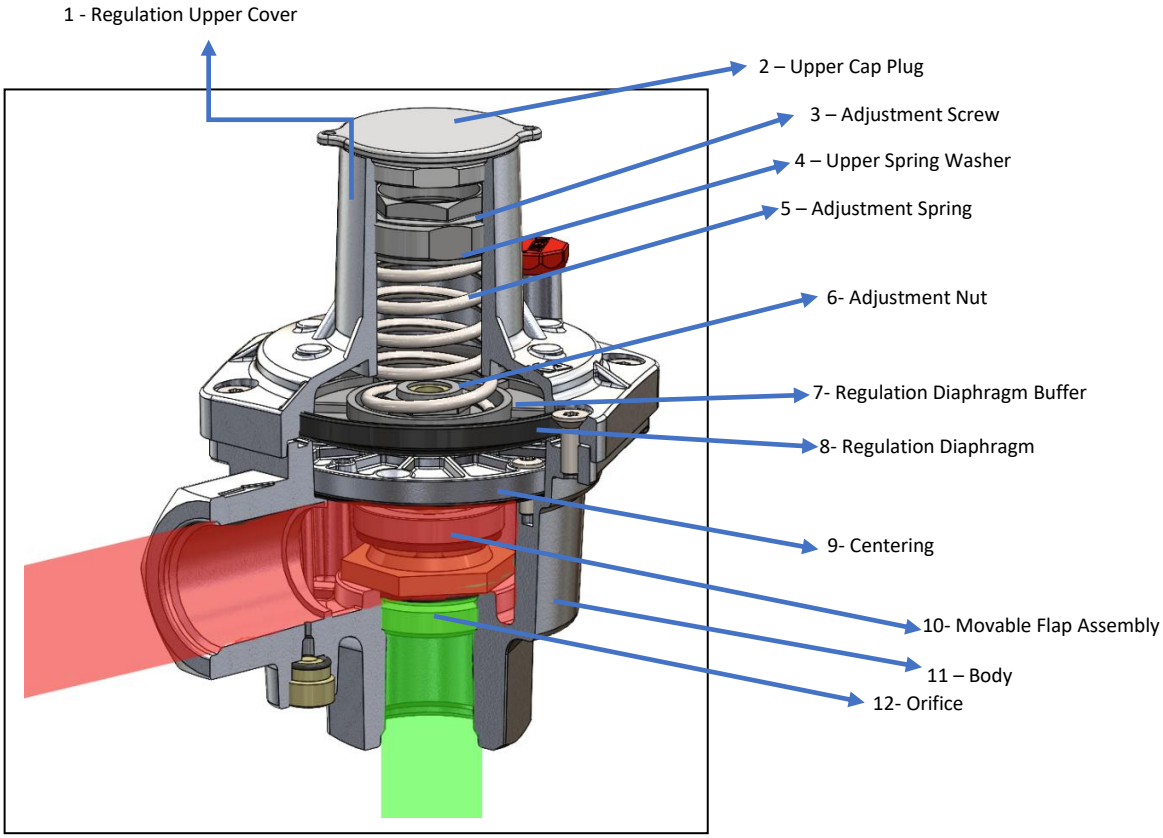

Inlet Pressure
Inlet Pressure

Figure 1.


1 - Regulation Upper Cover
2 – Upper Cap Plug
3 – Adjustment Screw
4 – Upper Spring Washer
5 – Adjustment Spring
6- Adjustment Nut
7- Regulation Diaphragm Buffer
8- Regulation Diaphragm
9- Centering
10- Movable Flap Assembly
11 – Body
12- Orifice

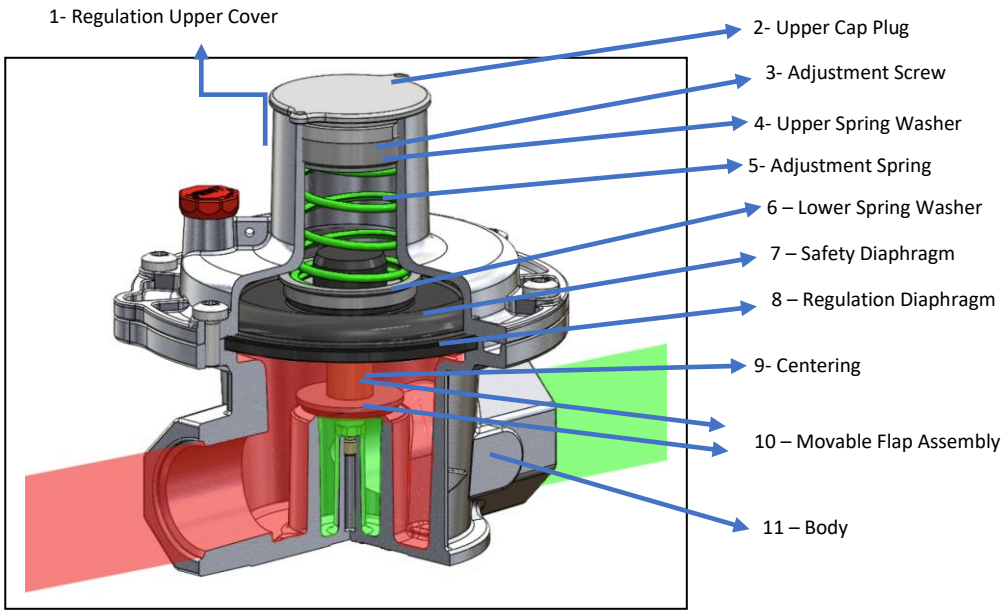


Figure 2.

According to the force balance principle, the operating mechanism is influenced by the following forces: the force of the set pressure spring, the outlet pressure acting on the regulation diaphragm, and the gravitational force of the moving components.

Unpressurised Condition: In the absence of pressure, the *force of the Regulation Adjustment Spring (5)* acts upon the *Regulation Diaphragm (8)*. Since there is no counteracting force from the outlet side on the *Lower Section of the Regulation Diaphragm (13)*, the spring force acting on the *Regulation Diaphragm (11)* pushes the *Movable Lever System (12)* downward. As a result, the *Regulation Flap (16)* is lifted upward, opening the gas flow passage. In this state, the relief valve is in the open position.

- **Setpoint Condition:** As the inlet pressure increases, the force acting on the *Lower Section of the Regulation Diaphragm (8)* rises. The *Regulation Diaphragm (8)* begins to move upward until a balance is achieved between the force of the *Adjustment Spring (5)* and the outlet pressure. When this balance is reached, the increasing inlet pressure causes the *Movable Flap Assembly (10)* to be pulled upward. However, no gas is discharged into the atmosphere until the outlet pressure exceeds the setpoint. During this condition, the *Movable Flap Assembly (11)* remains in the closed position.
- If the inlet pressure continues to rise, the *Movable Flap Assembly (11)* opens and starts discharging gas in proportion to the increasing pressure, thus ensuring system safety.

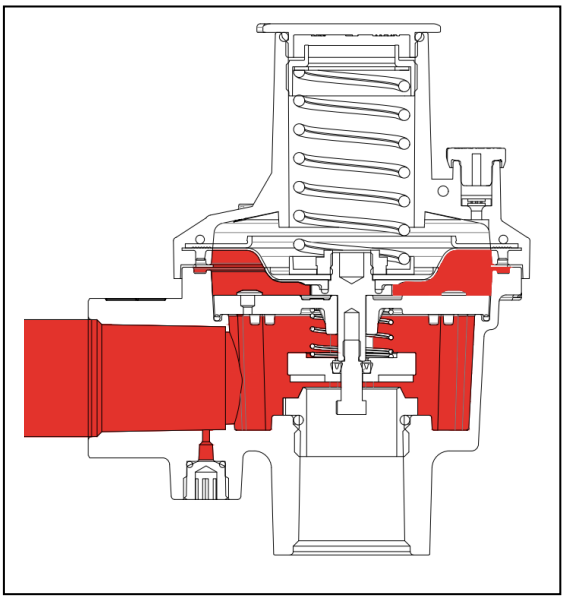


Figure 5.

If required:

- Appropriate connection ports and/or nipples for measuring pressure or pressure differential (see Figure 5)
- Connection ports and/or nipples for venting hazardous gas accumulations from the device (see Figure 5)

4. ASSEMBLY

NOTE:

Before starting the installation steps below, carefully read all of the following information and fulfill all requirements.

1- The gas must be shut off prior to installation.
2- The product must be installed in accordance with the allowable maximum pressure rating.
3- The pipeline system must be constructed in compliance with applicable standards and, in all cases, in line with good engineering practices.
4- The device must not have sustained any damage during transport.
5- The intended installation area complies with applicable safety regulations and is protected from possible mechanical damage, heat sources or open flames, located in a dry place and shielded from external influences;
6- The device must fit within the allocated installation space.
7- There must be no obstructions that could hinder installation or future maintenance procedures.
8- The inlet and outlet pipelines must be aligned and structurally capable of supporting the device's weight.
9- The inlet/outlet connections must be completely free of mechanical stress.

For threaded devices:

The length of the pipe threads must not be excessive to prevent damage to the valve body during assembly.

For flanged devices:

- Inlet and outlet flanges must be concentric and parallel to the corresponding pipeline flanges to avoid imposing mechanical stress on the body. Adequate space must be left for proper placement of the sealing gasket.
- A torque wrench should be used during assembly to avoid excessive tightening.

10- The pipe connections at the inlet and outlet must be clean and parallel.
11- The inlet piping must be cleaned to remove any residual impurities such as welding slag, sand, paint residues, water, etc.
12- In case of outdoor installation, a protective enclosure must be used to prevent oxidation or deformation of the components due to exposure to external factors such as snow and rain.
13- The device must be installed into the system using pipes and/or fittings appropriate for the threaded connection, along with suitable gaskets.
14- The body of the relief valve (11) must be installed so that the arrow direction faces the atmosphere.
15- The outlet connection of the relief valve must be directed to a safe discharge location with the help of a flue.

1- Carefully remove the product from its packaging and, if present, remove the protective caps on the inlet and outlet connections.

2- Adjust the flow direction of the product so that the arrow on the product body indicates the outlet side (i.e., the direction of gas flow).

3- The product must be installed in a horizontal or vertical position with a tolerance of ±5°C, in suitable installation positions as shown in Figure 6.

4- If present, place the inlet and outlet gaskets properly by hand between the line connection flanges and the body flanges of the product.

