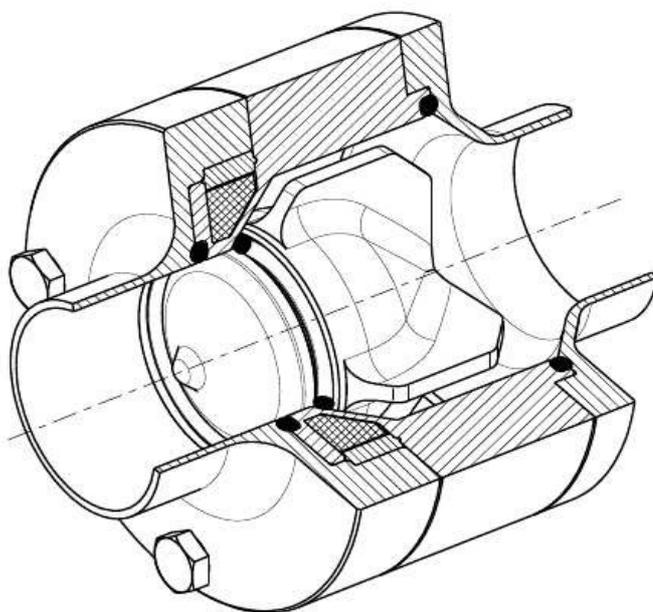


USER AND MAINTENANCE GUIDE

NON RETURN / UNIDIRECTIONAL VALVE

EDF VALVE DN10-DN100



Carollo srl Unipersonale

Via Pettinà, 24

36010 Zanè

Italy

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0. Introduction

This instruction manual is an integral part of the delivery of the valve. You must:

- **ALWAYS** read carefully before using the valve; – **ALWAYS** store it for future reference.

All rights reserved. You may not reproduce or transfer any portion of this instruction manual by any means, electronic and mechanical - including photocopying, recording, or any other storage system or re-use for other purposes than exclusively personal use - without the prior written accord to the manufacturer.

This manual's handbook is specifically intended for use by technical staff. For this reason some information easily deduced from the examination of the text and illustrations and drawings have not been specified. The publisher is not responsible for any consequences resulting from incorrect operations by the user.

The data and information contained in this manual are subject to change or updates without further notice or obligation by the manufacturer.

1. Valve Description

YGROS valve is a non return/unidirectional valve with magnetic technology. Inside Ygros valve there is not a spring, but the functioning takes place through the presence of a magnetic field.

Ygros non return valve consists of:

- Valve body
- Shutter
- Front Flange
- Rear Flange
- Magnet (usually in 2 part)
- Gasket.

Flanges can be chosen among:

- Welding ends,
- Tri-clamp ASME BPE
- Female DIN.

2. Working Principle

Ygros non-return valve can stop the return flow of gasses and liquids.

The Ygros non return valve opens the inflow pressure exceeds that of the out flow and magnetic field pressure combined. The valve closes when the difference in pressure ceases. A higher back pressure pushes the valve shutter against the seal.

The gas / liquid flows inside the valve body by opening the shutter, once the flow is over the shutter returns to the closed position interrupting the flow of return.

3. Declaration of Conformity CE

CAROLLO srl

Via Pettinà Luigi, 24 - 36010 ZANÈ (VI) ITALY
Telef. 0445-314158/315214 Fax 0445-319538/319221
E-Mail: info@carolloc macchine.com
Web: www.carolloc macchine.com
Cod. Fisc. e P. IVA IT 00270990245
Reg. Impr. Vicenza 10467//VI116 R.E.A. 140951/VI
Sede Legale: Via Pordenone, 8 - 36010 Zanè (VI)



DICHIARAZIONE DI CONFORMITA' DECLARATION OF CONFORMITY

Nome del fabbricante:

Carollo S.r.l.

