VALVE 629 M

INATALLATION AND MAINTENANCE MANUAL

EQA SAIC
EQUIPOS QUEMADORES AUTOMATICOS

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Stalemate.

1. Scope.

The 629 Family valves are either on-off (O) or proportioning (M) pneumatic control devices depending on the model, this manual provides instructions for installation, adjustment, maintenance, and parts ordering information for the equipment described herein.

These items can be shipped separately for installation or can be shipped installed on other equipment. In this case, refer to the Instruction Manual of the other computer for installation and operating instructions.

ATTENTION

Before installation or any maintenance on the regulator, read this manual carefully and strictly follow the instructions given.

This regulator must be installed, operated and maintained in accordance with the standard corresponding to the equipment or plant where it is installed and to this manual.

The manufacturer is not responsible for damage caused by misuse or by erroneous operating procedures generated by lack of knowledge of this manual.

Any loss of gas to the outside of the valve indicates that service should be shut off and service should be contacted.

Only a qualified technician should install or repair the regulator.
Whenever a spare part or service is requested, mention the valve identification plate data (Model - **Serial No** . - Pressures).

Fig. 1

This equipment has been manufactured to operate safely and safely within the design conditions and only if the following points are observed:

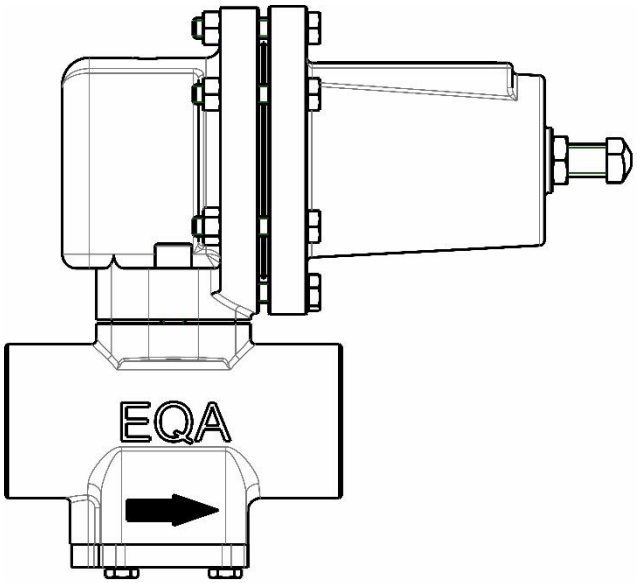
1. Installation, operation and maintenance are carried out by trained and qualified personnel with extensive experience in this type of equipment and familiar with the contents of this manual; All activities are carried out in strict adherence to the instructions given in this manual.

2. The operating conditions and, in particular, the pressure and temperature, are within the design value of the equipment.
It is not allowed to use it differently or make modifications that do not agree with the instructions issued by the manufacturer.
The user will be responsible for damage or breakdowns caused by incorrect use, the warranty will expire immediately in case of incorrect use.

This equipment contains pressurized parts, therefore, any maintenance or operation activity should be carried out only by trained and qualified personnel, aware of the precautions to be taken. Before opening any part of the equipment, make sure that the pressure has been completely released.

2. Specifications.

The 629/M service valve is fail-close and upon receiving the defined signal it opens linearly with the magnitude of the signal, when the signal is removed the valve returns to its closed position.