5- After the installation is completed, verify and ensure that the product has not been installed in reverse, that relevant legislation and local regulations have been followed, and that all procedures have been carried out according to this manual.

Before Starting the Procedure

Installation (regulator, relief-exhaust line, sense line, etc.) must be carried out in accordance with the applicable regulations (laws or standards) at the installation site. Approvals must be obtained if necessary. The operations described here must be performed by certified, authorized, and qualified technicians and authorized companies, services, or installers who have approval from gas certification bodies. These operations must not be performed by the end user under any circumstances. Improper installation may result in malfunction or complete failure of the product, property damage, injury, or even loss of life. Our company is not responsible for any applications carried out without adhering to the instructions in this manual.

Before installation, accurately determine and ensure which product specifications are required. Check and compare the technical and general information written on the product label and in this manual to ensure the correct product selection, paying particular attention to the label as it represents the product. If there is any discrepancy in the information, do not proceed and immediately contact the relevant authorities.

Check for any auxiliary components that may be present on the product or in the box (such as the plastic relief cap, pressure adjustment seals, protective plugs on the connections, etc.), and verify that the necessary documents are included (manual, warning card if applicable, label, certificate if available, etc.). If there are any missing or incorrect items, do not proceed and contact the relevant authorities immediately.

Examine the pipeline to be installed as well as its compatibility with the product specifications, and ensure proper verification and suitability (such as operating pressure range, type of fluid, flow rate, environmental conditions, cleanliness of the pipeline and fluid, matching connection types and diameters, absence of misalignment, proper alignment of the pipeline, dimensional compatibility between the pipeline and the product, and appropriate gas velocity in the line, etc.). The label on the product must be carefully checked and its suitability for the intended application must be confirmed. The inlet and outlet pipes should be at the same level and capable of supporting the weight of the product. If necessary, use supports near the pipe flanges; do not mount supports directly onto the product. If there is any missing, incorrect, or questionable condition, do not proceed and contact the relevant authorities immediately. Ensure that the product is free of any damage, that the product to be installed is compatible with the system in which it will be used, that the pressure does not exceed the maximum level indicated on the product label, that the product's dimensions are appropriate for the pipeline, and that the installation location is at a safe distance from flammable materials and devices that may generate sparks or electric currents. To prevent any pipeline leakage, install manual gas shut-off devices (such as ball valves) before and after the product.

Before starting installation, ensure that the inlet and outlet pipelines are properly aligned and that there is no axial misalignment at the connection points. Confirm that the installation is being carried out in accordance with the applicable technical rules and legal regulations. When installing adjacent components, make sure not to exert any force on the body of the product, and use assembly parts (such as bolts, O-rings, and slides) that are compatible with the geometry and operating conditions of the equipment. No modifications should be made to the product (e.g., drilling, grinding, soldering, etc.). If necessary, ensure that the inlet side is protected by a suitable device to prevent exceeding the usage limits (PS, TS).

The product must not be exposed to fire or lightning. It should be installed in a non-seismic area or an area where seismic precautions have been taken. For outdoor installations, the product must be placed away from vehicle traffic and other external factors, protected from water, ice, and other foreign substances, and positioned to prevent such elements from entering through the ventilation hole and affecting the spring housing. Avoid placing the relief valve under eaves or downspouts. Check for any risk of explosive mixtures within the pipeline. Ensure that the product is installed above potential snow levels.

Ensure that all joining components used during installation comply with relevant legislation. Only install the product in accordance with applicable regulations and local requirements, and obtain necessary approvals if required. Install the product within a housing; do not install it in outdoor environments without taking necessary protective measures. Lifting equipment used must be appropriate for the loads being lifted. Around the product, provide sufficient space and clearance, taking into account the product's external dimensions, to ensure access to its components for necessary operations and testing.

Before installation, sufficient buffer volumes must be left in the downstream piping after the product.

Each pipeline to be connected must be equipped with shut-off valves installed both upstream and downstream of the product. Before and during installation, ensure that no pressurized gas is trapped in the pipeline section where the product will be installed, and that the gas supply is completely shut off to eliminate any possibility of accidental activation. Verify that the line pressure is within the inlet pressure range specified on the product label and that the product capacity will not be exceeded during operation. Take appropriate precautions to prevent noise and vibrations originating from the pipeline. The pipeline must be free of misalignment. In the case of humid gases, ensure necessary precautions are taken to prevent water ingress and the potential for freezing.

Before installation, implement appropriate measures such as clamping to reduce bending and torsional loads on the pipe ends caused by vibrations or mechanical stresses. Pay attention to the limits for reaction forces and moments arising from the piping and its connections. Ensure there are no sudden reductions or enlargements in pipe diameter over short distances at the product's inlet and outlet. At the installation site, allow sufficient space for testing, maintenance, and disassembly operations by referencing the external dimensions of the product. Even after the entire installation is completed, select a mounting location that allows unrestricted access to the product.

Always ensure that the product’s inlet pressure is higher than its outlet pressure. Before the product is installed, clean the interior of the pipeline (both inlet and outlet) using compressed air to remove dust, dirt, chips, welding residues, and other foreign particles. Also, take measures to prevent recontamination of the pipeline. Install an external filter upstream of the product to filter the gas. The filter’s mesh size must be selected such that it does not cause significant pressure or flow loss.

In general, conduct pressure and leak-tightness checks on the pipeline and the system. The relief valve should be positioned away from direct sunlight and corrosive atmospheric conditions. Begin installation only after taking necessary protective measures to prevent the product from being exposed to direct environmental effects such as UV radiation, rain, snow, humidity, water, and external chemicals, or from being physically damaged (e.g., by installing it inside a protective enclosure).

To prevent uncontrolled overpressure, ensure that appropriate overpressure protection devices are installed in the system. Do not perform outdoor installations without taking the necessary protective measures considering all possible risk scenarios. Any required vent and relief lines must be installed in accordance with applicable rules and regulations. Sealing surfaces must be clean, and always use new gaskets. Ensure there are no foreign particles (dust, dirt, metal chips, etc.) left in any part of the pipeline.

Ensure that all assembly components (such as gaskets, bolts, etc.) used during installation comply with the applicable regulations. Prevent the formation of explosive gas-air mixtures in the pipeline system by continuously monitoring the ambient air using gas concentration detectors. For maintenance or inspection activities, pressure relief systems suitable for installation must be provided to discharge the internal pressure and fluid contained in the system, and appropriate venting or drainage systems must be installed in accordance with the facility’s requirements. Take necessary precautions to prevent contact voltage and the generation of ignitable sparks on the product. Ensure proper electrical bonding is established.

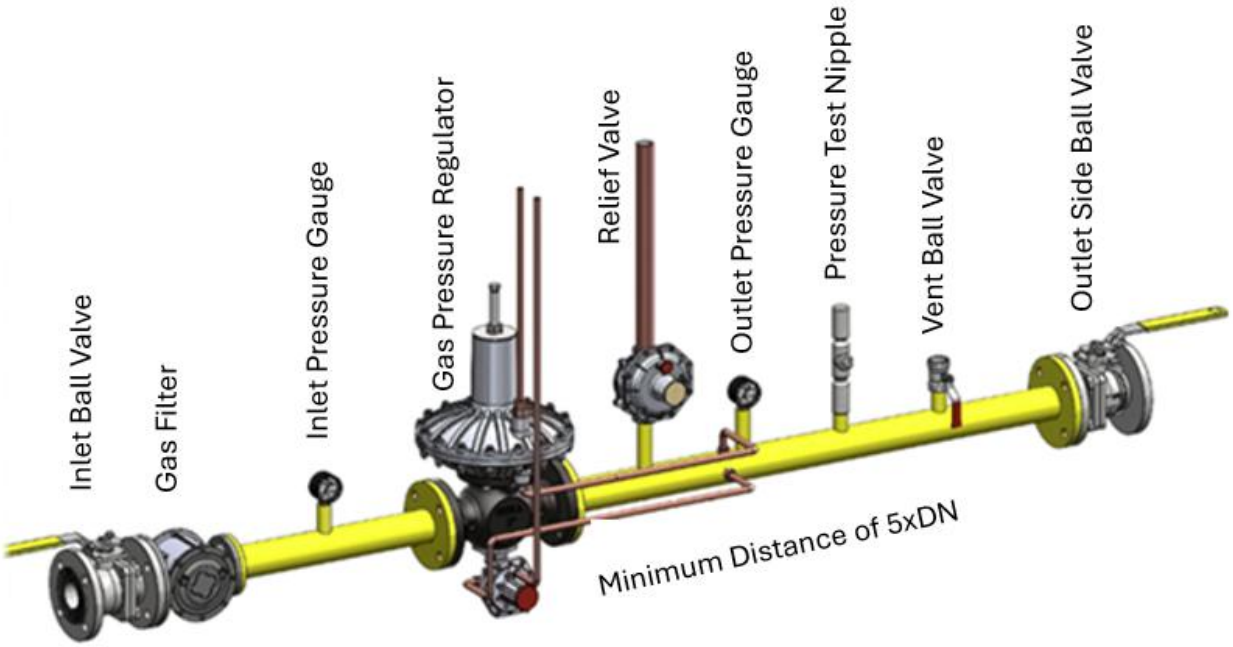
These products are not suitable for ground-level applications. Only use products with an appropriately coated outer surface for pipeline installations. If present, take suitable measures to prevent the ingress of dirt, dust, debris, liquids, etc., into the product's venting section. Additionally, ensure that the product is not used in conditions where it may be partially or fully buried in water, soil, or other fluids. When necessary, connect an exhaust line to the breather console of the product. This connection must be threaded with a minimum size of DN10. Request and utilize a suitable threaded adapter if required for this connection. For products equipped with a discharge system, do not install or use them in enclosed spaces unless appropriate measures have been taken to route the discharged gas to a safe location (e.g., routing the discharged gas to outdoor atmospheric conditions via a pipe of at least DN10 and allowing it to disperse properly).

Damage may occur to the product if lifting equipment is improperly attached. Do not connect lifting equipment to the product’s assembly parts (e.g., regulation cover).

Install any pipe fittings that may cause turbulence in the flow at a sufficient distance from the control line connection. In applications where the gas may liquefy, condensation may form in the control line and damage the product. Therefore, implement the necessary precautions to avoid such risks.

