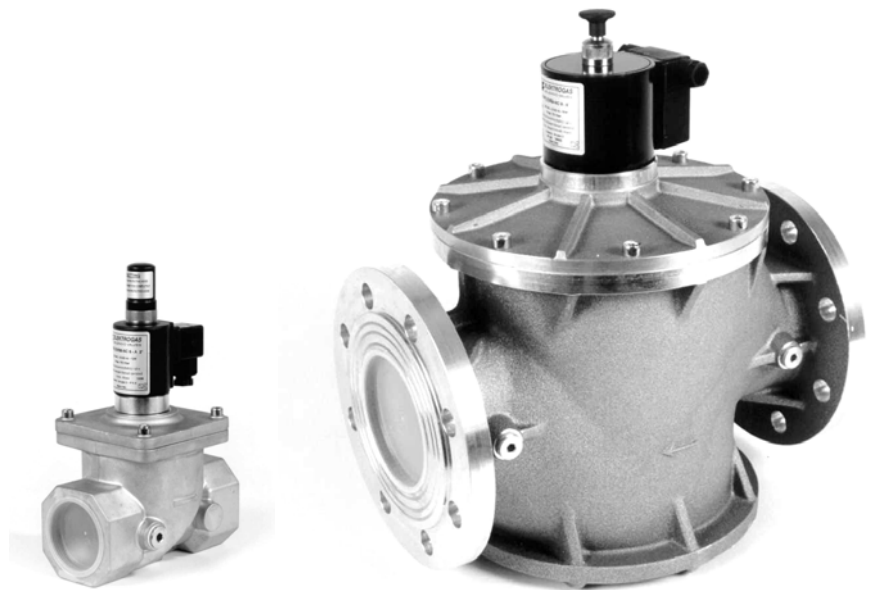


EVRM-NC

**Solenoid safety valves for Gas
Manual reset - Normally closed
DN10 ... DN150**

www.elektrogas.com



EVRM-NC6 / EVRM-NC9

EVRM-NC

Solenoid safety valves for gas

Manual reset - Normally closed

Class A – Group 2

The EVRM-NC type valve is a manual reset safety valve that is normally closed. This type of device, connected with one or more pressure switches is suitable for locking operations upon gas, air, or electric current failure.

The EVRM-NC type valves are made in accordance with EN161 standard (when applicable). All models are conforming with the European Directives 89/336 EEC and 73/23 EEC.

1- Features

- ❑ Large range for inlet/outlet connections, from 3/8" to 6" pipes sizing.
- ❑ Provided with G1/4" pressure gauge on two sides in the inlet pressure chamber (except brass models). Others gauge points on request.
- ❑ Optional G1/8" connection for closed position indicator micro switch (on request from 3/4" to 6").
- ❑ Fine mesh filter incorporated to prevent dirty contamination of the seal seat (except brass models).
- ❑ Maximum operating pressure 500 mbar.
- ❑ Suitable for air and non-aggressive gases (EN 437, 1, 2 and 3 families).
- ❑ Coil insulation is class H (180°C).
- ❑ Terminals with DIN 43650 plug and PG connector.
- ❑ Valves are 100% tested by computerized testing machineries and are fully warranted.
- ❑ For valve identification see the following charts.

WARNING

- **This control must be installed in compliance with the laws in force.**
- **Read instructions before use.**
- **Elettromeccanica Delta S.p.a. reserves the right to update or make technical changes without prior notice.**