Name of manufacturer

Indirizzo del fabbricante:

Via Luigi Pettinà, 24
36010 Zanè (VI)

Address of manufacturer

Dichiara
Declare

Che la valvola di non ritorno /unidirezionale ad azionamento magnetico individuata nel presente documento è conforme alla direttiva 97/23/CE + 2014/68/EU art. 13.
The unidirectional magnetic valve identified in this document complies with Directive 97/23/CE + 2014/68/EU art. 13.

COD. ARTICOLO

Matricola

Procedura di valutazione di conformità utilizzata / *Procedure for Conformity Assessment* :

Art. 3 par. 3 per : EDF (DN25)

Cat. I Modulo A : EDF (DN32 - DN50)

Cat. II Modulo A1 : EDF (DN63 - DN100)

Organismo notificato che ha effettuato il controllo / *Notified body which carried out the inspection* : TÜV Italia, Via Carducci, 125, Pal.23, 20099 Sesto San Giovanni (MI) - ITALIA - www.tuv.it.

Norme armonizzate applicate / *Standard applied* :

- Directive 97/23/CE concerning pressure equipment + 2014/68/EU art. 13
- Regolamento CE 1935/2004 "Statement of conformity according to materials in contact with Food"
- UNI EN ISO 13445

Certificato / *Certification* nr : TIS-PED -VI-14-01-064437-7101

Zanè,

Carollo Srl Unipersonale
Legale rappresentante
Carollo Martino

4. Safety Symbols

	<p>WARNING signal indicating that the general special instructions SHOULD BE followed to avoid serious injury.</p>
	<p>CAUTION generic signal indicating that you MUST follow special instructions to avoid damage to equipment and environment.</p>
<p>NOTE!</p>	<p>Identify IMPORTANT information to improve the understanding of the instructions.</p>

5. Safety Instructions

ALWAYS read the technical data before the installation, operation and maintenance.



ALWAYS use authorized personnel for the installation, operation and maintenance of the valve. The staff must know perfectly the valve and the manual.

Use the valve ONLY for the purpose intended.

ALWAYS operate the valve carefully.

ALWAYS make sure any split of the valve when removed from its packaging.

NEVER touch a hot valve.

The valve should be installed at a safe distance from components that can lead to turbulent motions fluid through the valve. Turbulent flows can cause noise, vibration and cavitations with consequent wear of valve components. In this case, the installation position of the valve to be modified.



Always check before mounting, fluid chemical compatibility with the materials from which the valve (par. technical data) and seals.

In conditions of difficult jobs and aggressive, periodically check of possible wear of the components that make up the valve (see par. Planned Maintenance).

Install the valve due to distance from the external heat sources.

Be careful with detergents.

NEVER remove a valve from piping or disassemble the valve, while under pressure.

The permanent magnets mounted on the valve have a high magnetic field. Magnets should be handled carefully to avoid crushing of the fingers and any damage or injury.

You must keep a safe distance between the magnets and all electrical and electronic equipment and objects that can be damaged by a magnetic field such as monitors, credit cards and ATMs, computers, diskettes and other data, mechanical clocks, lamps hearing and speakers.



To avoid any risk, the staff arranges for the assembly / disassembly of the valve should not have the Pacemaker.

We must pay close attention when handling the magnets mounted on the valve, a breakage of the magnet itself can generate sharp and very small parts dangerous to

handle.

We disclaim all responsibility for inappropriate installation, use and maintenance!

6. Technical Data

Valve Use

Application: Non-return Valve
 For use in: Chemical, Pharmaceutical, Food, Vacuum system, Compressed air, Water treatment, Oil & Gas, Special applications **MAX**

operating pressure: **16 bar**

MAX temperature use:

- Standard Version **150°C**
- High Temp Version **220°C**

MIN temperature use: **-10°C**

Nominal conditions:

Environmental temp. From 0° to +40° C
 Max humidity 10% - 90%
 Max altitude 1500 a.s.l.

