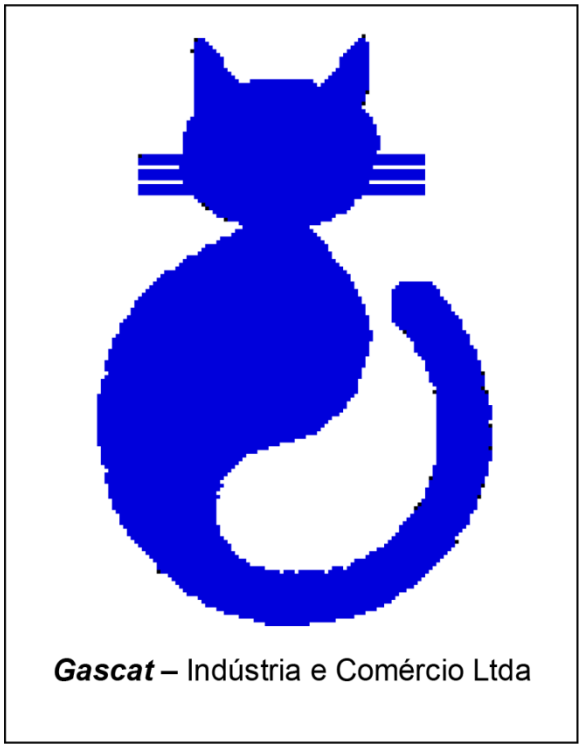

Pressure Regulation Valve Installation, Maintenance and Operation ManualGovernor 254 Series

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1 – PRE-COMMISSIONING INSTRUCTIONS

It should be clearly understood that the information presented in the Commissioning Instructions that follow is not intended to revoke or replace the instructions determined by any other competent body and reference should be made to the relevant Standards and/or recommendations on this matter.

Before any Commissioning, it is understood that the appropriate “Cleaning and Purification Procedures” must be performed and all instructions on “Pressurization” and “Occupational Standards for Health and Safety” must be strictly observed.

The recommendations of valve suppliers, such as “open slowly” or “open very slowly” must be strictly observed.

2 - HEALTH AND SAFETY

Regulators, valves and other pressurized components that contain toxic gases, flammable gases or other hazardous products are potentially dangerous if not operated and maintained in the correct manner. All users of this equipment must be properly trained and informed of the potential hazards. The personnel responsible for the installation, testing, commissioning, operation and maintenance of the plant must be competent to perform these activities. Instruction manuals are provided to guide operators, but it is assumed that they have a basic level of knowledge. If there are doubts or ambiguities that affect the correct procedures, ask Gascat Ind. e Com. Ltda.. We will be pleased to advise or provide the competent service or instruction. DO NOT RISK. Our phone numbers, fax number and e-mail are described below:

Gascat Indústria e Comércio Ltda.
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The comments below, while not exhaustive, provide guidance on possible sources of danger to health and safety.

2.1 – NOISE

Regulators, valves and other pressure reducers generate high levels of noise, which can be harmful to people exposed to them for long periods of time. Users must ensure that adequate precautions are taken to protect the health of employees and/or third parties, in accordance with the standards and recommendations in force.

2.2 – INSTALLATION

All equipment, piping and vessels are designed to withstand mechanical stresses, such as torque and bending moments, in addition to internal pressure. However, care must be taken during installation to avoid imposing excessive efforts, which can cause cracks that may result in serious rupture when the regulator is put into operation. Excessive stresses can also be caused due to not supporting the length of the piping, which must be adequately supported.

All regulators, shutoff valves, relief valves etc. must be installed with the correct flow direction. Impulse lines are important components of any control system and it is essential that they are correctly installed according to the instructions.

Impulse lines must be adequately supported to reduce excessive vibration, which can cause fatigue rupture. They must also be positioned so that they cannot serve as a foot or hand support. Impulse lines must be slightly tilted so that liquids and condensates flow into the main pipe.

