INSTRUCTION MANUAL FOR SELF REGULATION

1.INSTRUMENT DESCRIPTION

The self-regulator is an accessory to be applied to the flowmeter. It is normally used with gaseous fluids (e.g. air, nitrogen).
It is available in two sizes ¼" (max 3 nm^3/h) and ½" (20 nm^3/h).
Pressure 70 bar stainless steel, 16 bar brass material.
It is mounted at the entrance, where it used with constant exit pressure (the flowmeter is sized according to exit pressure) or on exit, in which case it is used with constant entrance pressure (the flowmeter is sized according to entrance pressure).

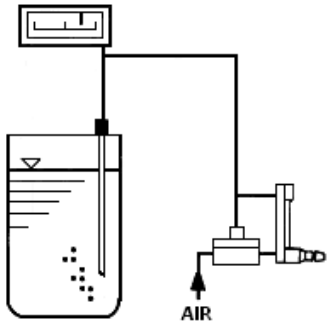
2.MODEL IDENTIFICATION

As this accessory is always applied to a flowmeter; it has no autonomous identification.

3.TYPICAL APPLICATION

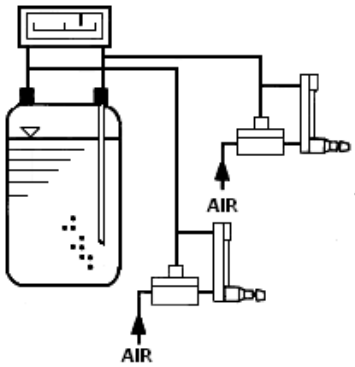
HYDROSTATIC LEVEL MEASURES (when gurgling)
The measuring unit is made up of:
- n°1 measuring probe mounted within the tank;
- n°1 gauge with mmH_2O scale;
- n°1 flowmeter.

The probe is fed with compressed air or neutral gas at constant pressure and flow rate by means of the flowmeter.The gauge indicates the eight of the level of liquid in the tank (eight in mm H_2O) which is equal to the pressure in the probe.

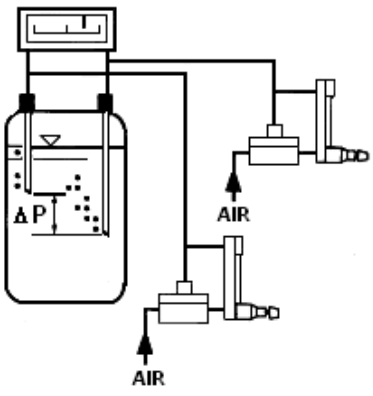


WITH PRESSURISED TANK
The measuring unit is composed of:
- n°2 measuring probe mounted within the tank;
- n°1 differential pressure gauge mounted within the tank;
- n°2 flowmeter.

With pressurised tanks, two probes and a differential gauge are used;the latter indicates the level within the tank as described above.



DENSITY MEASUREMENT
It is obtained using the above-described system and placing the two probes above the minimum level at different heights (dP). The difference of pressure registered by the differential gauge depends on the density of the liquid; standard distance is $200mmH_20$ with the sensitivity of the system depending on the distance between the probes.



4.INSTALLATION

Prior to installation, check compatibility between line and self-regulator connections.
The self-regulator must be fitted in an absolutely vertical position on accurately aligned piping and at controlled distances in order to prevent mechanical stresses on the instrument.
The use of intercepting valves between the instrument and line is recommended.
The instrument must be fed with clean, dry fluid (e.g. air, nitrogen) that is totally oil-free; we suggest a protective filter be fitted at the entrance.

5.ACTIVATION

Once installation has been completed, activation should be effected as follows:
- Open the flowmeter's regulation valve (1) slightly;
- Open the feed valve slightly;
- Open the exit valve slightly;
- Regulate the flow rate in the flowmeter to the required value.

It is reminded that when measuring a gurgling level, the flow rate should be regulated to the very minimum so as to reduce losses of charge on the line and to save fluid.
REGULATING PRESSURE
The self-regulator works with optimal differential pressure of 1 bar between entrance and exit; however it may also be used with lower levels of pressure down to 0.5 bar.
ATTENTION: When the intercepting valves are open, do not shut the flowmeter's tap off completely as this may cause damage to the membrane.

6.CALIBRATION

The instrument has been calibrated in our factory and does not need to be required regulating when installed

7.MAINTENANCE

Periodic maintenance of the self-regulator should be effected in the context every time the flowmeter to which it is applied is serviced.
-Ensure the instrument is turned off and emptied (not under pressure);
-Remove the instrument;
-Separate the self-regulator from the flowmeter, unscrew the couplings (2);
-Open the body separating the two covers (7 and 8);
-Take out the membrane unit (10);
-Remove the plug (3) and take out the pin (4). This operation is to be effected only with the entrance version