During the procedure

Do not use sealing compounds, special liquids, or similar substances to ensure leak-tightness at the connections. Gaskets to be used during installation must be appropriate and approved types, clean, of suitable hardness, and always new. Ensure that the gaskets have no defects that could compromise sealing performance. Take protective measures (e.g., enclosing the product in a box) to prevent tampering by unauthorized personnel and to protect the product from impact or accidental contact. Ensure that there is no liquid in the pipeline or inside the product (e.g., condensed water within the product). If necessary, clean the connection components using clean compressed air.



Check the product for transport damages, ensure that there is no flammable gas in the pipeline, and if necessary, purge any explosive air/gas mixtures from the line and product, taking appropriate precautions. The product must be installed in the pipeline without applying excessive manual force, load, or impact, ensuring that the outlet sensor line is not blocked and that the product is not subjected to mechanical stress. For flanged connections, verify that the product's body inlet and outlet flanges match the pipeline flange connections, and ensure they are perfectly coaxial and parallel to prevent unnecessary mechanical stress on the product body. Tighten nuts or bolts securely to prevent external leaks.

NOTE:

Tighten each nut individually, and after reaching the maximum torque, tighten once more clockwise at least one additional time. Also, calculate the necessary gap to place the sealing gasket properly and center the gaskets correctly in the connection. If there is any gap between the pipe and the product, do not attempt to reduce it by over-tightening the bolts. For flanged products, follow the tightening torques specified in Figure 7 for the bolts. Do not use any part of the product as a tool to assist in tightening during assembly. After tightening, ensure the connections fit perfectly into their seats, and check that there are no cracks or mechanical issues in the connections or the product. Confirm that no mechanical stress caused by the pipe, line, or connections is applied to the product, and that the pipeline load does not affect the product. Incorrectly high or low tightening torques may cause leaks and damage; excessive torque accelerates component wear, while insufficient torque can cause leakage. Always adhere to the specified torque values when tightening product components. If unsure about any torque values, consult the manufacturer.

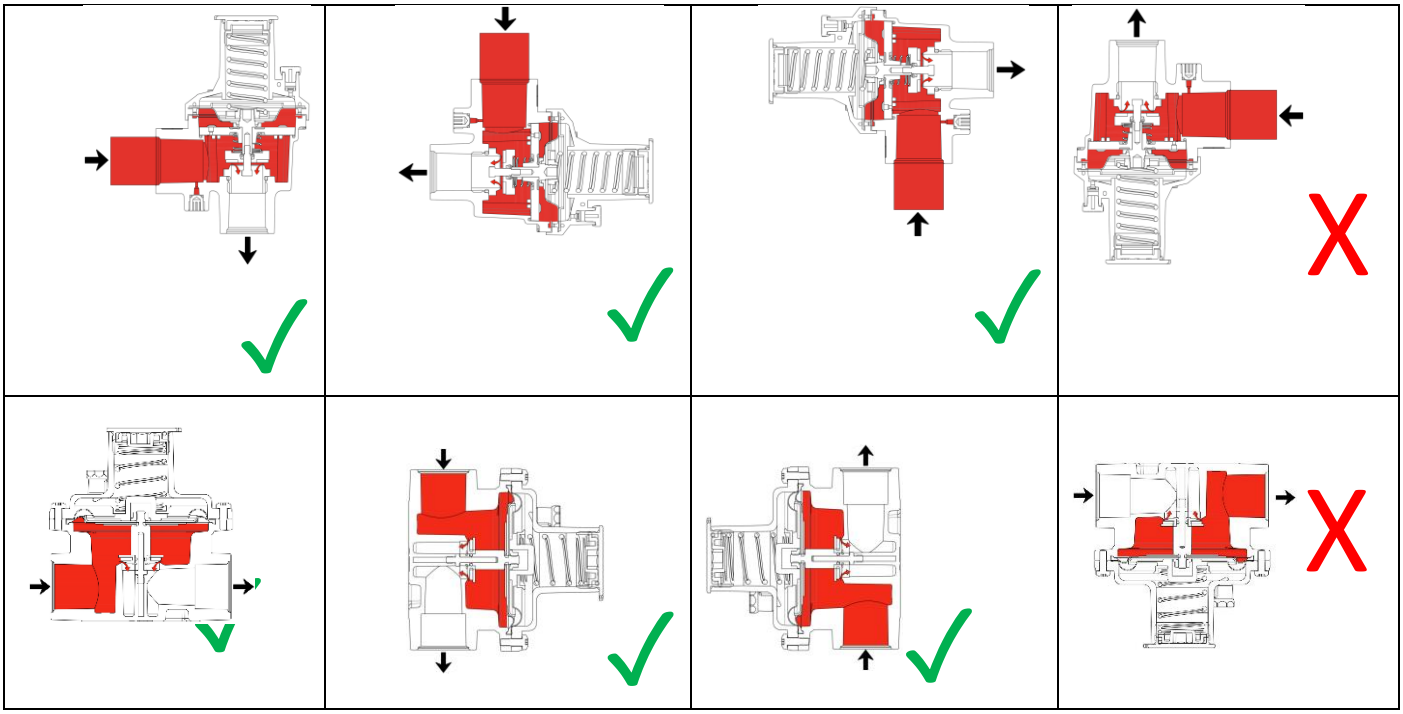


Figure 6.

After the procedures:

Verify that the installation has been carried out in accordance with applicable technical rules and regulations. After completing the installation, check and ensure that the product has not been installed upside down.

5. INSTALLATION, COMMISSIONING, OPERATION

NOTE:

Before starting the installation steps below, carefully read all the following information and fulfill the necessary requirements.

For ETV Series Products:

1. Before beginning installation, close the main gas supply inlet and outlet valves.
2. Slowly and gradually open the inlet valve (gas supply) in small increments. Check on the inlet pressure gauge that the inlet pressure corresponds to the value specified on the product label. The product may be damaged by rapid operations.
3. Verify that the inlet pressure is within the range specified on the product label (including tolerances).
4. Perform necessary tests on the product to ensure it operates correctly. These tests include checking for external leaks, outlet pressure, capacity, shut-off pressure, internal leakage, relief pressure if applicable, and ensuring the released gas can safely disperse into the atmosphere.
5. When the product and the pipeline are ready for use, inform the gas users about gas usage.

NOTE:

If the process does not succeed, repeat it. If the product still does not operate properly during these procedures, there is a high probability of a product issue. In such cases, do not perform any further actions and contact authorized personnel immediately.

Before the Operation

Before installation, carefully read, keep with you, and fully comply with the instructions in this manual and the information on the product label. If you find any information missing, incorrect, or suspicious, do not proceed and contact the authorized personnel. Ensure that all end users and personnel on the outlet side are not operating or using the system. Do not alter the factory settings. Factory settings are adjusted according to the order specifications and are indicated on the label. Adjustment devices are sealed if requested in the order specifications. Sealing is recommended by the manufacturer. Verify that the product is correctly installed in the line. Absolutely keep unauthorized personnel away and clearly mark restricted access areas (signs, barriers, etc.). During commissioning, assess potential risk variations (e.g., release of flammable or harmful gases into the atmosphere, formation of explosive air/gas mixtures, etc.) and take necessary precautions. Ensure that all breathers and/or exhaust lines on the product are not blocked. Take necessary measures to prevent blockage of these lines thereafter. Do not install blind plugs or similar caps that would obstruct gas outlet on these lines. Take permanent measures to prevent particles such as dirt, rust, dust, etc., from entering the product during commissioning. Failure to remove such residues may cause damage or improper performance of the product. If there is a filter in the line, ensure it is clean and free from deformation. Before starting the gas flow, perform leak tests on the pipeline and ensure it is leak-tight. Do not install the product in locations where excessive water accumulation or ice formation can occur. In some installations, such as regions with heavy snowfall, a hood or enclosure may be required to protect the product from snow load and prevent freezing of the vent. Necessary precautions should be taken considering these conditions. Measure pressure values using a calibrated pressure gauge installed at a minimum distance of 5xDN downstream of the product outlet pipe.

During the Operation

Only start operating the product if all protective devices, if any, are fully functional. If the pipeline is inclined and/or the pipe supports are insufficient, never under any circumstances place the entire weight of the pipeline solely on the product due to these reasons. Take the necessary precautions to prevent this situation.

After the Operation

If the product fails to be armed or shuts down during operation for any reason, the inlet and outlet valves must be closed, the issue identified, and the product rearmed according to the above procedures. If the product has been subjected to forces exceeding the limits specified on its label, verify whether it is operating correctly. Ensure there are no excessive noise or vibration problems in the product.

In enclosed or indoor environments, leaked gas can accumulate and create an explosion hazard. Therefore, the ventilation opening must be connected with piping directing the gas from the product to the outside (atmosphere).

For ETV series products, during operation, due to gas impurities or internal leaks caused by foreign particles in the line, venting may occur, releasing gas into the atmosphere.

If arming fails or other issues arise later, do not attempt any operation and contact authorized personnel immediately.

TESTS / PERIODIC INSPECTION

After installation, the outlet pressure, capacity, shut-off pressure, internal leakage, relief pressure, high and/or low-pressure shut-off pressures, internal and external tightness must be checked. While performing these operations, take all necessary precautions to ensure that any relief gas or external leakage from the product does not create a hazardous atmosphere and do not operate in enclosed spaces.

Check the pressure values using a calibrated pressure gauge installed on the pipeline at least 5xDN downstream of the product outlet.

LOCK PRESSURE / INTERNAL TIGHTNESS

1- Before starting the setup, fully close the inlet and outlet valves supplying the main gas.

2- Slowly and gradually open the inlet valve to set the designated test pressure (**P**umax). Observe the **P**umax value on the inlet pressure gauge.

3- On the outlet pressure gauge, verify that the outlet pressure corresponds to the value specified on the product label (within tolerance).

4- After installing the regulator connected to the pipeline, observe the relief regulator; there must be no leakage at the outlet connection point (exhaust line).

6. ADJUSTMENT

The Relief Valve is supplied by the manufacturer pre-set to the normally desired outlet pressure setting. Within the allowable range of the springs used, it is possible that the settings may be altered for various reasons (e.g., vibration during transportation). In such cases, adjustment corrections can be made according to the instructions in this manual. Adjustments should not be changed by more than ±10% and must not exceed the limits specified on the product label. If any irregularities are observed in the springs (wrong spring, corrosion, etc.), do not perform any adjustments and contact authorized personnel immediately.