When necessary (in underground installations or indoors), a ventilation pipe must be installed from the Ø ¼" NPT thread and positioned in the hood or diaphragm housing. It must be extended and positioned in a safe and ventilated place, with the vent outlet protected to prevent the access of rain water and insects that may obstruct ventilation.
Auxiliary systems must not be altered or modified without knowing the operating conditions and permission from the responsible personnel.

2.3 – OPERATION

Depending on the type of regulator, the valve can be positioned fully open. Consequently, when putting a regulator into operation, the shutoff valves must be opened slowly so that the regulator valve can assume its regulating position. If the valves are opened quickly, the upstream pressure can pass downstream through the regulator and over-pressurize downstream of the main line.

All regulators etc. must operate with the regulation spring specified by the manufacturer. This is especially important when operating a relief valve or shutoff valves, as incorrect springs can prevent a relief valve from opening and a shutoff valve from closing.

Precautions must be taken to prevent water from entering through the breathing and ventilation openings.

2.3 – MAINTENANCE

Regulators and valves contain gases with pressures that sometimes are higher than atmospheric pressure. Before attempting to investigate any problems or perform maintenance on the equipment, it must be safely depressurized. In addition, as most gases can be flammable, toxic, corrosive, that is, dangerous, it may be necessary to purge the installation with an inert gas, such as Nitrogen. Special precautions are necessary for operation with gases such as oxygen or hydrochloric gas and the user must be sure that adequate procedures are in place.

Eventually, it is not enough to isolate the high pressure device, since high pressures may be retained downstream of the isolation valves. Do not attempt to remove covers, plugs etc. before this device is properly released. Even so, it is prudent to consider that high pressure gas may be present when removing the covers and plugs.

Most regulators use spiral springs as a loading device. It is important to reduce the load on these springs by moving their presser as far as possible. In some cases, it may contain residual load, even when the spring is relaxed within the limits of its housing.

3 - INTRODUCTION

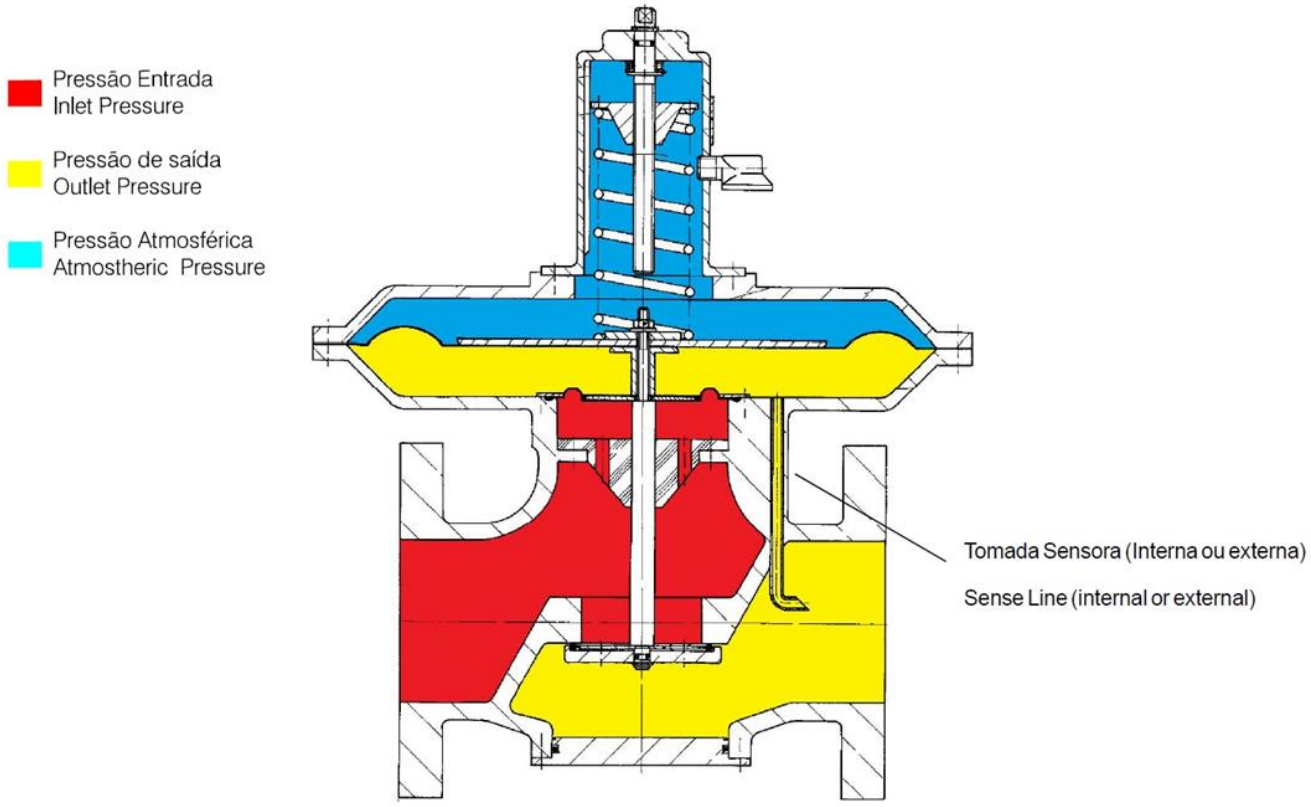
Self-operated direct acting spring-loaded regulator, single stage, for medium and low pressure applications in heavy work, with all types of non-corrosive gases and for corrosive gases, when built in their special versions.