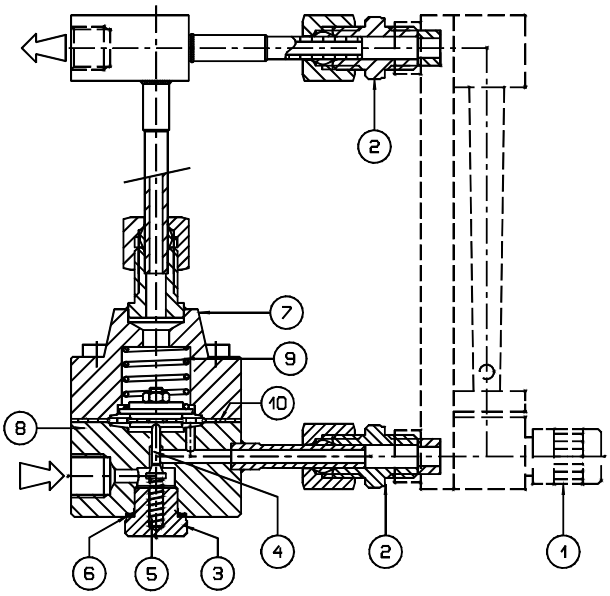
Proceed to clean using solvent and check the state of the membrane, specially its internal and external edges.
Should the membrane unit turn out to be broken or worn, we suggest it be replaced immediately. Please contact our customer service department for the relative spare parts.
Once re-assembly is complete, the membrane unit should be correctly positioned with its holes well aligned whit the corresponding ones and lying flat on the body.
Check the compressed air seal by applying an emulsion of water/soap all joints: the appearance or bubbles will highlight any leaks.
Activations should be effected in respect of the phases listed in Paragraph (5) ACTIVATION.

8 DIMENSIONAL DRAWING

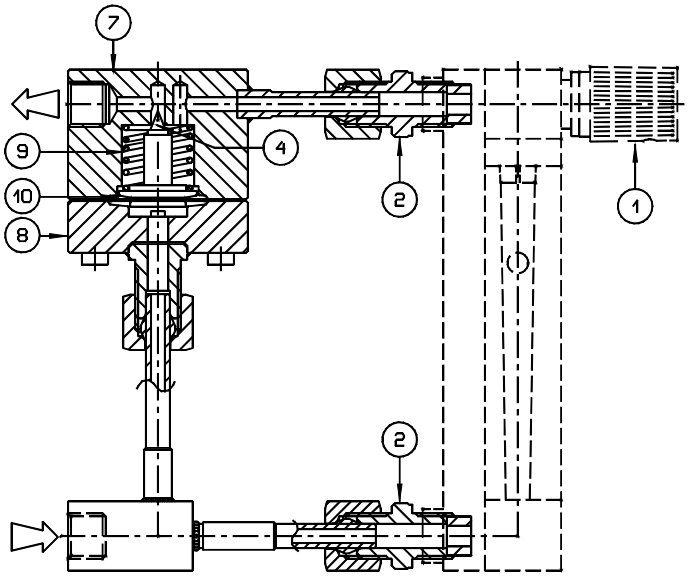
Please refer to the dimensional diagram of the flowmeter complete with self-regulator.

9.RECOMMENDED SPARE PARTS(*)

SELF-REGULATOR AT ENTRANCE
Constant exit pressure



SELF-REGULATOR ON EXIT
Constant entrance pressure



Key

1. Flowmeter regulation valve
2. Coupling
3. Plug
4. Flow rate regulation pin (*)
5. Spring
6. Gasket
7. Upper body cover
8. Lower body cover
9. Spring
10. Membrane unit (*)

The standard spare parts are:

- Membrane unit
- Regulation pin

They are supplied in a single spares kit.

N.B. When ordering spares, always indicate the Series number of the instrument.
This number is printed on the data plate fixed into the body and is a five-figure number preceded by the letter "F" (es.: F.45678)

10.TROUBLESHOOTING

The self-regulator does not normally suffer breakdowns.
Possible problems and solutions:
-The self-regulator does not regulate correctly: check the membrane unit and rod;
-Leaking fluid: check the gasket is in good condition;
-The sensor does not commute properly: check the sensor.
All of these checks are to be carried out in line with the instructions in Paragraph (7) MAINTENANCE AND SERVICING.
In the event of further problems or difficulties, please contact our customer service department.

11.DISPOSAL

When instruments have completed their working life cycle they must be scrapped according to normal regulations. During the disposal process take care with polymers, rubber and resins used in building the instrument. The metal parts, once they have been stripped of their lining and specific protective covering required by the customer, are recyclable.

12.GUARANTEE

The self-regulator is guaranteed against defects in construction for 12 months from shipping date. In the event of malfunctions, please return the instrument, within the above stated term, to OFFICINE OROBICHE and we will see to the replacement under guarantee (excluding transport costs) to damaged parts, provided that malfunction not attributable to improper use of the instrument.

OFFICINE OROBICHE decline any responsibility for the improper use of their products should they be used for purposes different to those specified in the order.

In such cases no complaint will accepted.

Direct or indirect damage and/or expenditure caused by the installation or the improper use will in no way be attributable to OFFICINE OROBICHE.

The instrument may be used for a maximum period of 10 years from delivery.

Once this term has expired there are two possible alternatives:

1) Replace it with a new instrument.
2) Effect a full service either at OFFICINE OROBICHE or by a specialised technician prepared to accept responsibility for its further use.

PROCEDURE TO FOLLOW WHEN RETURNING THE INSTRUMENT

The self-regulator is an integral part of its attached flowmeter: partial returned are not accepted.