Modelo 629/M

- Open signal
- Fail close
- Normally closed
- Proportioning

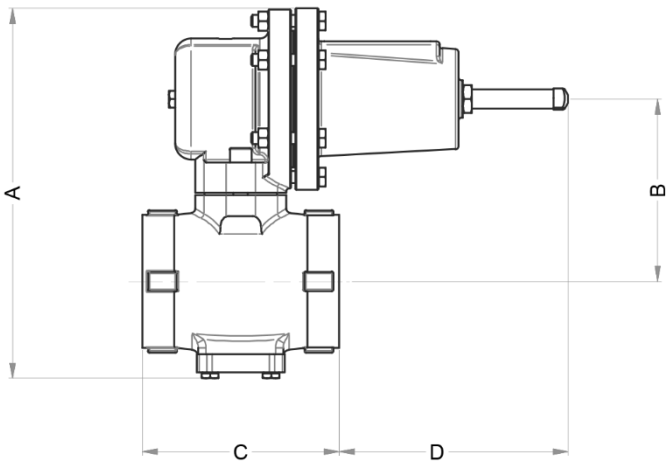
Fig. 2

3. Technical data

Technical data	
Connections	1" NPT or 2" NPT
Operating Temperature	-20 to 60 °C
Characteristic	Type (O) fast opening, Type (M) proportional
Closing	FCI 70-2 class VI
Working pressure	up to 12 bar
Outlet Pressure	Up to 7 bar
Capacity	Kv (1"-8,4 / 2"–15) Cv (1"-9,7 / 2"-17,3)
Available sizes	NPT 1" and 2"(DN 25 and 50)
Rangeability	20:1
Materials	
Main body	Nodular Cast Iron ASTM A-536 GR. 65-45-12
Diaphragm box	Nodular Cast Iron
Diaphragm cap	Aluminium and nodular cast iron for high pressure signal
Diaphragm	NBR+ nylon
Gaskets and shutter	NBR
Internal	Brass
Seat	Brass

Board. 1

4. Dimensions.



	1”	2”
A (mm)	219	242
B(mm)	102	121
C (mm)	130	143
D Max. (mm)	150	140

Fig. 3

PREVENTION

Before starting any installation and maintenance operation, check compliance with the following points.

1. The personnel in charge of the activity are trained, trained in this type of equipment and completely familiar with the content of this manual.
2. All necessary preventive measures have been taken prior to commencing work in accordance with this manual and local regulations.
3. The operator is equipped with the appropriate tools and supplies required to safely and correctly apply the procedures described.
4. All necessary spare parts are available and are all original spare parts from EQA S.A.I.C.

5. Installation.

The valve can be installed in any position as long as it is noted that the arrow in the body points in the direction of the flow.

Before installing the appliance, inspect if there was any damage during transport and that it has not been soiled inside the body.

Vent the feed pipe several times until no particles come out. (This is the cause of most start-up problems.)

The direction of circulation of the gas must always be respected according to the direction of the arrow in the body (see fig. 1, page 4). The vent should not be obstructed or exposed to rain or dust. The valve must be protected from the circulation of vehicles.

The vent hole should be observed periodically and checked that it is not covered.

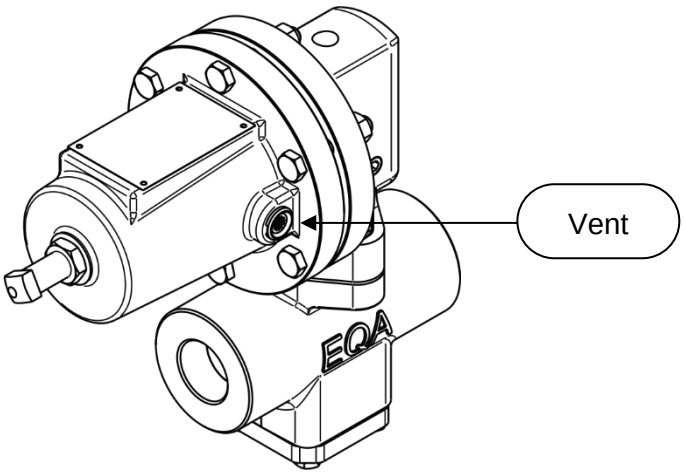


Fig. 4

⚠	**The equipment is designed for non-corrosive, clean and dry gases: do not use liquid or corrosive substances or gas with solid particles. All installation and operation procedures should be carried out slowly. Avoid sudden movements during the opening and closing of upstream and downstream valves. Do not exceed the pressure range, as specified on the equipment nameplate.**

Basic installation scheme.