These regulators were developed with the purpose of greatly facilitating their maintenance or replacement of parts, because, due to their "top entry" characteristic, there is no need to remove them from the line for maintenance or simple cleaning. Governor 254 series regulators are also known for their simplicity, construction and robustness.

In valves for use in oxygen, all precautions necessary for operation with this type of gas must be taken, avoiding the presence of oil or grease in the tools and not using lubricants that are not compatible with oxygen. Always use the valve construction materials compatible with the gas type.

4 – PRINCIPLE OF OPERATION

The pressure regulators of the Governor 254 series operate by the direct action of the spring on the outlet pressure sensor element (diaphragm) which, with the variation in consumption and the consequent change in pressure in the sensor element, will reposition the obturator shaft by increasing or decreasing the opening of the valve, in order to maintain the outlet pressure adjusted.



5 – CHARACTERISTICS

- ✓ Self-operated with direct action by spring.
- ✓ Open fault
- ✓ Globe type
- ✓ Top Entry
- ✓ Option for configuration; with and without internal relief.
- ✓ Connections: Flanged body DN 3”, 4”, 6” and 8” 150# according to ANSI B.16.5 (other configurations on request).
- ✓ Body building material options; nodular iron (other materials on request).
- ✓ Available in various outlet pressures.

6 – INSTALLATION

6.1 Filters

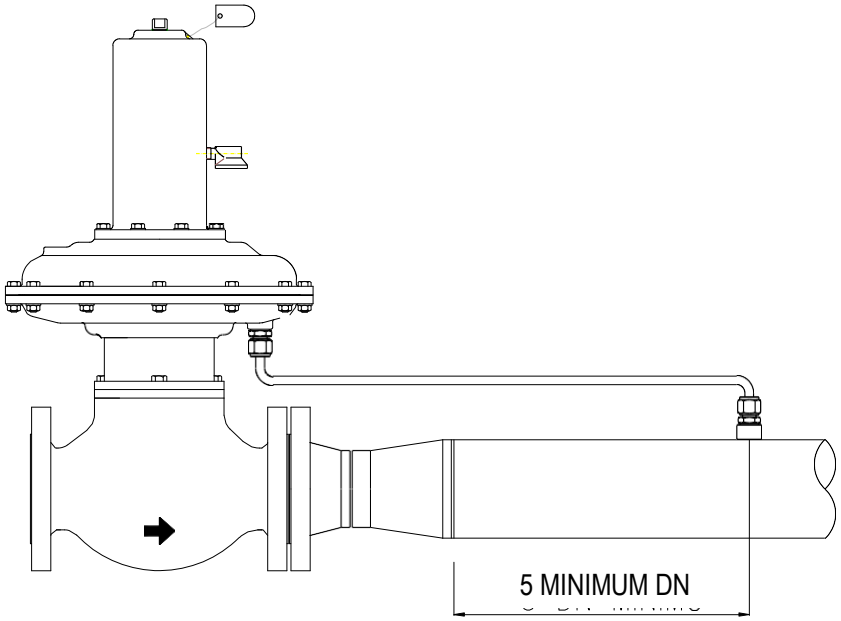
We recommend installing a “basket” filter, with 200 mesh (minimum), on the main line, the one closest to the regulator inlet. This care is essential for the perfect operation of the device, because any particles in the pipeline may become lodged between the seat and the shutter, damaging them and causing direct passage.