Materials

Valve Body: 1.4404/1.4301
 Shutter: 1.4462
 Magnet:

Standard Version	Neodymium
High Temp Version	Samarium Cobalt
External Seals:	EPDM

Seals in contact with the product:

→ EPDM:

Excellent resistance to heat, weathering, good durability. Good compatibility with acids, alcohols, ketones and esters. Poor resistance to oils and fats.

Temperature range: from -40°C to 160°C

→ Silicone:

Good resistance to animal and vegetable oils, resistance to oils, lubricants mediocre at aliphatic hydrocarbons, oil and gasoline, diluted alkali.

Temperature range: from -60°C to 200°C

→ NBR:

Excellent resistance to oils and fats, minerals, plants, animals, aliphatic hydrocarbons. Alkali resistance. Unsuitable for use with amines, ketones, esters, ethers, benzene, chlorinated solvents and concentrated acids.

Temperature range: from -25°C to 125°C

→ FPM(Viton):

Excellent resistance to oils and greases, aliphatic hydrocarbons, aromatic hydrocarbons.

Temperature range: from -20°C to 200°C

→ FEP(PTFE):

Excellent thermic and chemical properties. Practically insoluble at high temperatures, and acid resistant in temperature. Very low coefficient of friction but limited mechanical strength and wear.

Temperature range: from -10°C to 200°C



The parameters of application are considered in relation to a standard and proper use of equipment. To dispose of the components, refer to the local law in the Country where the valve has to be dismantled.

Finishing surfaces

Surfaces in contact with product: 0.4 µm < Ra < 3.2 µm Surfaces

not in contact with product: 0.8 µm < Ra < 3.2 µm

Installation position

All installation positions are possible.

Check the flow direction (see the mark on the valve).

7. Unpacking / Storage

1. Unpacking and checking the delivery valve:

- A. Complete valve.
- B. Instruction Manual.¹

2. Handling split parts:

- Avoid dropping the product.
- Check inside the valve. -

Unpack and take the instructions for assembly / disassembly.

3. Control / complaints:

- Document / verify damage, missing parts or wrong.
- Contact Ygros srl, if necessary.

4. Storage / protection:

- Avoid dust, humidity, wet areas, heat and the like.
- Avoid vibration.
- Temp Min: -10°C
- Temp Max: +50°C

¹ Downloadable from www.ygros.com

8. Installation Instructions



The valve should be installed at a safe distance from components that can lead to turbulent motions fluid through the valve. Turbulent motions can cause noise, vibration and cavitation with consequent wear of valve components. In this case, the installation position of the valve has to be modified.

ALWAYS check before mounting, fluid chemical compatibility with the materials from which the valve (par. technical data) and seals/gasket.

Install the valve due to distance from the external heat sources.

Preferably, install the valve easily accessible and suitable for maintenance activities..

We **strongly recommended** that the fittings should be installed by specially trained, qualified personnel.

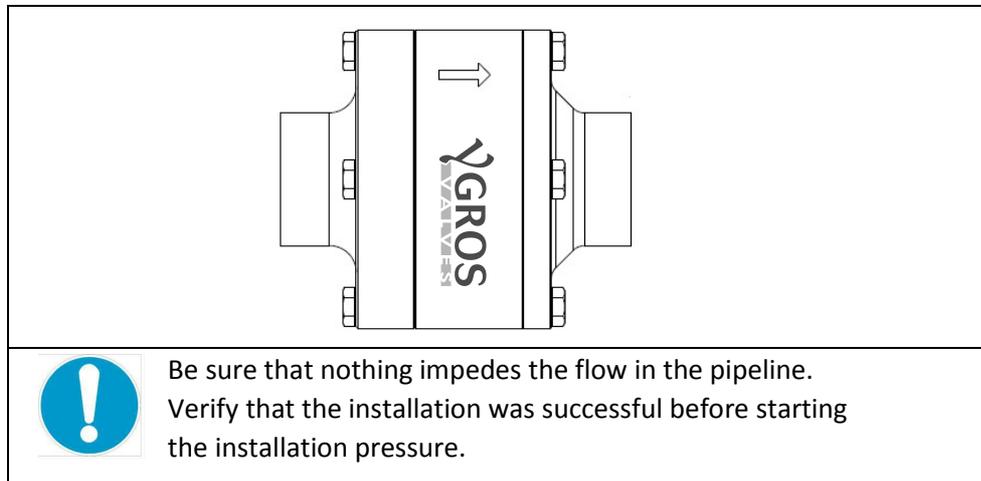
Correct direction of flow:
- Check the correct flow direction before installing the non-return valve.