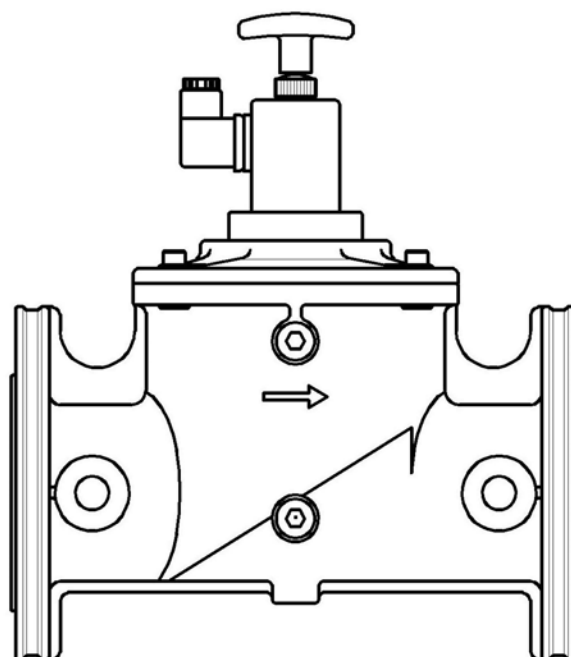


Fig. 1

2- Technical specifications

<i>Connections</i>	Gas threaded ISO 7/1 from Rp3/8 to Rp2 Flanged PN16 – ISO 7005 from DN40 to DN150
<i>Voltage rating</i>	230 VAC 50/60 Hz
<i>Voltages on request</i>	110 VAC 50/60 Hz 24 V AC/DC 12 V AC/DC
<i>Voltage tolerance</i>	-15% / +10%
<i>Power consumption</i>	see charts
<i>Environment temperature</i> ...	-15°C / +60°C
<i>Max. working pressure</i>	500 mbar
<i>Flow capacity</i>	see charts
<i>Disc sealing</i>	NBR
<i>Closing time</i>	< 1 sec.
<i>Protection class</i>	IP 65 (EN 60529)
<i>Cable gland</i>	PG09
<i>Overall dimensions</i>	see charts

3- Operation

The EVRM-NC type valve is a manual reset safety valve that is normally closed.

When not in working position the spring works on the shutter keeping the gas passage closed. Simply by energizing the coil the valve does not open. It is necessary to manually move the reset rod located at the top of the coil.

Once opened, the valve can maintain this position until electric current circulates on the coil. In absence of electric current the valve closes rapidly and remains shut upon return of same.

Once the causes for the lock have been eliminated, valve must be opened manually as described above.

4- Accessories

A fine mesh filter is provided, to prevent dirty contamination of the seal seat. However, an external strainer must be installed upstream of the valve. Brass models are available without internal filter only.

Inlet pressure area is provided with bilateral G1/4" gauges, to connect min/max adjustable pressure switches, leakage tester or other gas equipments. Flanged models are provided with gauges in the outlet chamber too. Brass models are available without gauges only.

On request, valves are supplied with a G1/8" connection on the bottom, to install a closed position indicator micro switch (from 3/4" to 6"). An adapting rod is provided too.

5- Coil features

The continuous service (100% ED) causes inevitable coil heating, depending of working environment. This situation is absolutely normal and has not to worry. To improve the coil cooling, install the valve allowing free air circulation.

Coil and terminal box are provided with suitable gaskets, to avoid water and dirty contamination (see the *Service Instruction Section*).