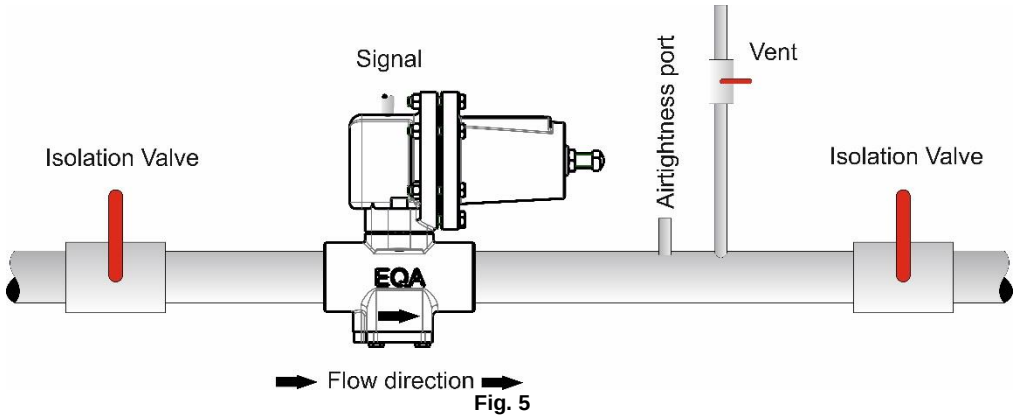


Fig. 5

The maximum working pressure is 12 bar.
The maximum signal pressure is 7 bar.

The magnitude of the signal will depend on the working pressure.

6. Commissioning

After completing the installation, check that the upstream, downstream, and downstream vent valves remain closed.

⚠	**Be sure to slowly introduce pressure into the system to avoid impacts to the valve's mechanical system.**

6.1 Commissioning 629/M.

The 629/M service valve is fail-close and upon receiving the defined signal it opens linearly with the magnitude of the signal, when the signal is removed the valve returns to its closed position.

The adjustment screw serves to define the closure at the defined working pressure, this must be adjusted until the system is hermetic without signal, by tightening clockwise greater adjustment is achieved in the closure and makes it necessary to need greater signal pressure to initiate the movement of the shutter and counterclockwise the opposite effect is achieved.

Adjustment procedure for the 629/M valve.

1. Connect a suitable pressure measuring instrument downstream of the valve.

2. Check that the adjustment screw is completely loose.

3. Slowly introduce pressure to the system.

4. The system will be open, adjust the screw clockwise until it has no more downstream pressure (closure).

5. Feed the signal to its maximum magnitude.

6. Remove the signal, you will notice that the valve does not close completely, tighten the screw again until there is no more pressure downstream. (This is done to absorb the normal hysteresis of the system, the minimum signal is therefore 0.3 bar, depending on the working pressure of the valve). If you notice that there is a small leak, even tightening the screw more, it is possible that the seat is scratched or some particle is preventing the closure. (See Inspection and Parts Replacement Procedure).

7. Tighten the lock nut of the adjustment screw to avoid accidental misalignments.

8. Carefully check all connections for possible leakage. Remember that vibrations and shocks during transport of the valve can loosen the fittings, and you must ensure that the installation is completely airtight.

7. Periodic checks.

	**The continuous integrity of the pressurized appliances is ensured by periodic functional checks.**

What is presented here is the manufacturer's recommendation for a minimum level of control necessary to maintain continuity of integrity of the pressure appliances.
The following controls and preventive maintenance activities must be carried out and recorded according to the user's quality system.

The given intervals are intended to support the user in the management of preventive maintenance. Very aggressive or very demanding services may require a reduction in the proposed intervals, as well as critical services with a high rate of availability.

	**It is the user's responsibility to establish an appropriate interval to perform the periodic functional checks required by the type of service conditions, criticality of the service and local regulations.**

PERIOD	ACTIVITY
1 year	Perform a full set of functional checks.
3 years	Change dynamic seals and control diaphragms
5 years	Change all seals and diaphragms

	**The periodic functional controls described herein require that the line on which the equipment to be controlled is installed be disconnected from service and available only for periodic checks.**

The following functional control is described:

Valve tightness: It is recommended to do a visual check of the seat and the shutter every 6 months, this frequency may be higher according to the criticality of the process.

1. Remove the signal from the valve to actuate the shut-off and vent all gas downstream of the valve.

2. Once closed, check that the pressure does not rise downstream.

3. If a leak is detected, the seat or shutter may be damaged and must be repaired.

8. Spare parts.

They must always be requested according to the part number indicated in the general exploded view (fig. 12, page 14) and mentioning the regulator's sheet data. (fig. 1)

9. Maintenance.

Before starting any maintenance operation, follow the instructions below.