If the valve is welding type, to perform welding, the valve must be disassembled to prevent damage to seals and magnets. To disassemble the valve see par. Disassembly/Assembly.

ALWAYS drain and bleed the system before installing the valve. Verify that the installation must be equipped with grounding.

9. Start-up

After installing the valve and before starting the plant make sure which the valve is installed correctly and the arrow marked on the valve indicates the direction of flow.



10. Troubleshooting

TROUBLESHOOTING VALVE
Please study the maintenance manual before searching.

WEAR VALVE REPLACEMENT PARTS
See par. Disassembly/Assembly.

Problem	Possible cause	Possible remedy
External loss	Body gaskets worn	Replace gaskets
	Excessive Pressure	Check the pressure of the installation (see par. Technical data usable) maximum pressure
	Excessive Temperature	Replace with seal of different kinds of elastomers
Closed valve has an internal Loss caused by normal wear	Shutter gasket worn	Replace gaskets.
Closed valve has an internal loss incurred prematurely	Aggressive fluids	Change the operational conditions or replace the material of the seals
Difficult opening and closing	Incorrect Type elastomers seal	Replace with seal of different kinds of elastomers
	Incorrect Shutter positioning	Remove and reseal properly the shutter
Valve noise during operation	Cavitation or fluid turbulence	Move the valve position

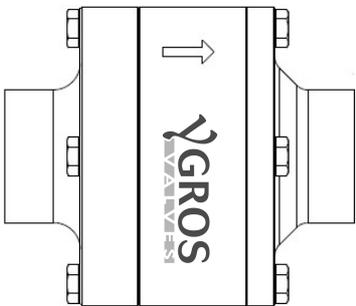
11. Cleanliness

To clean the valve is necessary to disassemble the valve by following the instructions of par. Disassembly / Assembly, contained in this manual.



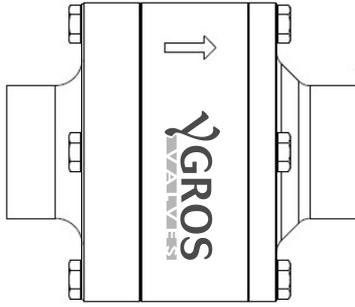

 **CLEANING VALVE:**

- Enforce the cleaning of the valve by authorized personnel
- Follow the indicated concentrations in detergents - Follow the instructions of the detergents suppliers - Always wear gloves and safety glasses.




 **WARM VALVE/PIPE:**

- If possible, do not touch the valve or piping hot.
- Alternatively, wear protective gloves.



RISK
DAMAGE
ELASTOMERS

 **HANDLING DETERGENTS:**

- Measure out the detergent to avoid excessive concentrations
- Rinse thoroughly with clean water after cleaning
- Check the materials compatibility of the valve.

12. Maintenance

Before starting maintenance work to ensure that:

- The tubes are discharged liquids and / or residual pressure;
- Maintain ONLY with piping system NOT in pressure-free product;
- The staff is informed about the possible risks / hazards that may occur and take the necessary security measures;
- Assemble the valve following assembly instructions (see par. Disassembly / Assembly)

REQUIRED AIR PRESSURE

VALVE / PIPE UNDER PRESSURE:

- Always discharge fluid pressure from the valve and the pipe before removing the valve .

DANGER OF BURNS

WARM VALVE / PIPE:

- Possibly not touch the valve or piping hot
- Alternatively, wear protective gloves.