The springs included in the product are the regulation springs. The spring used in the product is designed to provide the desired outlet pressure within the specified pressure range. For values outside the specified range, a spring replacement will be required. These springs must be obtained from the manufacturer.

Before the Procedure:

Ensure that the current springs are capable of providing the desired values. If unsure, contact the manufacturer.

During the Procedure:

When making pressure adjustments, the adjustment mechanisms and springs should not be excessively compressed, bent, or forced.

OUTLET PRESSURE ADJUSTMENT – For ETV S7 and D1

1- Before starting the adjustment, completely close the main gas supply inlet and outlet valves.

2- Remove any seals present on the relevant adjustment parts of the product.

3- Case 1: Increasing the Outlet Pressure:

a) Loosen and remove the Upper Cap Plug (27) by turning it clockwise (–).

b) Tighten the Regulation Adjustment Nut (25) using an AA27 socket by turning it counterclockwise (+); this compresses the spring, thereby increasing the outlet pressure.

c) Once the desired outlet pressure has been reached, fully tighten the Upper Cap Plug (27) by turning it counterclockwise (+).

d) Be careful not to overtighten, as this may alter the factory setting of the product.

e) After adjustment, perform the “periodic inspection tests” described in the installation section of this manual to ensure that the settings are correct.

3- Case 2: Decreasing the Outlet Pressure:

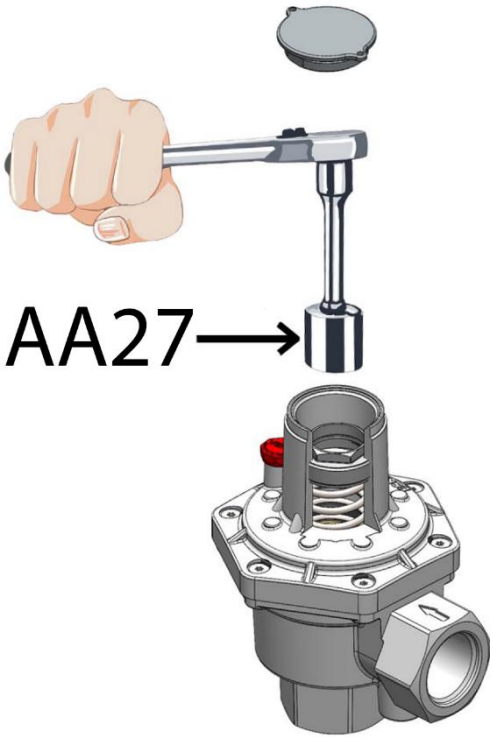
a) Loosen and remove the Upper Cap Plug (27) by turning it clockwise (–).

b) Loosen the Regulation Adjustment Nut (25) using an AA27 socket by turning it clockwise (–); this relaxes the spring, thereby decreasing the outlet pressure.

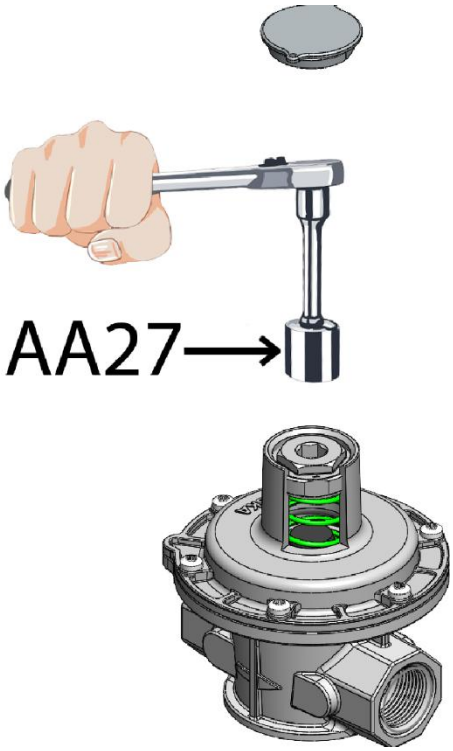
c) Once the desired outlet pressure has been reached, fully tighten the Upper Cap Plug (27) by turning it counterclockwise (+).

d) Be careful not to overtighten, as this may alter the factory setting of the product.

e) After adjustment, perform the “periodic inspection tests” described in the installation section of this manual to ensure that the settings are correct.



ETV S7



ETV D1

NOTE:

When increasing the outlet pressures (Pds), the safety pressures must also be increased accordingly. When decreasing the outlet pressures, the safety pressures must be decreased accordingly.

RELIEF PRESSURE SETTING:

Adjustment of the relief spring must **not** be attempted under any circumstances.

HIGH SAFETY PRESSURE SETTING:

1- Before starting the adjustment, completely close the inlet and outlet valves of the main gas supply.

2- Remove any seals present on the relevant adjustment parts of the product.

3- Manually unscrew the "Shutoff Protection Cap (21)" by turning it counterclockwise (-) and remove it.

4- Using an AA27 wrench, adjust the "OPSO Adjustment Screw (24)" to the desired value (turn clockwise (+) to increase OPSO pressure, turn counterclockwise (-) to decrease it; be careful not to over-turn as it may damage the product's setting).

5- Mark the adjusted pressure value.

6- After completing the adjustment, manually screw back the "Shutoff Protection Cap (21)" by turning it clockwise (+).

7- After adjustment, perform the “periodic inspection tests” described in the installation section of this manual to ensure the settings are correct.

After the Procedure

All the periodic inspection tests mentioned above must be repeated, and it should be ensured that the results are acceptable. After any adjustment changes, verify by appropriate methods that the technical specifications and limits stated in this manual and on the product have not been exceeded. After the relevant pressure settings are made, it is recommended to seal the adjustment devices to prevent any alteration of the settings in products put into use in the field. If available, the seal inside the box can be used for this purpose. If a new setpoint has been adjusted, mark it clearly and permanently on the product so it cannot be erased.

7. PERIODIC MAINTENANCE and INSPECTION

All procedures must fully comply with the rules in this manual. This manual must always be kept at hand before, during, and after periodic maintenance and inspection, and all instructions must be followed. If you suspect any missing or incorrect information, do not proceed and contact the manufacturer. Periodic maintenance and inspection are recommended to ensure the product’s healthy and safe operation. Maintenance intervals depend on system-specific operation, environmental and working conditions, gas transportation quality, cleanliness and protection of pipelines, the required safety level of the product and system, etc. Periodic maintenance intervals must not exceed the time frames specified by applicable regulations and/or those determined by the gas authority. No maintenance should be performed on the product by the end user. Perform maintenance on product parts according to the “**CLEAN OR REPLACE**” principle.

Periodic maintenance and inspection can be carried out either after removing the product from the pipeline or while it remains in the line. Parts that may need to be removed for repair are designed to be disassembled and reassembled with standard hand tools and in a way that prevents incorrect installation. If the product must be removed from the pipeline for periodic maintenance and inspection, remove it following the disassembly procedures in this manual.

All maintenance and inspection tasks must be performed by authorized personnel. Users or unauthorized persons must not interfere with the pipeline or product under any circumstances. Always ensure there is no pressurized gas inside the product before performing any maintenance operation.

Before the Procedure

Under no circumstances perform a sudden release to clean the pipeline downstream of the product. Do not carry out any maintenance work without safely venting any internal pressure that may remain in the product. Use the Ventilation Ball Valve to safely release gas from the line. Ensure that there is no explosive air/gas mixture present. Before starting any inspection or maintenance activity, equip the facility with appropriate drainage or venting systems to safely discharge pressure and fluids in the system. If an issue is detected during periodic maintenance and inspection, necessary actions can be taken according to the rules described in the fault section.

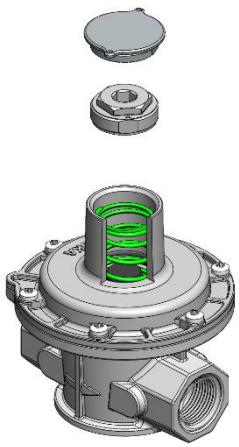
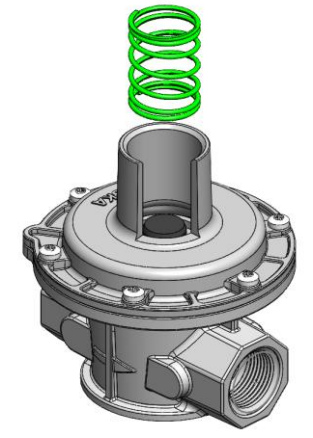
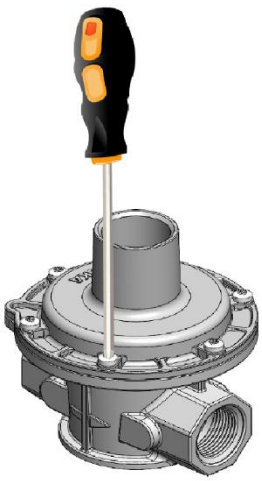
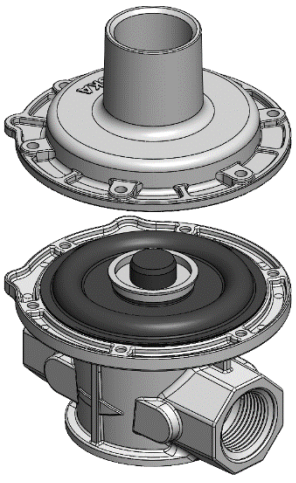
To ensure the system remains operational, we recommend performing a function check once a month and maintenance once a year. At minimum, a function check should be performed annually, and maintenance can be done every two years. The Pressure Equipment Directive (PED) and regulations related to total energy efficiency of buildings mandate regular inspection of heat generators to maintain high efficiency and thereby reduce environmental emissions over the long term. Maintenance intervals should be determined specifically for the system by the operator. The frequency of inspection, control, and replacement depends on the severity of service conditions and applicable national laws, regulations, standards, and recommendations.