6.2 - Cleaning

Check piping cleanliness before installing the valve. We recommend a complete purge of the line with nitrogen or compressed air.

6.3– Flow Direction and Assembly Options

Check the flow direction of the regulator before installing.



6.4 – Impulse socket

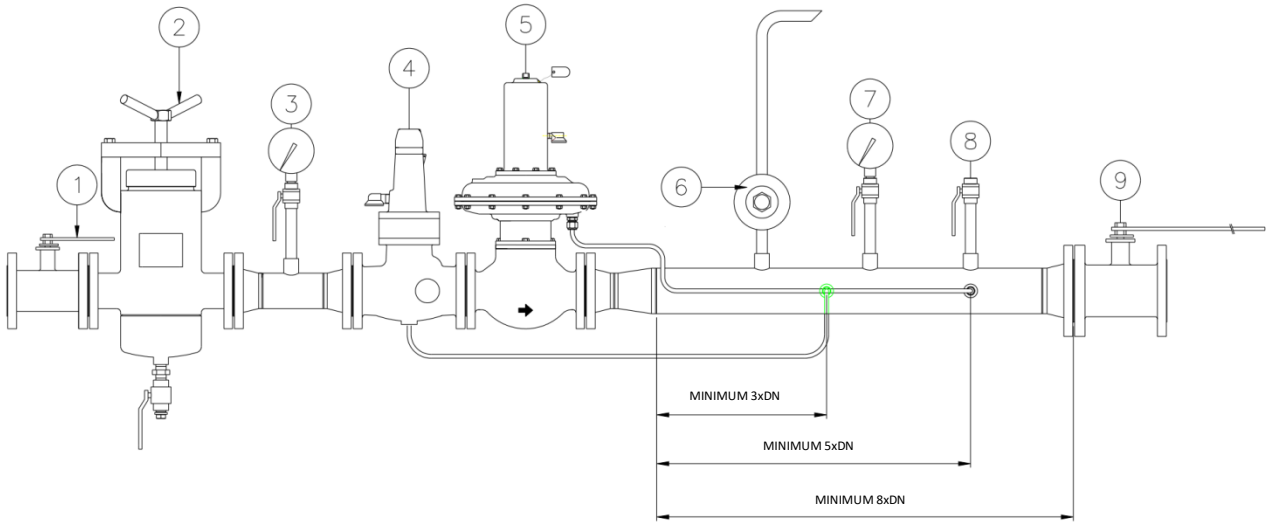
Install the internal or external impulse socket downstream of the regulator (Ø 10 mm pipe connector) at a minimum distance of 5 times the rated pipe diameter and in an obstruction-free pipe section (external socket), with a diameter of piping where the gas flow speed does not exceed 20 m/s (considering the lowest outlet pressure and maximum flow).

6.5– Other important devices for safe installation (see ABNT NBR 12313)

A safe installation must contain, at least (see proposed scheme below):

1. Manual shut-off valve (ball type or similar).
2. Filter with drain (Gascat).
3. Gauge for reading the inlet pressure.
4. Automatic shut-off valve (Gascat model GIPS).
5. Pressure regulator.
6. Partial relief valve (Gascat Junior model).
7. Gauge for reading the outlet pressure.
8. Purge valve Ø ½".
9. Manual shut-off valve (ball type or similar).