WASH AND THOROUGHLY CLEAN

CLEANING:

- Wash and thoroughly clean all parts of the valve before disassembling
- Consider possible deposits of detergents and other aggressive residues within the valve; - Always use goggles and gloves.

WEAR VALVE REPLACEMENT PARTS

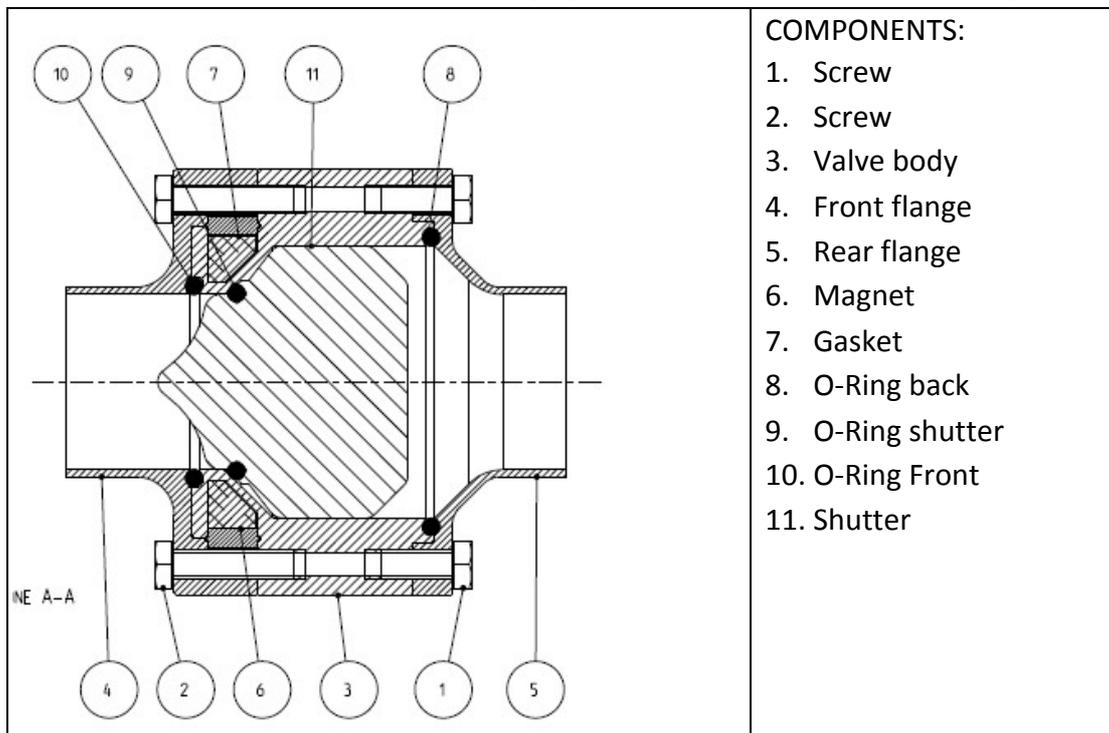
- Always use original spare parts.
- To order parts contact Ygros Inc. or retailers with reference to the code marked on the valve.