There is no need to remove the body from the line.

	**BEFORE PERFORMING MAINTENANCE WORK MAKE SURE THAT THE SYSTEM IS COMPLETELY DEPRESSURIZED.** **The correct venting of the pipes must be ensured to prevent the accumulation of vented gas, which could cause material damage, bodily injury or even death.**

Procedure for emptying the pipe after maintenance.

1. Close the insulating valve upstream VERY SLOWLY.

2. Close the downstream isolating valve VERY SLOWLY.

3. Open the vent valve and enter a controlled signal so that the valve opens. (This will empty the gas contained between the upstream insulating valve and the valve.)

4. Verify that there is no pressure in the isolated system.

5. Disconnect the signal line.

10. Inspection and replacement of parts.

1- Be sure to close the upstream and downstream insulating valves and vent to release all the pressure in the system, **failure to comply with these instructions could cause property damage, bodily injury, or even death.**

2- Measure the adjustment distance of the screw so that you can return it to its set-up position after replacement.

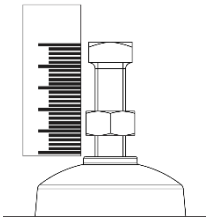


Fig. 6

3- Release the bottom cap (6270123), be careful when removing the gasket (6270123). (fig. 7).

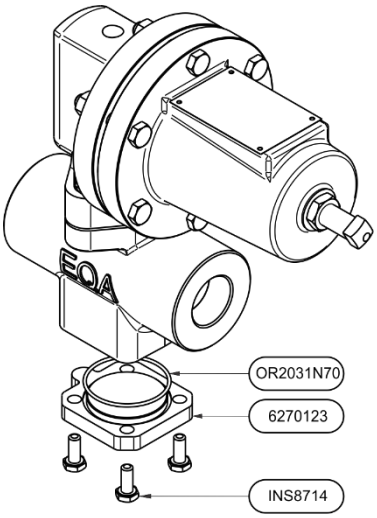


Fig. 7

4- Using an M8 socket wrench, remove the shutter assembly. (see Figure 8)

5- Check the condition of the shutter (2170014), if it is over-marked or you notice dirt embedded in the rubber, replace it with a new unit (see fig. 8).

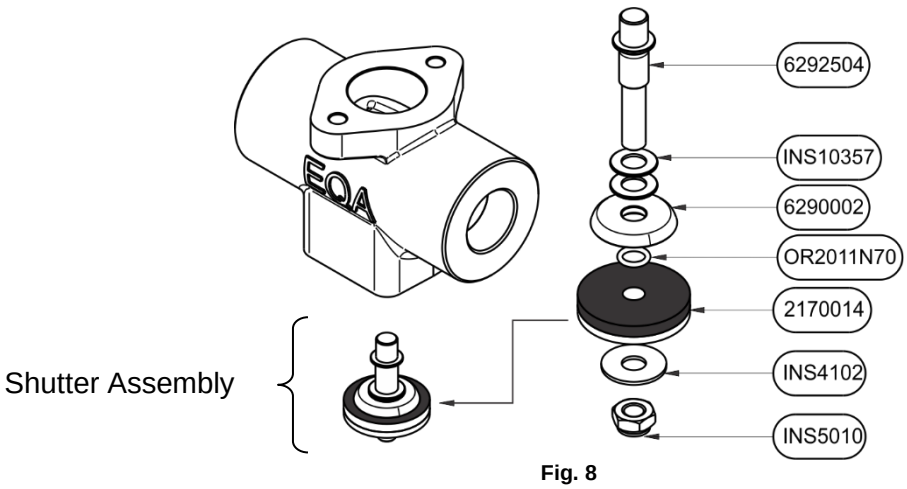


Fig. 8

6- Inspect the condition of the seat, if you notice that it is scratched or notched, the valve must be taken out of service and sent to the factory to replace the seat. (fig. 9)