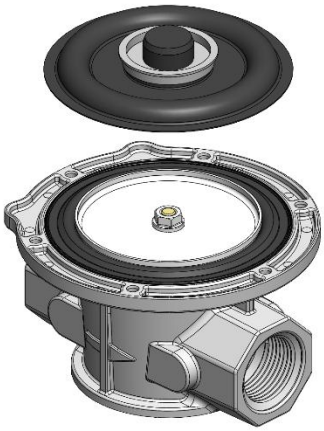
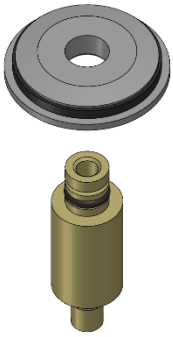
Ensure that the product's fastening elements (screws and/or bolts-nuts) are removed and reinstalled using the specified torque values. Use and keep a calibrated torque device available for this purpose. Reinstall covers exactly in their original positions using the same screws, tightening them evenly without excessive force and ensuring holes align properly. Confirm that screws are neither loose nor mechanically damaged. If any paint, lacquer, or sealing exists on fastening elements, do not perform any operation and first contact the manufacturer. Do not disassemble parts inside protective housings separately; keep the housings and parts together as a group and clean carefully with a soft cloth. Only use original spare parts provided by the manufacturer; do not use non-original parts as replacements. Contact the manufacturer for spare parts when necessary. Have all required spare part kits ready during maintenance. Use appropriate wrench sets for disassembly and assembly.

Do not clean with alcohol or solvent-based cleaners. Always use new sealing gaskets after part replacement or modification. Review precautions related to the hazards of releasing flammable or harmful gases into the atmosphere. Before starting any work, close the gas supply both upstream and downstream of the product and confirm it is secure. Ensure that all safety devices are closed. Components such as orifices, flaps, and diaphragms naturally wear over time. To avoid the risk of sparks caused by particulate impact in discharge lines, it is recommended to keep fluid velocity below 5 m/s. Note that O-rings and sliding mechanical parts should be lightly lubricated with silicone grease before reassembly.

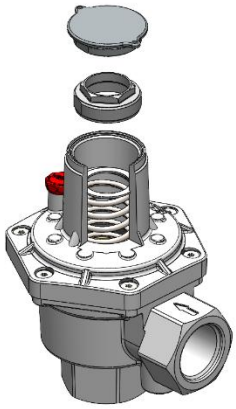
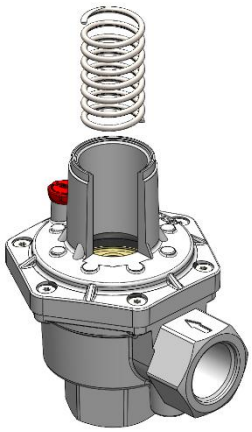
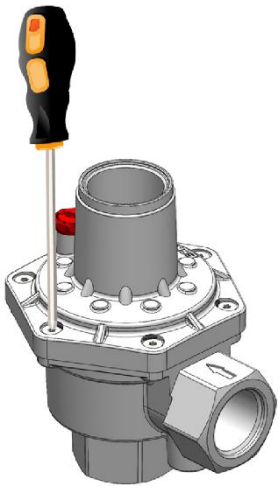
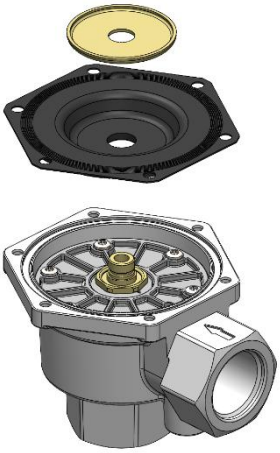
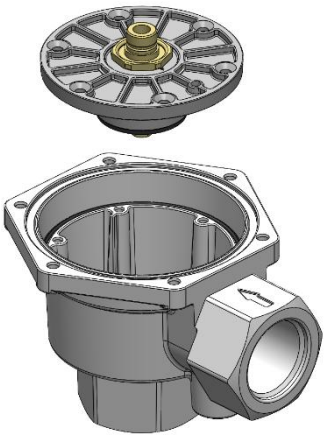
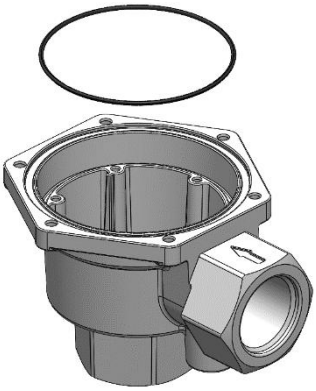
During the Procedure

For ETV D1;

1		*Loosen and remove the upper cap plug and adjustment nut of the relief valve.*	***2***		*Remove the adjustment spring.*
3		*Unscrew the cover screws using a **T30** screwdriver.*	***4***		*Separate the regulation upper cover from the body.*

5		*- Separate the upper diaphragm layer from the lower layer.*	***6***		*Separate the regulation assembly from the body.*
7		*-Unscrewthe regulation assembly using an AA10 wrench.*	***8***		*Separate the diaphragm buffer, diaphragm, balancing washer, and spindle seal from the spindle assembly.*
9		*Separate the flap retaining ring from the spindle.*	***10***		*Separate the flap from the spindle.*
11		*To reinstall the relief valve, follow the disassembly steps in reverse order. Make sure that the diaphragms, O-rings, and flap assembly are correctly and securely positioned*			

ETV S7 İçin;

1		*Loosen and remove the upper cap plug and adjustment nut of the relief valve.*	***2***		*Remove the adjustment spring.*
3		*Unscrew the cover screws using a **T30** screwdriver.*	***4***		*Unscrew the nut on the diaphragm assembly using an **AA20** socket.*
5		*Separate the diaphragm assembly from the flap assembly.*	***6***		*Using a **T25** screwdriver, remove the screws of the flap assembly.*
7		*Separate the flap assembly from the body.*	***8***		*Remove the O-ring from the body.*

9		*Separate the orifice from the body.*	***10***		*Disassemble the flap assembly using **AA8** and **AA22** wrenches.*
11		*To reinstall the relief valve, perform the disassembly steps in reverse order. Ensure that the diaphragms, O-rings, and flap assembly are properly seated.*			

8. DECOMMISSIONING, DISASSEMBLY, and REPLACEMENT

Before, during, and after all removal, disassembly, and replacement operations, comply with all rules specified in this manual and perform the necessary procedures.
Before and during the disassembly and replacement processes, ensure that there is no trapped pressurized gas between the pipeline and the product, the gas supply is shut off, and any possibility of reopening is completely prevented.

1. Close the ball valves on both the inlet and outlet sides.
2. Safely and gradually vent the trapped gas between the pipeline and the product from the section between the product and the outlet ball valve (using the Venting Ball Valve) in accordance with regulations. Confirm that the inlet pressure gauge reads zero.
3. If necessary, allow the pipeline and regulator components to cool down or warm up.
4. Deactivate the product.
5. Using the appropriate tools, carefully unscrew the product's inlet and outlet connections without applying excessive force or load, and remove it from the pipeline.
6. If replacing with a new product, install and commission the new product in accordance with this manual.

9. DIMENSIONS and CONNECTIONS

Dimensions are in millimeters (**mm**).

For ETV-D1;

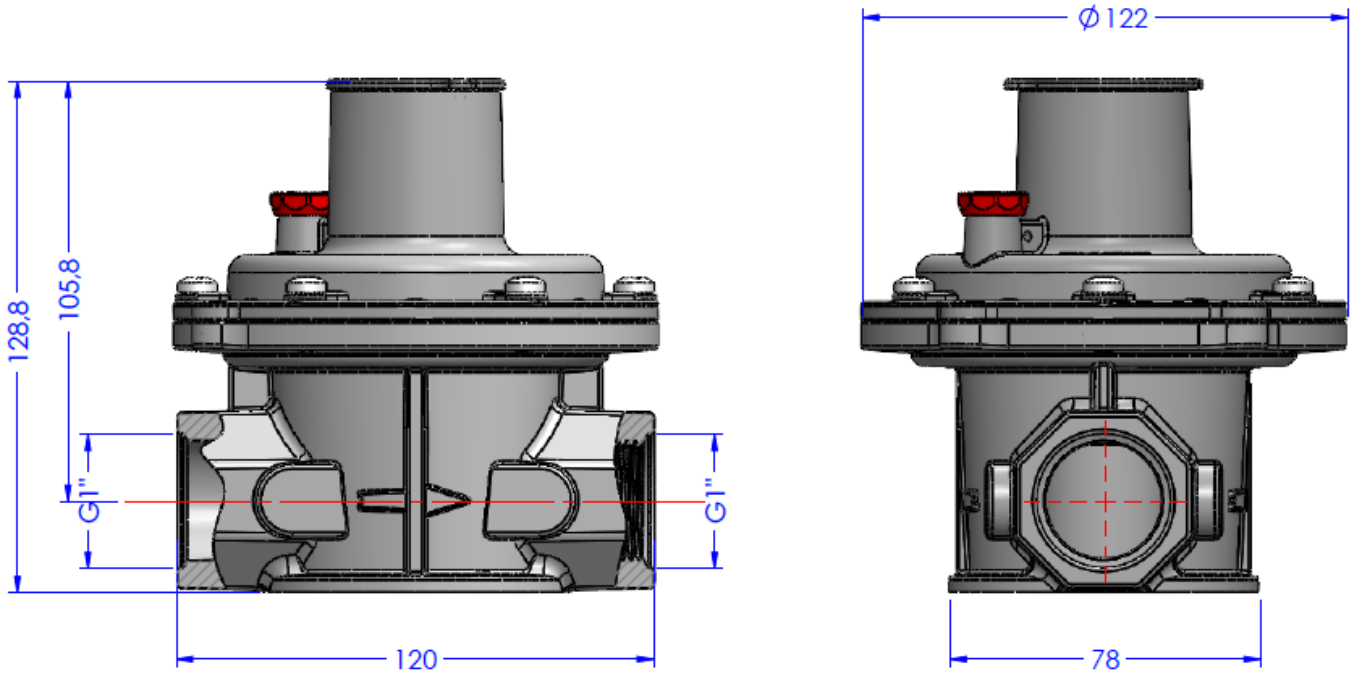


Figure 9.