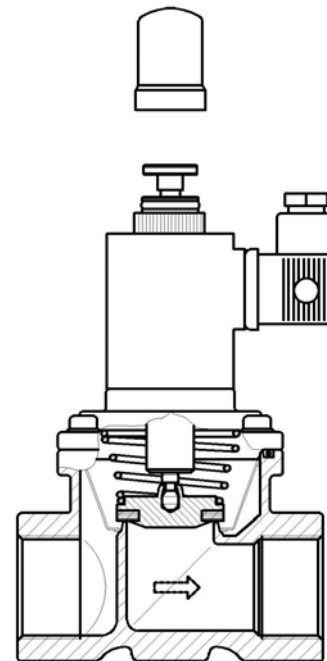


Fig. 2

6- General information

- ❑ Backpressure sealing is compliant with the *Class A*: the maximum backpressure admitted, with leakage within the EN161 requirements, is 150mbar.
- ❑ Maximum torsional stresses admitted are compliant with the *Group 2* of the EN161 standard.
- ❑ Recommended testing pressure is 1500 mbar Max.
- ❑ All components are design to withstand any mechanical, chemical and thermal condition occurring during typical service.
- ❑ Effective impregnation and surface treatments has been used to improve mechanical sturdiness, sealing and resistance to corrosion of the components.
- ❑ Valves are suitable for use with air and non-aggressive gases included in the 1, 2 and 3 families (EN 437).
- ❑ Materials in contact with gas:
 - Aluminium
 - Brass
 - Stainless steel
 - Plated steel
 - Anaerobic adhesive
 - Nitrile rubber (NBR)
 - Polytetrafluoroethylene (PTFE)

7- Valve identification

Connections type		230 VAC	110 VAC	24 V AC/DC	12 V AC/DC
Threaded	Flanged				
Rp 3/8 brass		EVRMNC0AO	-	EVRMNC0CO ⁽⁰⁾	EVRMNC0DO ⁽⁰⁾
Rp 1/2 brass		EVRMNC1AO	-	EVRMNC1CO ⁽⁰⁾	EVRMNC1DO ⁽⁰⁾
Rp 3/4 brass		EVRMNC2AO	-	EVRMNC2CO ⁽⁰⁾	EVRMNC2DO ⁽⁰⁾
Rp 1 brass		EVRMNC3AO	-	EVRMNC3CO ⁽⁰⁾	EVRMNC3DO ⁽⁰⁾
Rp 3/8		EVRMNC0A	EVRMNC0B	EVRMNC0C	EVRMNC0D
Rp 1/2		EVRMNC1A	EVRMNC1B	EVRMNC1C	EVRMNC1D
Rp 3/4		EVRMNC2A	EVRMNC2B	EVRMNC2C	EVRMNC2D
Rp 1		EVRMNC3A	EVRMNC3B	EVRMNC3C	EVRMNC3D
Rp 1¼		EVRMNC35A	EVRMNC35B	EVRMNC35C	EVRMNC35D
Rp 1½	DN 40 ⁽¹⁾	EVRMNC4A	EVRMNC4B	EVRMNC4C	EVRMNC4D
Rp 2	DN 50 ⁽¹⁾	EVRMNC6A	EVRMNC6B	EVRMNC6C	EVRMNC6D
	DN 65	EVRMNC7A ⁽²⁾	EVRMNC7B ⁽²⁾	EVRMNC7C ⁽²⁾	EVRMNC7D ⁽²⁾
	DN 80	EVRMNC8A ⁽²⁾	EVRMNC8B ⁽²⁾	EVRMNC8C ⁽²⁾	EVRMNC8D ⁽²⁾
	DN 100	EVRMNC9A ⁽²⁾	EVRMNC9B ⁽²⁾	EVRMNC9C ⁽²⁾	EVRMNC9D ⁽²⁾
	DN 125	EVRMNC93A ⁽²⁾	EVRMNC93B ⁽²⁾	EVRMNC93C ⁽²⁾	EVRMNC93D ⁽²⁾
	DN 150	EVRMNC95A ⁽²⁾	EVRMNC95B ⁽²⁾	EVRMNC95C ⁽²⁾	EVRMNC95D ⁽²⁾