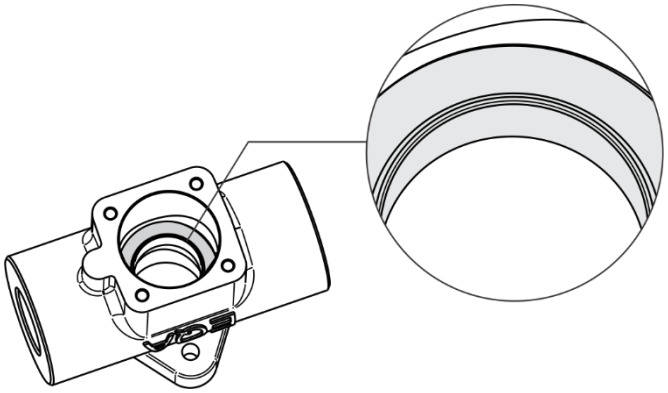


Fig. 9

7- Remove the screws (INS 8688) with a 5/16" Allen wrench and remove the regulator from the body. (fig. 10)

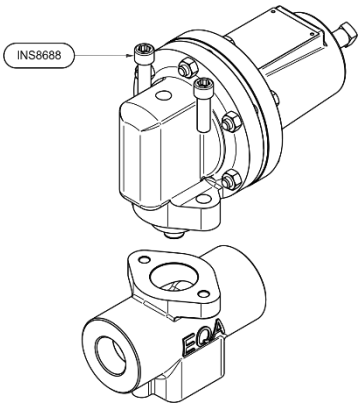


Fig. 10

8- Loosen the lock nut (INS8951) and remove the screw (IN8694). Remember step 2 fig. 6 and measure the distance at which the valve is set.

9- Remove the screws (INS8727) along with the nuts (INS8971) and screw (INS8724). (See fig. 11).

10- Remove the spring pusher (6250014) and the mainspring.

11- If you require a change of the main spring, measure the Ø of the wire and check the code in the spring table (Table 2).

Code	Ø Wire
R27	(Ø1,75)
R42	(Ø 2)
R7	(Ø 2.25)
R34	(Ø 2.5)
R8	(Ø 2.75)
R9	(Ø 3)
R36	(Ø3.5)

Code	Ø Wire
R10	(Ø 3.75)
R37	(Ø 4)
R38	(Ø 4.25)
R11	(Ø4.75)
R12	(Ø5)
R54	(Ø5.5)

Board. 2

12- Remove the diaphragm assembly, to replace it remove the screw (INS8724) and replace the diaphragm (6250020). (See fig. 11).