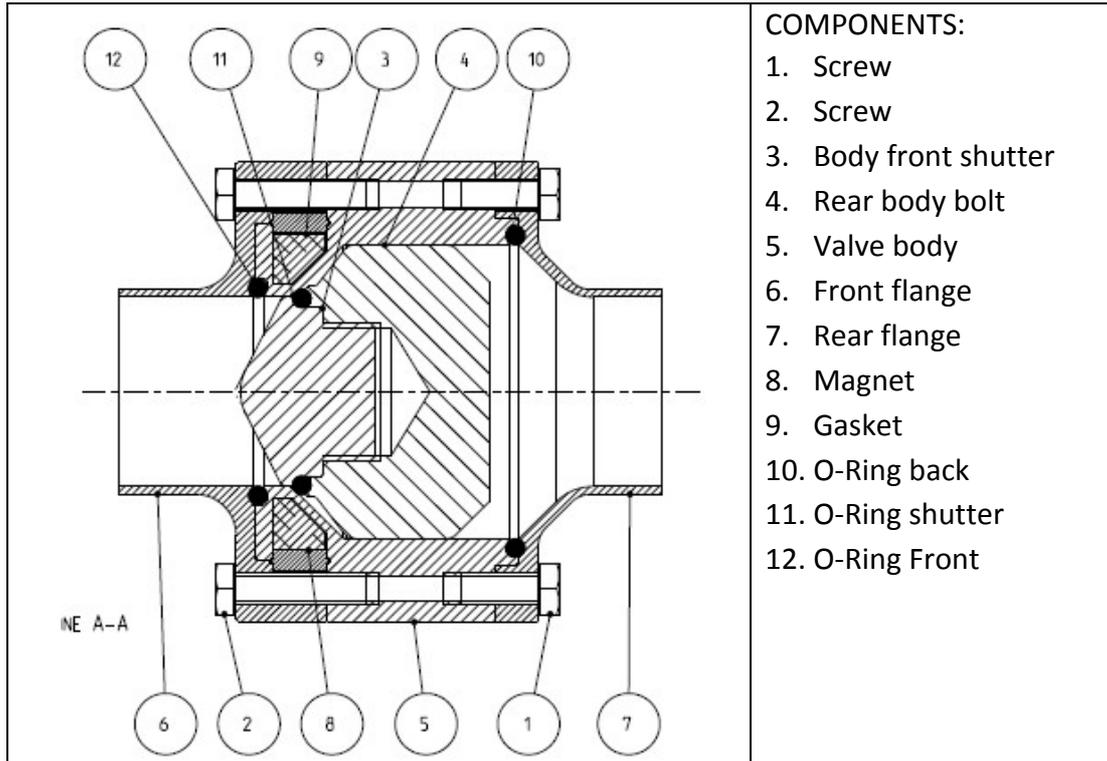
13. *Planned Maintenance*

Planned Maintenance	Valve	Gasket
Preventive	For the turbulent fluid motion and consequent noise valve, check daily (see possible remedy on par. Troubleshooting)	Replace after 12 months
	Monthly control only in the case of use of particularly aggressive fluids	
In case of loss not dangerous (internal)	Check at the end of the day any unusual wear	Replace at the end of the day
Periodic	Check correct operation and leakage	Check correct operation and leakage
	Record all actions	Record all actions

14. *Disassembly / Assembly*

Record the sections of the valve: the first with a single piece bolt, the second shutter into 2 parts.





COMPONENTS:

1. Screw
2. Screw
3. Body front shutter
4. Rear body bolt
5. Valve body
6. Front flange
7. Rear flange
8. Magnet
9. Gasket
10. O-Ring back
11. O-Ring shutter
12. O-Ring Front



WARNING PRESENCE OF PERMANENT MAGNET:

To disassembly the valve pay attention to the presence of a permanent magnet and follow the instructions carefully.

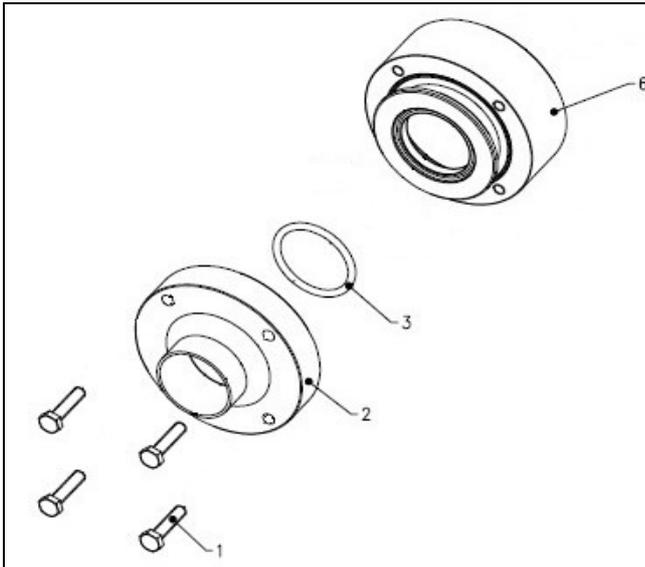
The permanent magnets mounted on the valve have a high magnetic field. It 'must be careful to avoid crushing of the fingers and any damage or injury.