RECOMMENDED INSTALLATION SCHEME



7 – OPERATION (START-UP)

- ✓ Slowly close the outlet shut-off valves located downstream of the regulator.
- ✓ Slowly close the inlet shut-off valves located upstream of the regulator.
- ✓ Ensure that the pressure regulating spring of the regulator is completely loose (normally leaves the factory loose).
- ✓ Open the purge valve located downstream of the regulator approximately 20%.
- ✓ Slowly open the shut-off valve located upstream of the regulator, checking the gas pressure through the gauge located downstream.
- ✓ Slowly close the purge valve until the gas flow has stabilized. Fully open the gas inlet valve.

Regulator Adjustment

- ✓ Open the purge valve located downstream of the regulator approximately 20% passage.
- ✓ Adjust the pressure of the regulator using the regulating screw located on its upper cover, to the required operating pressure (clockwise to increase and counterclockwise to reduce the pressure).
- ✓ Close the purge valve.
- ✓ Check the tightness of the regulator using the pressure gauge located downstream, for this reason the pressure indication must remain stable after closing for approximately 2 minutes.
- ✓ Slowly open the gas outlet shut-off valve.
- ✓ Perform fine pressure adjustment.

8 – MAINTENANCE

Defect	Probable Cause	Correction
Vibration	Problems in the installation	Check if the piping is properly supported, if the vibration does not come from other components or if it is due to improper sizing of some equipment in the installation.
	Replace the dried up diaphragm and or the shaft assembly of the worn main regulator /sleeve (seat housing).	Replace the diaphragm and or the shaft assembly of the main regulator /sleeve (seat housing).
Pulsation (oscillation of outlet pressure)	Low flow (less than 5% of maximum flow)	Check dimensioning of the regulator and install reduced seat, if available.
	Poorly located impulse socket	Check if the positioning of the impulse line is close to any instrument or equipment that may be causing some type of disturbance in the line.
	Response speed of the regulator incompatible with that of the system	Proceed with the installation of a flow restrictor valve in the impulse piping (needle valve), adjusting its opening until the correct positioning is found.
Direct passage or regulator locked in open position	Main regulator shaft locked in the seat housing	Check the condition of the regulator's main shaft by replacing it or replacing the seat housing, if necessary.
	Impulse line broken or damaged	Check the status of the impulse line and proceed with replacement, if necessary.
Drop in outlet pressure / insufficient flow	Dirt on the filter	Provide the cleaning of the filter or the replacement of filtering element.
Gas passage through the vent of the campanula	Diaphragm rupture	Replace the diaphragm.
Lack of gas at the entrance of regulator	Automatic shut-off valve blocked / closed	Re-arm the automatic shut-off valve.
Increased outlet pressure / direct passage	Presence of particles between the shutter / seat or damaged	Remove the inspection cover and shutter and proceed to clean the components (shutter and seat). Check the general condition of these components and replace them if necessary.
	Diaphragm rupture	Replace the diaphragm.

9 - STORAGE

The regulators must not suffer mechanical shock, there is a risk of damage to the internal components. The regulators must be stored in a clean and dry place, protected from the weather.

10 – GENERAL RECOMMENDATIONS

- ✓ We test all of our regulators and valves under the requested operating conditions.
- ✓ The criteria and steps for maintenance are contained in the manuals. However, any doubts regarding the use, operation or maintenance, contact Gascat's technical department, which will give you the appropriate guidance.
- ✓ Gascat supplies the complete replacement kit on request.

11 – GUARANTEE

We guarantee our products, as of the invoicing date, for a period of 12 months, if the products are in operation, extending up to 18 months, if they are in stock. This warranty only covers those cases in which the existence of manufacturing defects, which are not perceptible, is found when the product is released.

This warranty is not valid if it is found that the defect or malfunction was caused by accident, normal wear and tear, improper installation, maneuver and improper use, improper storage, assembly performed outside the technical standards, or if the buyer has undertaken repairs or alterations by own account, without prior authorization from the manufacturer.