For ETV-S7;

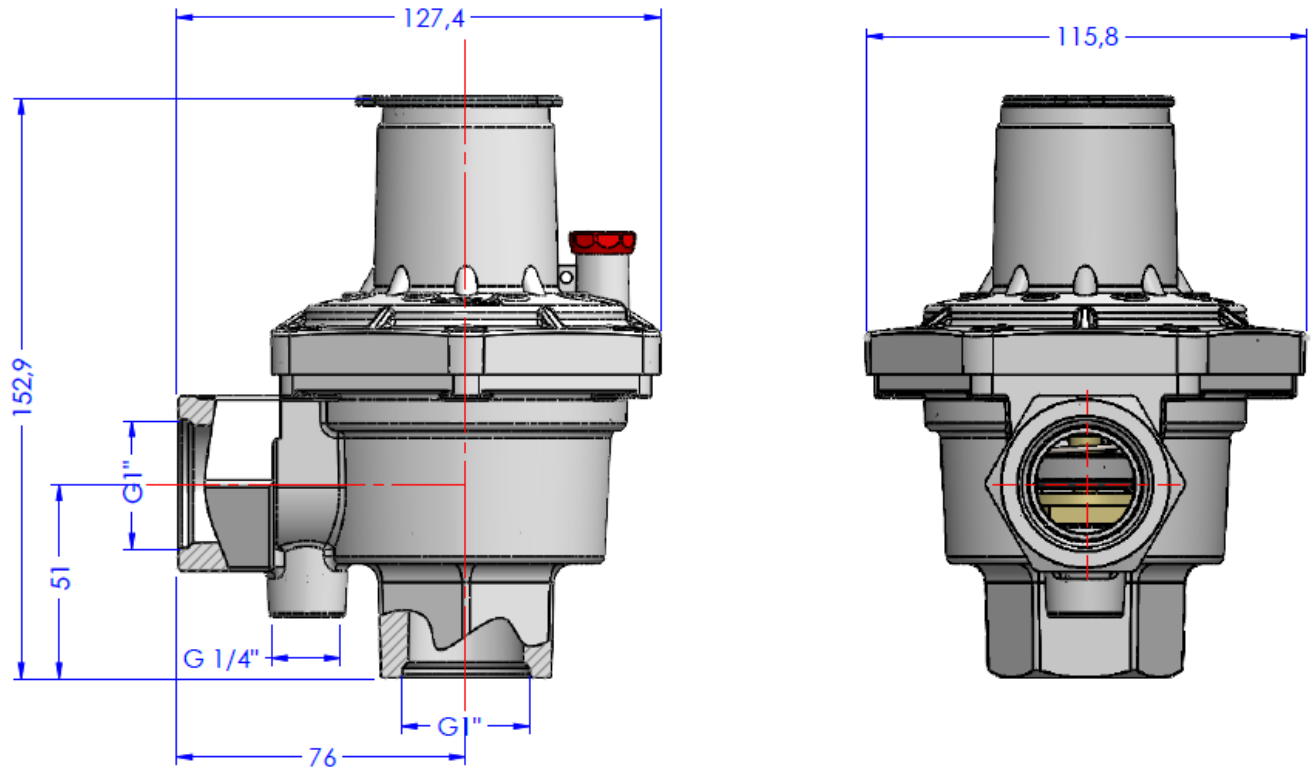


Figure 10.

To convert natural gas flow to different gas flows, the following equation should be used:

Q natural gas (m³/h) × K = Q x gas (m³/h)
Where:

- **Q natural gas (m³/h):** Natural gas flow rate (taken from the capacity given in this manual for different inlet and outlet pressures)
- **K:** Correction factor (taken from the table below)
- **Q x gas (m³/h):** Flow rate of the gas to be calculated
-

Example: To convert natural gas flow to air flow, use K = 0.78 (from the table below). To find the equivalent air flow for 128 m³/h natural gas flow:
128 × 0.78 = 100 m³/h air flow

Gas Name	Correction Factor K at 15ºC	Relative Density
Butane	0,55	2,01
Propane	0,63	1,53
Oxygen	0,73	1,14
Air	0,78	1
Nitrogen	0,79	0,97
Town Gas / City Gas	1,17	0,44
Hydrogen	2,93	0,07
Carbon Dioxide	0,63	1,52
Nitrogen	0,79	0,97

Formula for Calculating Gas Velocity at the Outlet:

To achieve optimal performance from the product, avoid premature wear, and limit noise emissions, it is recommended that the gas velocity at the outlet flange does not exceed 150 m/s.

$$V = 345{,}92 \text{ x } \frac{Q}{DN^2} \text{x } \frac{1 - 0{,}002 \text{xPd}}{1 + Pd}$$

Where:

V : Gas velocity (m/s)
Q : Flow rate (Standard m³/h)
DN : Nominal Diameter of the regulator (mm)
P_{ds} : Outlet pressure (barg)

10. CAPACITY TABLES

ETV-S7;

ETV- S7				
Pressure	**AC 2,5**	**AC 5**	**AC 10**	**AC 20**
21 mbar	0,8 m³/h	1,4 m³/h	2,5 m³/h	8,1 m³/h
30 mbar	0,9 m³/h	1,6 m³/h	8,6 m³/h	28,3 m³/h
50 mbar	0,9 m³/h	1,6 m³/h	6,3 m³/h	36,7 m³/h
100 mbar	1,0 m³/h	1,9 m³/h	32,7 m³/h	114,9 m³/h
150 mbar	1,4 m³/h	2,8 m³/h	7,4 m³/h	35,6 m³/h
200 mbar	0,9 m³/h	1,9 m³/h	14,7 m³/h	57,4 m³/h
300 mbar	1,2 m³/h	2,3 m³/h	60,0 m³/h	130,0 m³/h
500 mbar	15,0 m³/h	30,4 m³/h	145,0 m³/h	225,0 m³/h
750 mbar	3,6 m³/h	6,5 m³/h	110,0 m³/h	225,0 m³/h
1000 mbar	4,0 m³/h	8,1 m³/h	114,0 m³/h	225,0 m³/h
1500 mbar	5,8 m³/h	11,6 m³/h	130,0 m³/h	225,0 m³/h
2000 mbar	1,2 m³/h	2,5 m³/h	120,0 m³/h	225,0 m³/h
3000 mbar	2,5 m³/h	5,4 m³/h	120,0 m³/h	225,0 m³/h
4000 mbar	4,2 m³/h	8,6 m³/h	100,0 m³/h	225,0 m³/h
5000 mbar	1,2 m³/h	2,5 m³/h	90,0 m³/h	225,0 m³/h
6000 mbar	6,0 m³/h	14,0 m³/h	80,0 m³/h	225,0 m³/h
7000 mbar	5,0 m³/h	15,0 m³/h	85,0 m³/h	225,0 m³/h

ETV-D1 ;

ETV - D1				
Pressure	**AC 2,5**	**AC 5**	**AC 10**	**AC 20**
20 mbar	2,5 m³/h	5,0 m³/h	9,0 m³/h	13,3 m³/h
30 mbar	3,0 m³/h	7,1 m³/h	8,8 m³/h	13,4 m³/h
50 mbar	1,5 m³/h	2,3 m³/h	9,7 m³/h	24,4 m³/h
75 mbar	2,7 m³/h	5,4 m³/h	16,4 m³/h	47,8 m³/h
100 mbar	4,5 m³/h	9,8 m³/h	21,7 m³/h	73,9 m³/h
150 mbar	12,0 m³/h	24,4 m³/h	73,3 m³/h	115,0 m³/h
200 mbar	14,2 m³/h	29,0 m³/h	96,5 m³/h	144,2 m³/h
300 mbar	12,6 m³/h	25,3 m³/h	76,3 m³/h	88,2 m³/h
400 mbar	12,0 m³/h	24,4 m³/h	77,3 m³/h	170,3 m³/h
500 mbar	11,0 m³/h	21,3 m³/h	82,3 m³/h	202,0 m³/h
750 mbar	45,7 m³/h	91,6 m³/h	217,0 m³/h	2025,0 m³/h
1000 mbar	7,6 m³/h	15,3 m³/h	67,5 m³/h	131,1 m³/h

11. PACKAGING, HANDLING, TRANSPORTATION and STORAGE

In order to prevent potential damage during transportation and handling, our company delivers its products to customers in specially designed individual packaging. The following conditions must be observed for the storage and handling of all products and spare parts:

- Storage temperature must be between 5°C and 20°C.
- Relative humidity must remain below 55%.
- Exposure to UV radiation and ozone must be eliminated (particularly for elastomeric components).
- The products must not be subjected to throwing, excessive vibration, tipping, falling, impacts, overloading, crushing, stacking, damage to external parts or projections, wetting, or overturning.
- Storage periods must not exceed 3 years. For prolonged storage durations, we recommend regular inspection of the device and the storage conditions.
- Products must not be exposed to direct sunlight.
- Store the product in enclosed, ventilated, shaded, dry, and clean environments.
- Protect products from rain, water, snow, extreme heat, and cold.
- There should be no direct heat sources in the storage area.
- Ensure that all working surfaces are flat, clean, and free of moisture or slipperiness.
- Do not overload or lift excessively during transport.
- Pay special attention to external projections and attached components.
- The product must be stored without electrical voltage applied.
- If the product has any surface treatment (e.g., sandblasting, coating, painting), it must not be damaged during transportation, storage, or handling.
- During repackaging, ensure that no internal residues, moisture, or dampness remain inside the product.
- All flanges and nozzles must be protected against impact, ingress of foreign objects, and oxidation.
- Products must be stored in environments isolated from impacts such as falling, tipping, shocks, and vibrations; protected from natural disasters (earthquakes, floods, fire); and safeguarded against corrosion and wear (e.g., exposure to sunlight, weather, rain, snow, humidity, water, external chemicals, etc.). Additionally, products must be kept free from contamination by dirt, mud, or filth.
- Equipment and spare parts must remain in their original packaging until installation at the final destination.
- If a tool is to be used for transporting the product, it must not be connected directly to the product; instead, an appropriate handling fixture should be used.

Product	Quantity	Box Dimensions (L x W x H cm)	Unit Product Weight	Unit Box Weight	Total Box Weight	Total Quantity per Pallet	Total Weight per Pallet
ERG-S7	1	14x17x20	Approx. 1 kg	Approx. 0.15 kg	1,15 kg	400	Approx. 460 kg
ERG-D1	1	14x13,5x13,5	Approx. 0.9 kg	Approx. 0.12 kg	1,02 kg	600	Approx. 612 kg

12. LABEL INFORMATION

Any information on the labels may be added or removed at the request of the manufacturer. Additional information beyond those shown may also be included.
The labels below are provided for reference purposes only.

Example: Label of the ETV Series

13. POSSIBLE MALFUNCTIONS, CAUSES and SOLUTIONS

All repair operations on the product must be carried out exclusively by authorised and technically qualified personnel. Before, during, and after any fault-related intervention, strict compliance with this manual is mandatory. Ensure that all necessary procedures are performed, particularly those involving user notification and the implementation of safety measures against the hazards of pressurised gas.