You must keep a safe distance between the magnets and all electrical and electronic equipment and objects that can be damaged by a magnetic field such as monitors, credit cards and ATMs, computers, diskettes and other data, mechanical clocks, lamps hearing and speakers.

Pacemakers can be disturbed by the presence of a large magnet. To avoid any risk, so that a support staff that arranges for the assembly / disassembly of the valve.

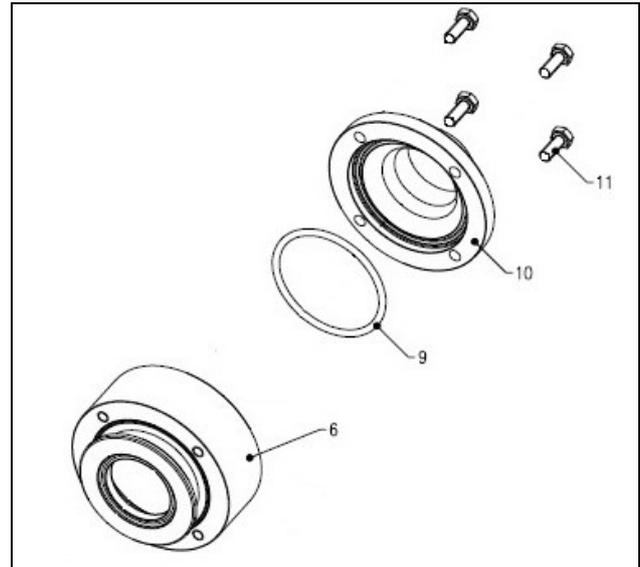
We must pay close attention when handling the magnets mounted on the valve, a breakage of the magnet itself can generate sharp and very small parts dangerous to handle.

Valve disassembly



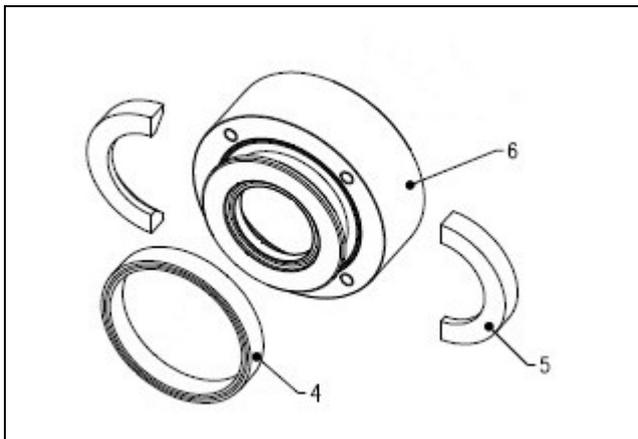
1. REMOVING THE FRONT FLANGE

Remove the screws (1), remove the front plate (2) and subsequently O-Ring (3) from valve body (6).



2. REMOVING THE REAR FLANGE

Remove screws (11), then the rear flange (10) and later the O-Ring (9) from the valve body (6).



3. REMOVAL OF MAGNET

Remove the gasket (4) and then the two magnets (5).



THE MAGNET MAY BE REMOVED FROM THE VALVE ONLY WHEN ABSOLUTELY NECESSARY AND ONLY BY QUALIFIED PERSONNEL.



WARNING PRESENCE OF PERMANENT MAGNET:

The permanent magnets have a high magnetic field. It 'must be careful to avoid crushing of the fingers and any damage or injury.