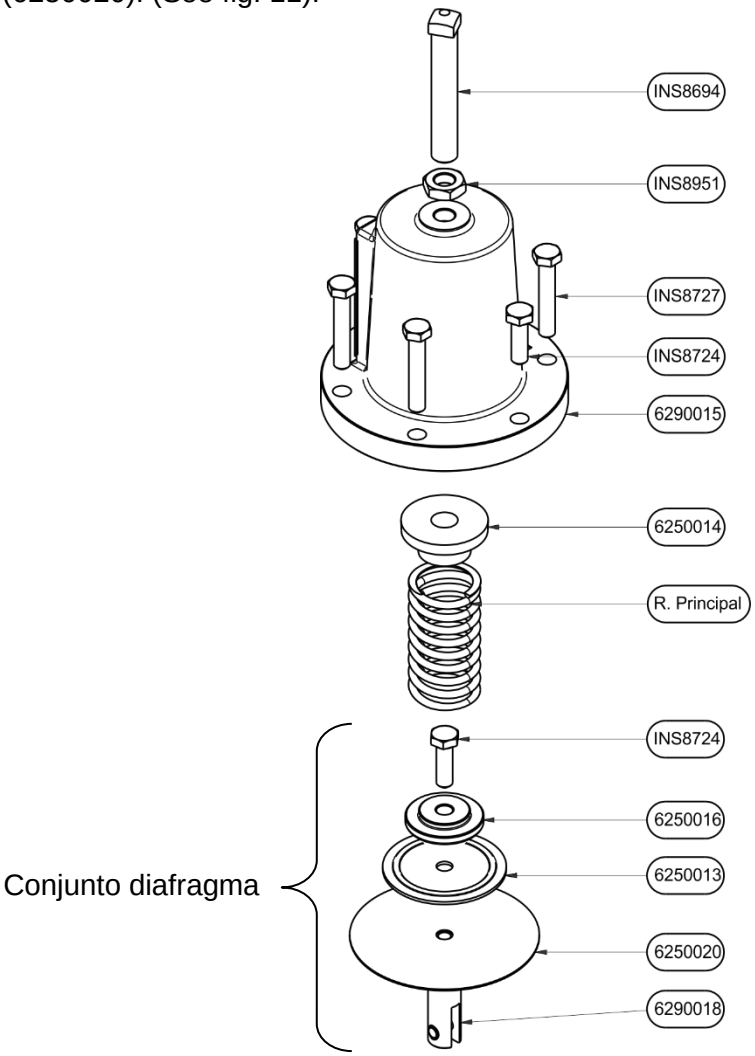


Fig. 11

13- Reassemble the parts in reverse order, taking into account:

a. The screw adjustment when reassembling the diaphragm assembly (see fig. 11) is done with well-adjusted manual tightening (6 to 10 N/m).
b. When re-assembling the sealing assembly (see fig. 8) with the valve, apply a low-torque threadlocker to the thread.

c. Adjust the mainspring when you have made the entire assembly to the position previously set (see fig. 6).

11. Table of possible failures.

Problem	Possible cause	Solution
The valve does not respond to the signal.	Clogged venting.	Clean the vent hole.
	Damaged diaphragm.	Perform parts replacement procedure.
	Split axis.	Perform parts replacement procedure.
The valve loses fluid to the outside.	Damaged diaphragm.	Perform parts replacement procedure.
	Loose screws.	Tighten the system screws.
	Damaged bottom gasket.	Perform parts replacement procedure.
	Loose connectors.	Adjust the system connections.
The valve loses fluid inside.	Particles in the obturation area.	Perform inspection procedure and clean both the seat and the shutter.
	Insufficient closing force.	Perform inspection procedure and clean both the seat and the shutter. Perform adjustment procedures.
	Shutter or seat marked.	Perform parts replacement procedure.
Pressure pass to the signal chamber	Deteriorated shaft seals.	Perform parts replacement procedure.
It is felt that the flow jumps and is not gradually increasing.	Deteriorated shaft seals.	Perform parts replacement procedure.
	The shaft is bent.	Perform parts replacement procedure.