In the event of a suspected malfunction, it is recommended to contact the manufacturer.
If the suspicion cannot be resolved with certainty, do not perform any intervention (such as additional modifications, opening the product, or attempting internal repairs). Instead, disconnect the product from the system in accordance with disassembly instructions, without interfering with its components, and return it to the manufacturer. Install a replacement product on the line.

Under no circumstances should repairs, servicing, or replacements be attempted in a manner that involves intervention on internal components. Only original spare parts must be used.

Actions to Be Taken in Case of Gas Odour Detection:

If you detect a gas odour in the pipeline where the product is installed, or if any gas alarm device in the area signals a warning, stay calm and perform the following actions:

- Shut off the gas supply from the main gas valve.
- Close all nearby gas valves, starting from the closest point.
- Ventilate the area to increase air circulation.
- Do not use items that could cause ignition (such as cigarettes, lighters, or matches); extinguish all open flames, smoking materials, or sources that could create sparks or fire. Do not attempt to reignite them.
- Do not touch, switch on or off, or interfere with any electrical equipment or plugs.
- Avoid using mobile phones or radios near the area due to the risk of spark generation.

Ensure that the authorised personnel detect the gas leak, take the necessary safety precautions, and carry out the required procedures. After the repair is completed, and before reintroducing gas to the system, ensure that all necessary safety measures are taken to guarantee safe gas usage for both upstream and downstream devices and users.

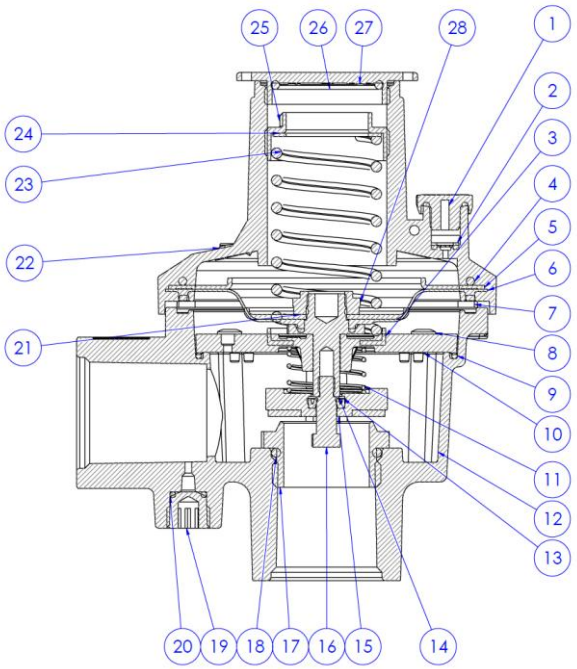
14. EXPECTED LIFE OF the ITEM

The service life of the product is 5 to 10 years.
This service life is valid only if all operations and conditions are carried out in accordance with this manual.
Replace the product upon the expiration of its service life.

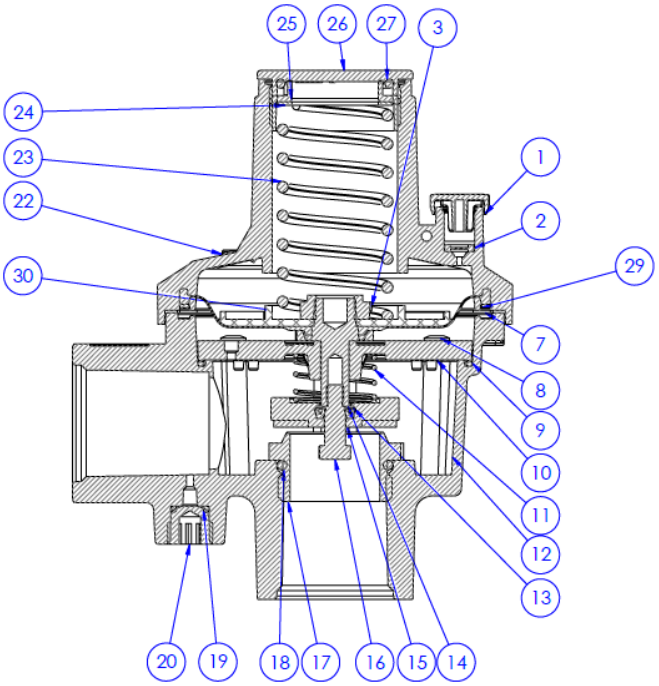
15. LIST OF PARTS

The part lists and related codes specified here should only be used when requesting spare parts from the manufacturer. For other operations—such as assembly, initial installation, testing, spring replacement, adjustment, and periodic maintenance—the procedures are described using the codes indicated in Figure 4.

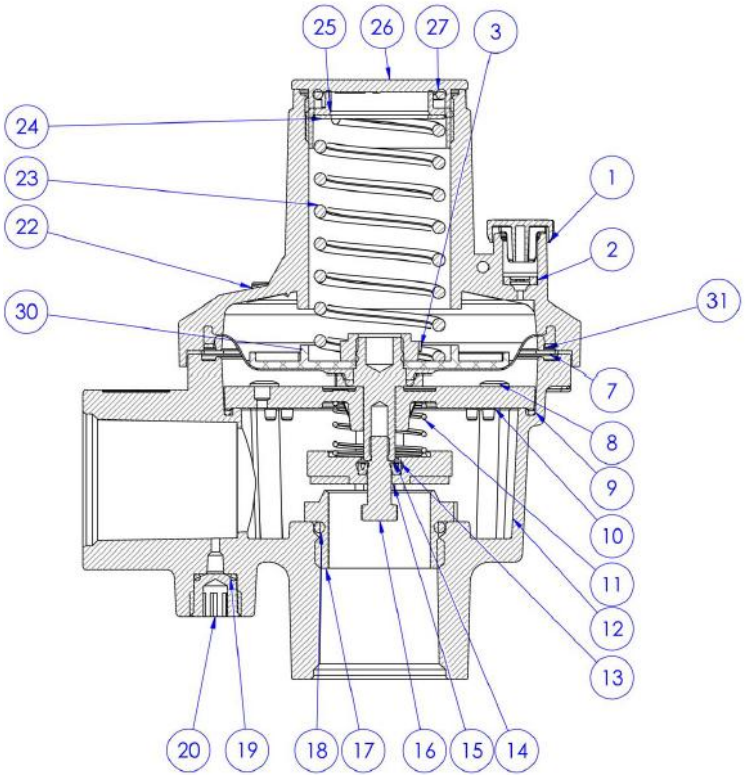
ETV-S7 HP:



ETV-S7 MP :



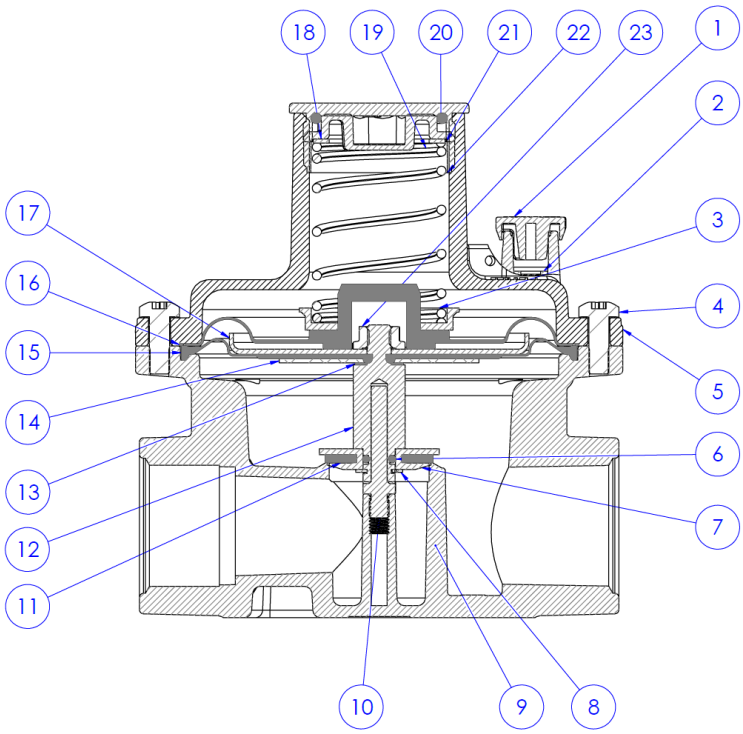
ETV-S7 LP :



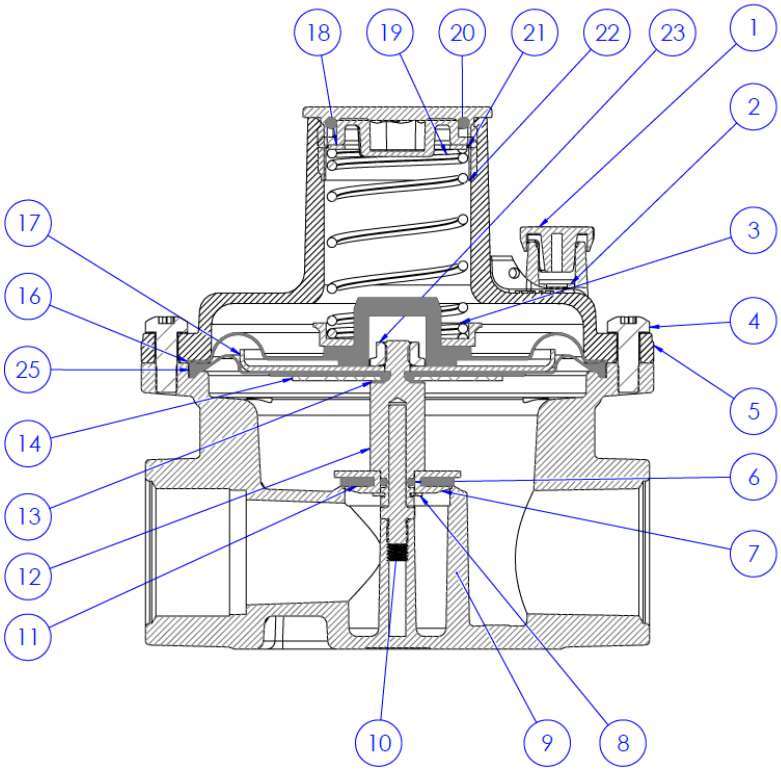
ETV-S7 PARTS LIST :