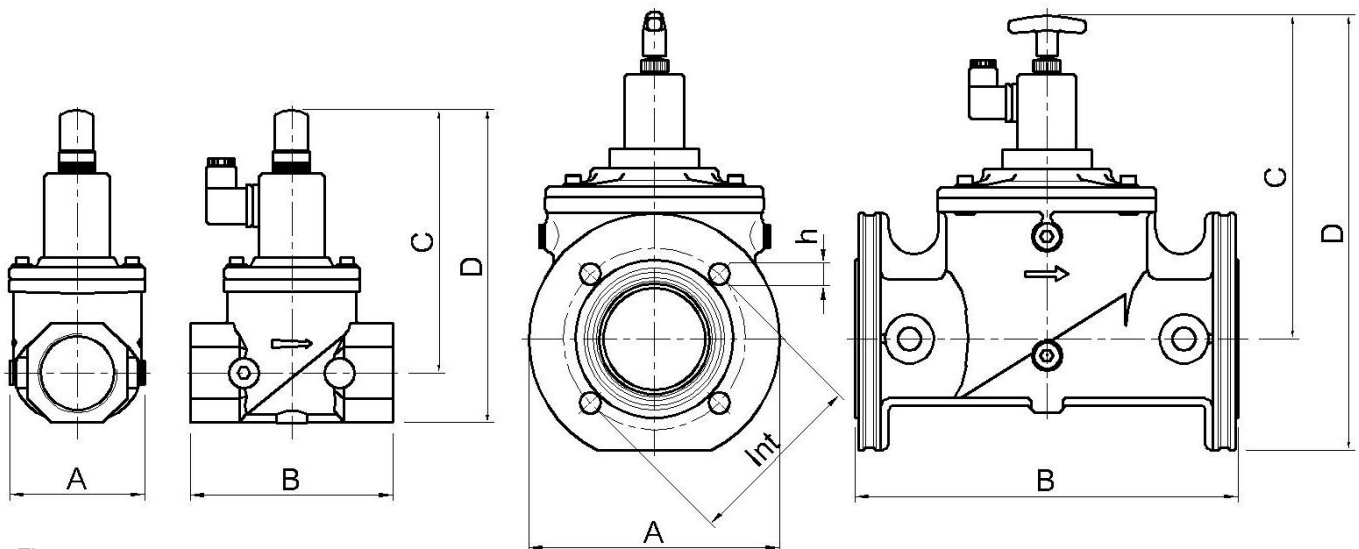
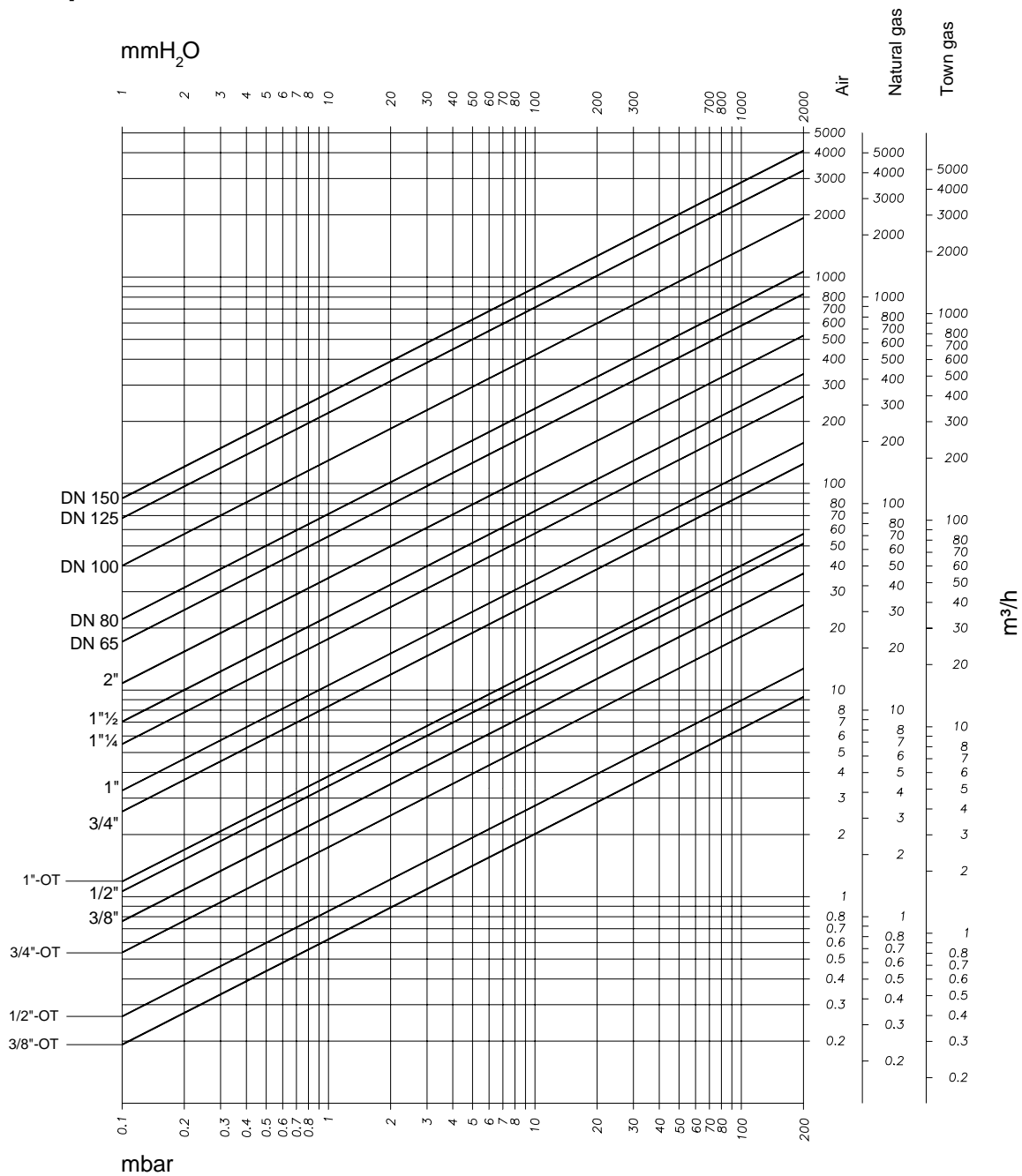