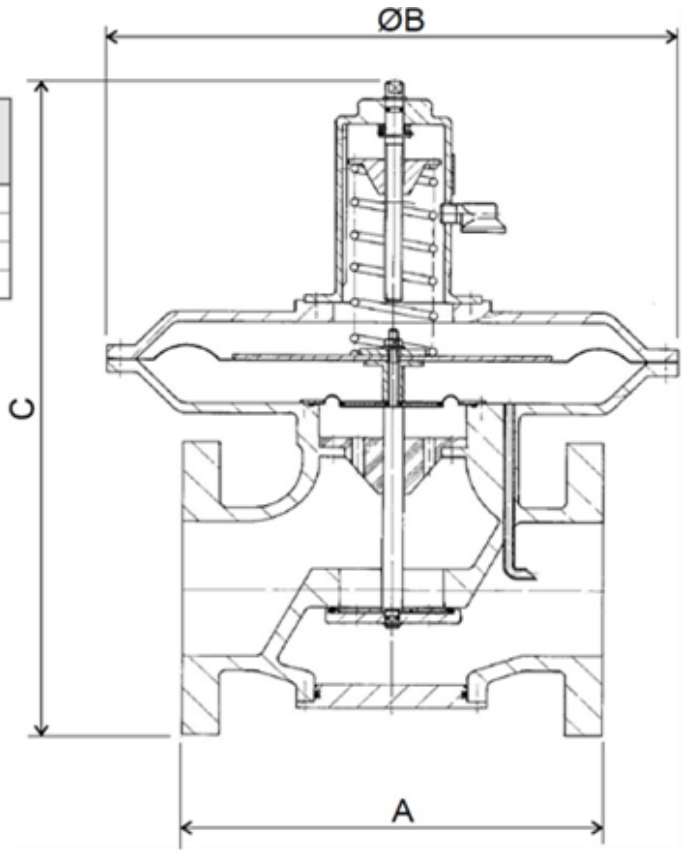
The information contained in this manual expresses the GASCAT supply conditions, regardless of the performance measured.

The information presented herein should not be interpreted or suggest a guarantee of performance in relation to the final products, object of use of the system, nor serve as a recommendation for the use of any product or process mentioned in the specifications. This system should only be operated by a technician qualified and trained for this purpose; and any changes that affect the security of the system, may be carried out without our prior authorization.