ÖĞE NO.	PARÇA ADI	ADET
1	2 SR Vent	1
2	2 SR Vent Filter	1
3	1 H1 Spring Retaining Washer	1
4	4 O-Ring Ø85xØ2,5	1
5	7 H1 HP Cover Buffer	1
6	4 H1 HP Regulation Diaphragm	1
7	8 M5x15 THB Smart Screw (Altracs)	6
8	8 M4x13 TMB Smart Screw	6
9	4 O-Ring Ø75,92xØ1,78	1
10	5 ETV 7Bar Centering Piece	1
11	6 ETV 7Bar Flap Compression Spring	1
12	15B ETV 7Bar Body	1
13	4 H5 Hydraulic Seal	1
14	5 ETV 7Bar Spindle	1
15	4 Insert for ETV 7Bar Flap	1
16	5 ETV 7Bar Flap Shaft	1
17	5 ETV 7Bar Orifice	1
18	4 O-Ring Ø27,9xØ2,8	1
19	5 H1 1-4'' Plug	1
20	4 O-Ring Ø7,7xØ1,78	1
21	5 ETV 7Bar Diaphragm Buffer	1
22	15B H1 Upper Cover	1
23	Adjustment Spring	1
24	2 H1 Upper Spring Washer	1
25	1 SR Regulation Set Screw	1
26	4 O-Ring Ø29xØ2,62	1
27	15K SR Sealed Upper Cap Plug	1
28	5 H1 Regulation Buffer Nut	1
29	4 SR 75 Opso Reinforced Diaphragm (with fabric)	1
30	2 H5 LP Opso Diaphragm Buffer	1
31	4 SR 75 Opso Diaphragm	1

ETV-D1 LP:



ETV-D1 MP:



ETV-D1 PARTS LIST :

ÖĞE NO.	PARÇA ADI	ADET
1	2 SR Vent	1
2	2 SR Vent Filter	1
3	5 ETV 1Bar Lower Spring Washer	1
4	8 M5x14 TSB Smart Screw, Form K	6
5	5 KR Regulation Upper Cover	1
6	4 O-Ring Ø4,8xØ1,78	1
7	5 ETV 1Bar Flap	1
8	10 Stainless Steel Retaining Ring Ø6	1
9	5 ETV 1Bar Body	1
10	5 ETV 1Bar Bearing Shaft	1
11	4 ETV 1Bar Flap Gasket	1
12	5 ETV 1Bar Spindle	1
13	4 ETV 1Bar Spindle Seal	1
14	7 BR Balancing Washer	1
15	4 KR Main Diaphragm	1
16	4 KR Safety Diaphragm	1
17	7 ETV 1Bar Buffer	1
18	2 H1 Upper Spring Washer	1
19	Adjustment Spring	1
20	4 O-Ring Ø29xØ2,62	1
21	15K SR Sealed Upper Cap Plug	1
22	1 BR Regulation Set Screw	1
23	8 M6 Flanged Nut	1
24	4 KR Fabric-Reinforced Main Diaphragm	1

CE ESKA

EU DECLARATION OF CONFORMITY

AB UYGUNLUK BEYANI

According to Pressure Equipment Directive (2014/68/EU)

Basınçlı Ekipmanlar Yönetmeliği'ne Göre (2014/68/AB)

Declaration Number *(Deklarasyon No)*	DEC_ETV_001_R00
Manufacturer and Owner Of Certificate *(Üretici ve Sertifika Sahibi Adı)*	ESKA VALVE A.Ş.
Trade Mark *(Ticari Marka)*	ESKA VALVE / ESKA
Manufacturer Adress and Place *(Üretici Adresi ve Üretici Yeri)*	Sakarya 1. Organize Sanayi Bölgesi Mahallesi, 11. Cadde, No:6-8, Arifiye/Sakarya/Türkiye
Product Description *(Ürün Tanımı)*	SAFETY RELIEF VALVE *Emniyet Tahliye Valfi*
Product Model / Type / Serie *(Ürün Modeli / Tipi / Seri)*	ETV-D1 and ETV-S7 Models and Versions (LP, MP, HP) *ETV-D1 ve ETV-S7 Modeller ve Versiyonları (LP, MP, HP)*
Product Information *(Ürün Bilgileri)*	ETV-D1 Model: PS2 , TS : -10;60°C, -20;60°C, -40;70°C, DN25 Threaded Connection (on request with modular connection), AG 2,5/3/5 AC 2,5/5/10/20 SG 10/20 ETV-S7 Model: PS20 , TS : -10;60°C, -20;60°C, -40;70°C, DN25 Threaded Connection (on request with modular connection), AG 2,5/3/5 AC 2,5/5/10/20 SG 10/20
Declaration Issue Date *(Deklarasyon Yayın Tarihi)*	15.08.2024
The name of the Notified Body and No *(Onaylanmış Kuruluşun Adı ve Numarası)*	TÜV NORD Turkey Teknik Kontrol ve Belgelendirme Anonim Şirketi - 2354 *Kozyatağı Mahallesi, Şehit Mehmet Fatih Öngül Sokak, Odak Plaza, Blok No:5, Kat: 4, İç Kapı No:6 Kadıköy / Istanbul / TÜRKİYE*
EU Conformity Assessment Method *(AB Uygunluk Değerlendirme Yöntemi)*	2014/68/EU PED Category IV, Modul B+D
Modul B Certificate No / Valid Until **Modul B Certificate No / Valid Until** **Modul D Certificate No / Valid Until**	(ETV-D1) CR-PED-TUVNORD-24/1813-R00 / 13.08.2034 (ETV-S7) CR-PED-TUVNORD-24/1816-R00 / 13.08.2034 CR-PED-TUVNORD-24/1819-R00 / 14.08.2027
Declaration *(Deklarasyon)*	Up defined in our products, we declare that meets the essential safety requirements of the directives to in this document. This declaration of conformity has been published under the responsibility of Eska Valve A.Ş. *Yukarı da tanımlanan üzerinde seri no olan ürünlerimizin, bu belgede belirtilen yönetmeliklerin temel güvenlik gerekliliklerini karşıladığını beyan ederiz. Bu uygunluk beyanı Eska Valve A.Ş. nin sorumluluğu altında yayınlanmıştır.*
Note *(Not)*	The compliance with Directives applies only to the product if the product is integrated in a system or combined with other units .The system manufacturer is responsible fort he compliance of the complete system with Directives. By altering the device without approval the declaration would invalidate. *Ürünün bir sistemle entegre olarak ya da diğer bir birimle birleştirilerek kullanıldığı durumlarda direktiflerle uyumluluk yalnızca ürünü kapsar. Sistem üreticisi sistemin tamamının direktiflere uyumluluğundan sorumludur. Onayımız alınmadan cihaz üzerinde değişiklik yapıldığında bu beyan geçerli değildir.*

QR Code

Manufacturers Authorized Signature
(Üretici İmza Yetkilisi)
Erhan SARDAL
General Manager *(Genel Müdür)*
Sakarya/Türkiye, 15.08.2024

ESKA
VALVE ANONİM ŞİRKETİ
Sakarya 1. Organize San. Bölg. Mah.
11. Cad. No: 6/8 Arifiye-SAKARYA
Alifuat Cebesoy V.D. 380 110 2771
Mersis No: 0380-1102-7710-0001

WARRANTY CERTIFICATE

MANUFACTURER or IMPORTER COMPANY

Company Name: ESKA VALVE A.Ş.
Address: Sakarya 1st Organised Industrial Zone, 11th Street, No: 6-8, Arifiye/Sakarya/Türkiye
Telephone: +90 (264) 502 54 34-35-83
Fax: +90 (264) 502 54 84
E-mail: info@eskavalve.com
Authorised Signature:
Authorised Stamp:

SELLER COMPANY

Company Name:
Address:
Telephone:
Fax:
E-mail:
Authorised Signature:
Authorised Stamp:

PRODUCT INFORMATION

Type: Relief Valve
Brand: ESKA / ESKA VALVE
Model: ETV-D1 and ETV-S7 Series
Label Number:
Serial Number:
Warranty Period: 2 years
Maximum Repair Period: 20 business days
Delivery Date to the Consumer:
Delivery Location:
Invoice Date:
Invoice Number:

WARRANTY CONDITIONS

1. The warranty period begins on the delivery date of the product and is valid for 2 years.
2. The entire product, including all of its parts, is covered under the warranty.
3. If replacing the defective product with a non-defective equivalent would cause disproportionate difficulties for the seller, the consumer may choose either to withdraw from the contract or request a price reduction proportional to the defect. In determining the disproportionality, factors such as the value of the non-defective product, the severity of the defect, and whether exercising alternative rights would pose any inconvenience for the consumer will be taken into account. If the consumer opts for withdrawal from the contract or a price reduction, the seller must immediately refund the full product price or the deducted amount. If the consumer chooses product replacement, the seller, manufacturer, or importer must fulfill this request within a maximum of thirty (30) business days from the date the request is received.
4. If the consumer chooses free repair, the seller is obliged to carry out the repair or have it carried out free of charge, without charging any fee for labor, parts or any other name. The consumer can also use this right against the manufacturer or importer. If the consumer chooses to exercise this right, the seller, the manufacturer and the importer are jointly responsible.If the consumer opts for free repair and any of the following conditions occur during the warranty period:

- The product breaks down again,
- The maximum repair time is exceeded,
- It is determined by a report from the authorized service center, seller, manufacturer, or importer that the repair is not possible,

Then the consumer may demand a refund, a proportional price reduction, or replacement with a non-defective equivalent (if available). The seller may not reject this request. If the request is not fulfilled, the seller, manufacturer, and importer will be jointly liable.

6. The maximum repair period is twenty (20) business days. This period begins on the date the malfunction is reported to the service station or seller if within the warranty period, and on the date the product is delivered to the service station if outside the warranty period. In the event of a malfunction within the warranty period, the time spent on repair will be added to the remaining warranty period. It is mandatory to determine whether the malfunction is due to user error with a report issued by the service station or, in the absence of a service station, by the seller, importer, or manufacturer, within the maximum repair period. A copy of this report must be provided to the consumer. The warranty period for any replaced component or product is limited to the remaining warranty period of the originally purchased product.
7. Failures caused by use contrary to the instructions in the user manual or due to user errors are not covered under the warranty.
8. In case of any disputes arising from the use of warranty rights, the consumer may apply to the Consumer Arbitration Committee or Consumer Court in their place of residence or where the transaction was carried out.