Fig. 3

Model	Connections		Max. Pressure (mbar)	Power Consump. @ 230VAC (W)	Overall dimensions (mm)						Weight (Kg)
	Threaded	Flanged			A	B	C	D	Int	h	
EVRMNC0AO	Rp 3/8		500	8	30	58	115	130	-	-	0,4
EVRMNC1AO	Rp 1/2		500	8	30	58	115	130	-	-	0,4
EVRMNC2AO	Rp 3/4		500	8	35	55	113	130	-	-	0,6
EVRMNC3AO	Rp 1		500	8	40	62	115	137	-	-	0,7
EVRMNC0	Rp 3/8		500	12	70	77	148	164	-	-	0,9
EVRMNC1	Rp 1/2		500	12	70	77	148	164	-	-	0,9
EVRMNC2	Rp 3/4		500	12	85	96	158	180	-	-	1,1
EVRMNC3	Rp 1		500	12	85	96	158	180	-	-	1,1
EVRMNC35	Rp 1¼		500	12	120	153	188	220	-	-	2
EVRMNC4	Rp 1½	DN 40 ⁽¹⁾	500	12	120	153	188	220	110	4x18	2
EVRMNC6	Rp 2	DN 50 ⁽¹⁾	500	12	106	156	192	230	125	4x18	2,3
EVRMNC7		DN 65	500	25	200	305	262 ⁽³⁾	352 ⁽³⁾	145	4x18	7,6
EVRMNC8		DN 80	500	25	200	305	262 ⁽³⁾	352 ⁽³⁾	160	8x18	7,6
EVRMNC9		DN 100	500	45	252	350	305 ⁽³⁾	435 ⁽³⁾	180	8x18	17
EVRMNC93		DN 125	500	45	310	460	370 ⁽³⁾	540 ⁽³⁾	210	8x18	29
EVRMNC95		DN 150	500	45	310	460	370 ⁽³⁾	540 ⁽³⁾	240	8x23	31