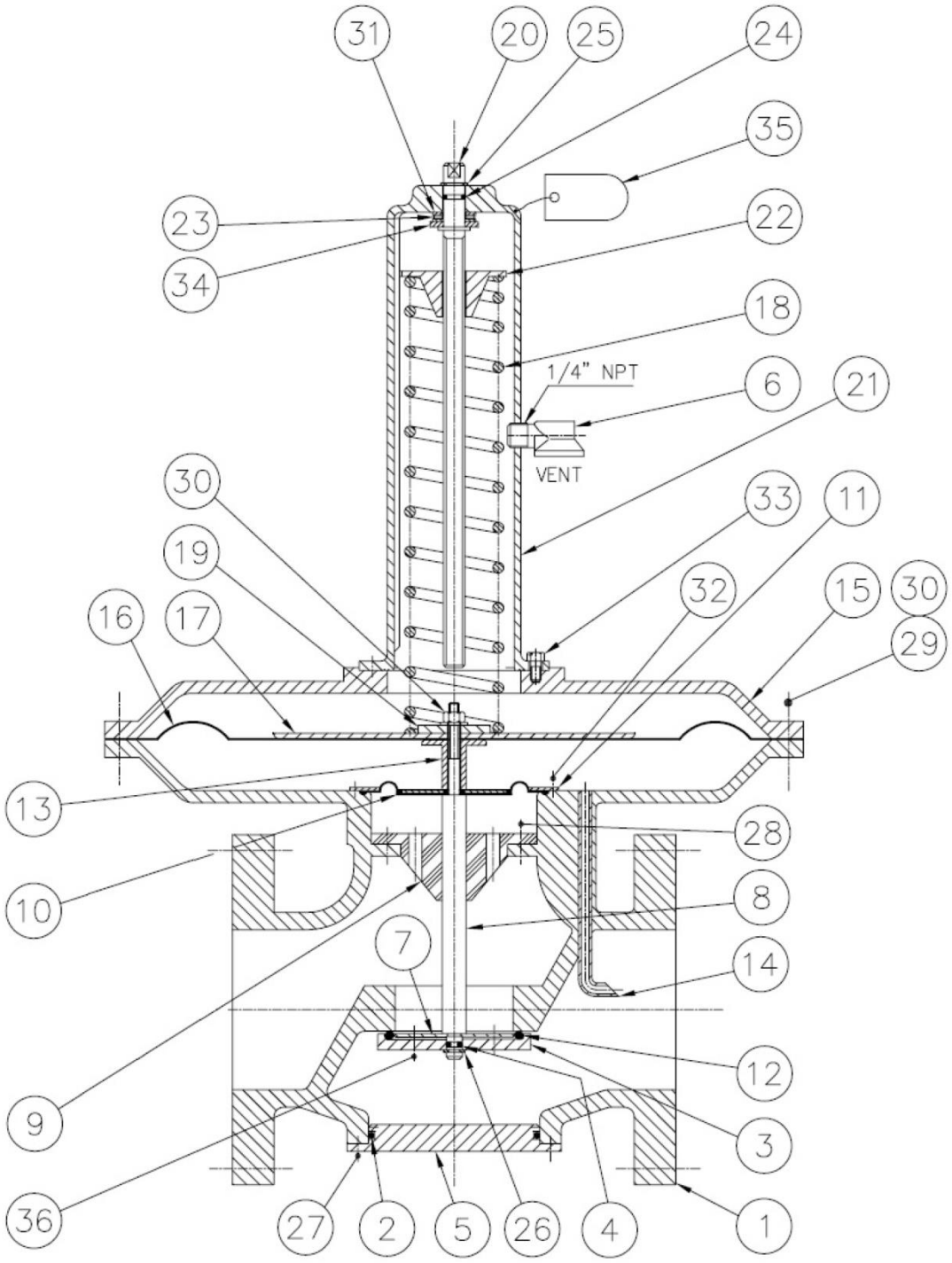
A Gascat Ind e Com. Ltda. reserves the right, without prior notice, to make changes, introducing improvements in the drawings or specifications of the products described herein.

12- DIMENSIONAL DRAWING Ø 3", 4", 6" and 8"

DIMENSIONS (mm)				WEIGHTS (Kg)
DN	A	ØB	C	
3"	298	381	486	15
4"	352	451	754	64
6"	451	559	1024	115
8"	543	662	1388	210



13- GOVERNOR 254



POS.	QTY.	NAME
1	1	BODY
2	1	O'RING
3	1	SHUTTER
4	1	O'RING
5	1	INSPECTION COVER
6	1	VENT
7	1	PLATELETS (SHUTTER)
8	1	SHAFT
9	1	SHAFT GUIDE
10	1	DIAPHRAGM
11	1	PLATELET (DIAPHRAGM)
12		O'RING
13	1	SPACER
14	1	PITOT PIPE
15	1	UPPER COVER
16	1	DIAPHRAGM
17	1	MEMBRANE PLATE
18	1	REGULATION SPRING
19	1	SPRING GUIDE
20	1	ADJUSTING SCREW
21	1	CAMPANULA
22	1	SPRING PRESSER
23	1	BEARING
24	1	O'RING
25	1	LOCKING RING
26	1	LOCKING RING
27	6	BOLT CAB. HEX.
28	4	BOLT CAB. HEX.
29	12	BOLT CAB. HEX.
30	13	HEX NUT
31	2	BEARING WASHER
32	6	BOLT CAB. RED. SCA.
33	6	BOLT CAB. HEX.
34	1	REST WASHER
35	1	DENT LABEL
36	4	BOLT CAB. RED. BURST

NOTES:

1- ITEMS THAT MAKE UP THE REPLACEMENT KIT