Board. 3

12. Breakdown.

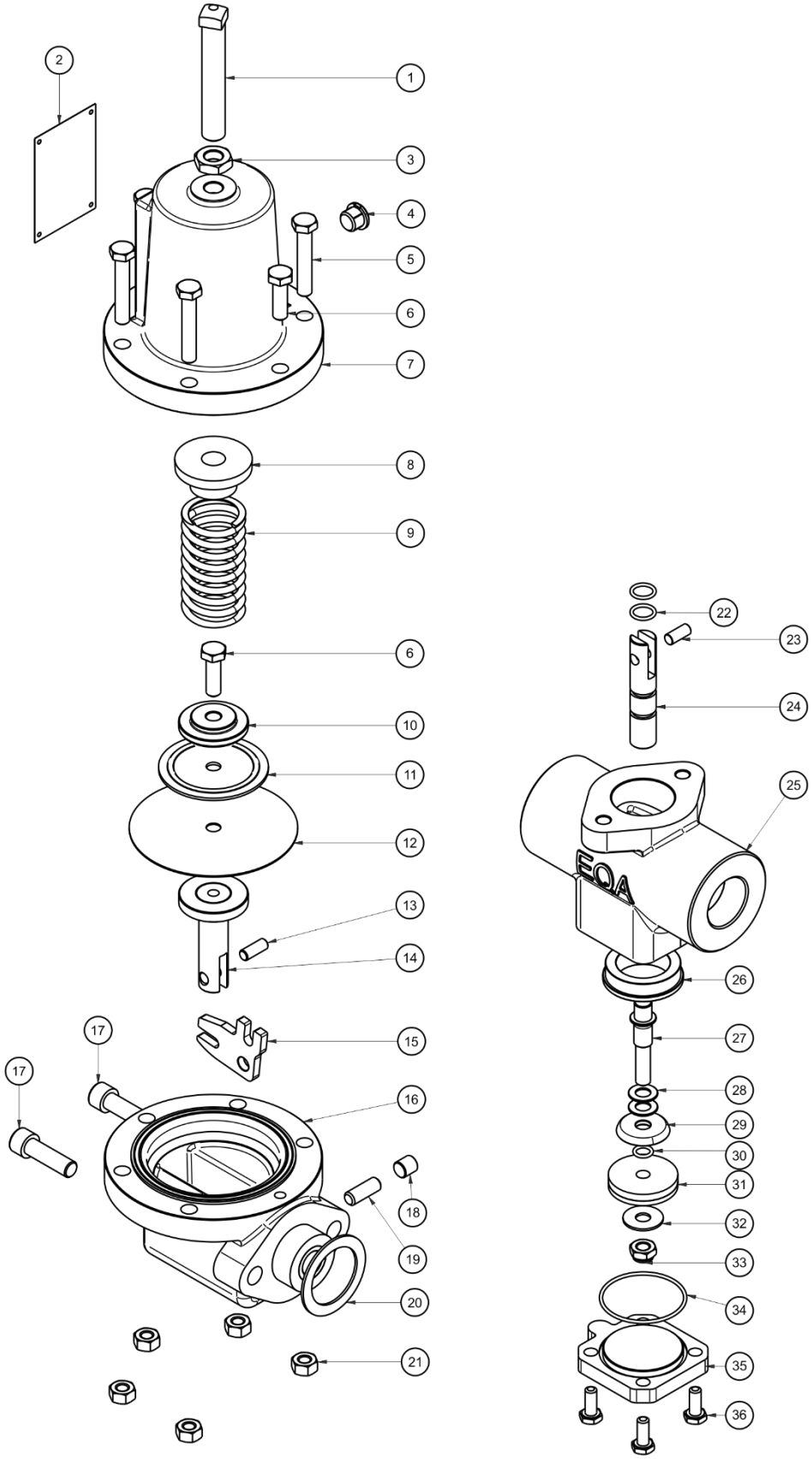


Fig. 12

Pos.	Part number.	Description.	Qty.
1	INS8694	Square Head Screw 1/2"W x 3" (ZD)	1
2	62901CH	Plate fot.	1
3	INS8951	Nut 1/2"W - 6mm thin (lock nut) Zinc. Dor.	1
4	7220021	Plastic vent filter	1
5	INS8727	Hex Head Screw 5/16" W x 13/4" (ZD)	5
6	INS8724	Hex Head Screw 5/16" W x 1" (ZD)	2
7	6290215	It's got a bit of hypnotherapy	1
8	6250014	Push spring	1
9	R. Principal	Main spring (see table 2).	1
10	6250016	Diaphragm press	1
11	6250013	Diaphragm Plate	1
12	6250020	Regulator diaphragm *	1
13	6300228	Diaphragm holder pin	1
14	6290018	Diaphragm port	1
15	6290006	Lever	1
16	6290117	Diaphragm box for 629	1
17	INS8688	3/8"W x 11/4" Allen Screw with Head	2
18	INS11517	3/8"W x 3/8" headless allen screw - Black zinc	1
19	6250004	Toggle bolt	1
20	6300025	Coupling gasket *	1
21	INS8971	5/16" THICK Nut (ZD)	5
22	OR2013N70	O´ring 2-013 BUNA 70 Sh (N 674-70) *	2
23	6250011	Shaft-Plug Bolt	1
24	6290005	Shutter Shaft	1
25	6292501	Body Ø1"	1
26	6293203	Inyector Ø1¼"	1
27	6292504	Main Shaft 1"	1
28	INS10357	Flat washer 5/16"- Ø16xØ8,5x1mm - Bronze	2
29	6290002	Restrictor - Linear Feature	1
30	OR2011N70	O Ring 2-011 BUNA 70 Sh (N 674-70) *	1
31	2170014	Shutter*	1
32	INS4102	Flat washer 5/16"- 22x8.25x1.25 - ZINC PLATING PLATE	1
33	INS5010	Self-braking nut ISO M8 P1.25 (6.8) zinc.blue. *	1
34	OR2031N70	O RING 2-031 BUNA 70 SH (N 674-70) *	1
35	6270123	Body Cap 627 High Pressure (Non-Locking)	1
36	INS8714	Hex head screw 1/4 x 5/8 - Zinc plated	4

* Items included in the spare parts kit.

Board. 4

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