⁽⁰⁾ Specify AC or DC ⁽¹⁾ Optional kit ⁽²⁾ Class B ⁽³⁾ Valve open

8- Loss of pressure



Formula of conversion from air to other gases

Gas type	Specific gravity (Kg/m ³)	K
Natural Gas	0.80	1.25
Town Gas	0.57	1.48
Liquid Gas	2.08	0.77
Air	1.25	1.00

+15°C, 1013 mbar, dry

$$V_{\text{AIR}} = \frac{V_{\text{GAS TO BE USED}}}{K}$$

$$K = \sqrt{\frac{\text{AIR SPECIFIC GRAVITY}}{\text{GAS SPECIFIC GRAVITY}}}$$

9- Valve installation

Verify the line pressure is lower of the maximum working pressure admitted to the valve.

Check correspondence of flow direction with arrow printed on valve body.

Check correct alignment of connecting pipes and allow enough space from the walls to allow free air circulation.

Remove the end caps and make sure no foreign body is entered into the valve during handling.

Install in an area that is protected from rain and water splashes or drops.

Threaded models:

1. Put sealing agent onto the pipe thread (avoid excessive quantities of fittings glue which could enter in the valve and damage the seal seat).
2. Screw the pipes using proper tools only. Do not use unit as lever because damage to the valve stem could result.

Flanged models:

1. Position the gasket and insert the bolts.
2. Screw the nuts tightening them crosswise and using proper tools only.

Avoid overtightening and mount tension free.

Following chart shows the maximum values of bending moment (F_{max}), torque (T_{max}) and screws driving torque (C_{max}), according to EN13611.

Connections	F_{max} (Nm) $t < 10$ s	T_{max} (Nm)	C_{max} (Nm)
Rp 3/8	70	35	-
Rp 1/2	105	50	-
Rp 3/4	225	85	-
Rp 1	340	125	-
Rp 1¼	475	160	-
Rp 1½	610	200	50
Rp 2	1100	250	50
DN 65	1600	-	50
DN 80	2400	-	50
DN 100	5000	-	80
DN 125	6000	-	160
DN 150	7600	-	160

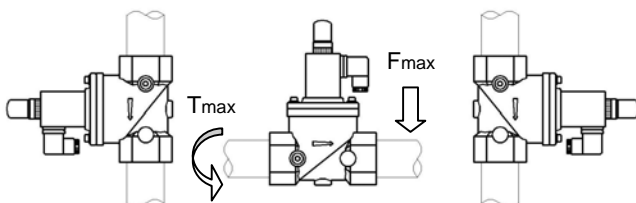


Fig. 4

Valve may be mounted with coil in horizontal or vertical position. Coil may be oriented 360 degrees in any direction.

10- Electrical connections (IEC 730-1)

Check correspondence between valve voltage rating and line power supply, before making any electrical connections.

1. Switch off power supply and remove protection cover.
2. Connect power cables to rectifier circuit terminal board.
3. Screw back the box cover, taking care to use all gaskets properly, because this could condition the valve life duration.

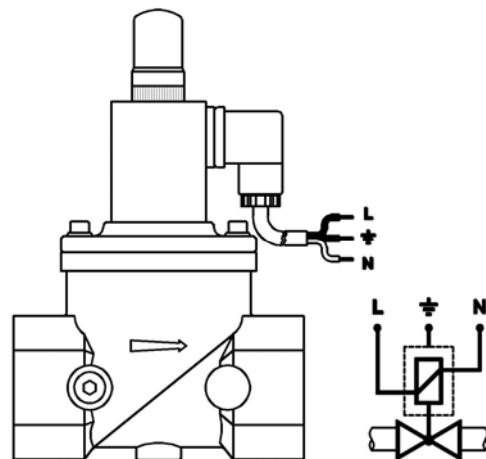


Fig. 5

WARNING

- To prevent product damage and dangerous situations, read the Installation and Service Instructions carefully.
- Turn off all power before servicing any part of the system.
- Perform leak and functional tests after mounting. A gas leak detection spray may be used also.
- Coil and DIN plug must be replaced with identical spare parts only.
- If the coil is turned, make sure the cap is properly tightened and the coil is locked.
- Use all gaskets properly (void warranty).
- All wiring must be in compliance with local and national codes.
- Make sure all works are performed by qualified technicians only.

11- Maintenance

To maintain a good performance of the system, almost once a year, an inspection of the valve is recommended.

External inspection

Turn off all power before servicing any part of the system.

Check the conditions of the DIN plug gasket. If gasket is deteriorated, replace it with a new one.

Check the electrical connections are clean, dry and correctly tightened.

Check the conditions of pipe connections: cover them with a soap solution and check for leakages.

Internal inspection

Make this inspection when the valve does not work properly only.

To make an internal inspection of the valve, do the following:

1. Close ball valve upstream the system.
2. Unscrew the knob and locking nut. Remove the coil.
3. Using an Allen key, remove the screws on the upper flange, in cross way. The gas in the valve will come out during this step.
4. Check the main O-ring and rod O-rings. If it's necessary, replace them.
5. Clean the internal side of the stem with a clean cloth and compressed air.
6. Remove the spring and blow it with compressed air. Check the spring is corrosion free. Take attention to the assembly direction of the spring.
7. Clean the plunger assembly with a clean cloth and compressed air. Grease the rod O-rings.
8. Check the conditions of the sealing gasket. If gasket is deteriorated, replace it with a new one.
9. Clean the sealing lip with a clean cloth. Do not use tools, because a lip damage could result.
10. Remove the filter and blow it with compressed air.
11. Reassemble the valve following the inverse sequence.

When reassembling, take attention to the correct position of the spring.

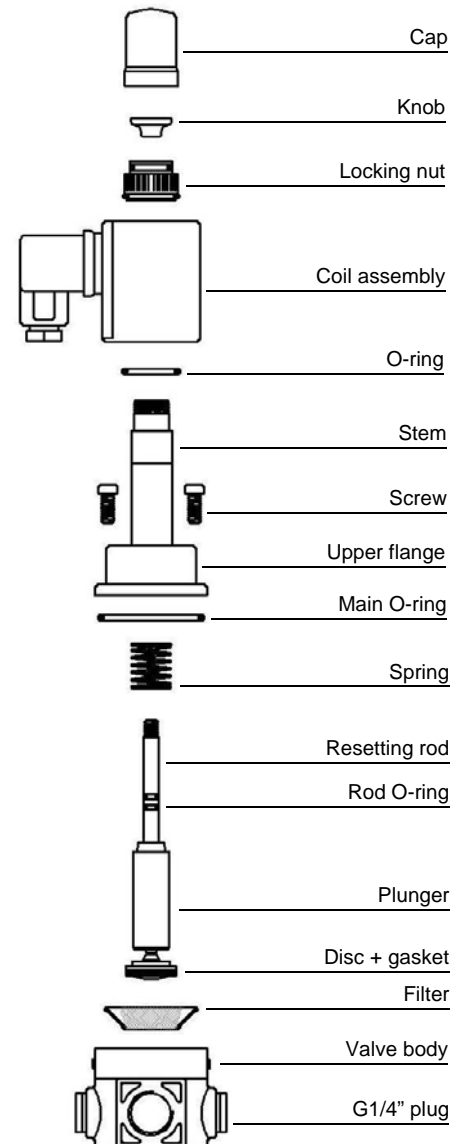


Fig. 6

When the reassembly is finished, verify the correct sealing between the upper flange and the valve body:

1. Open ball valve to restore pressure into the valve.
2. Apply a soap solution between the upper flange and the valve body and check for leakages.
3. Remove the soap solution with a clean cloth, before to reassemble the coil.

WARNING

- When reassemble, use all gaskets properly.
- Perform functional test after mounting.
- All works must be executed by qualified technicians only and in compliance with local and national codes.