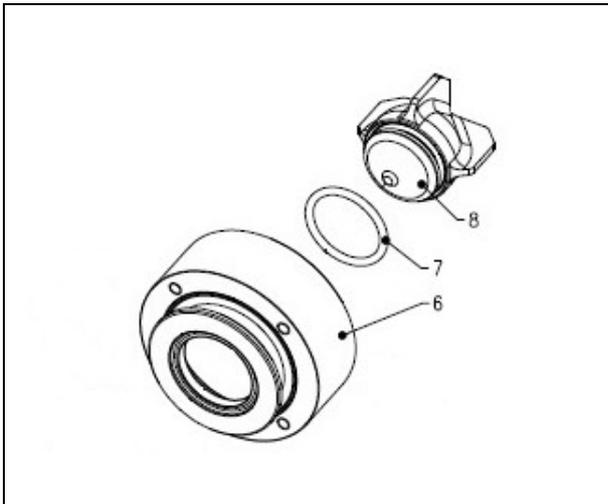


You must keep a safe distance between the magnets and all electrical and electronic equipment and objects that can be damaged by a magnetic field such as monitors, credit cards and ATMs, computers, diskettes and other data, mechanical clocks, lamps hearing and speakers.

Pacemakers can be disturbed by the presence of a large magnet. To avoid any risk, so that a support staff that arranges for the assembly / disassembly of the valve.

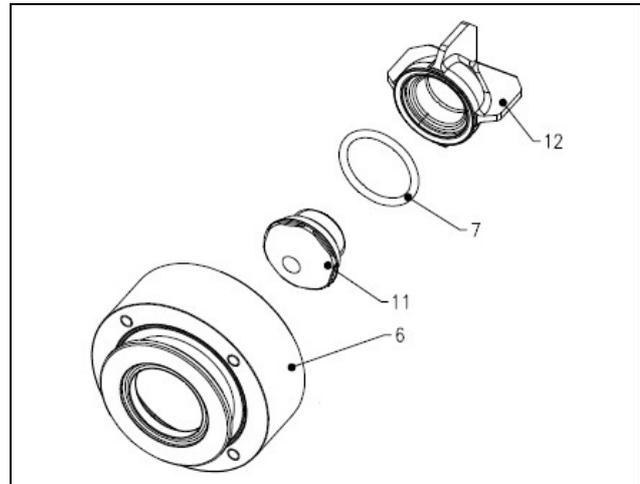
We must pay close attention when handling the magnets mounted on the valve, a breakage of the magnet itself can generate sharp and very small components dangerous to handle.

Shutter disassembly



4.A IN CASE OF ONE-PIECE SHUTTER

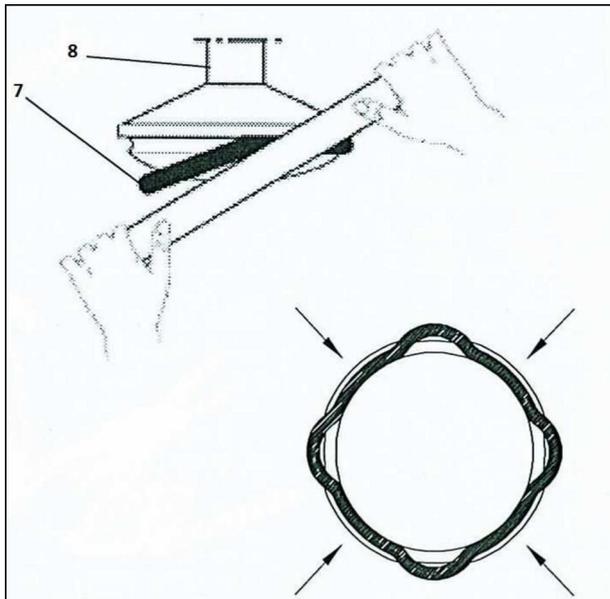
Pull the shutter (8) from valve body (6) and remove the O-Ring (7). To remove the OR is necessary to cut it.



4.B IN CASE OF TWO PARTS SHUTTER

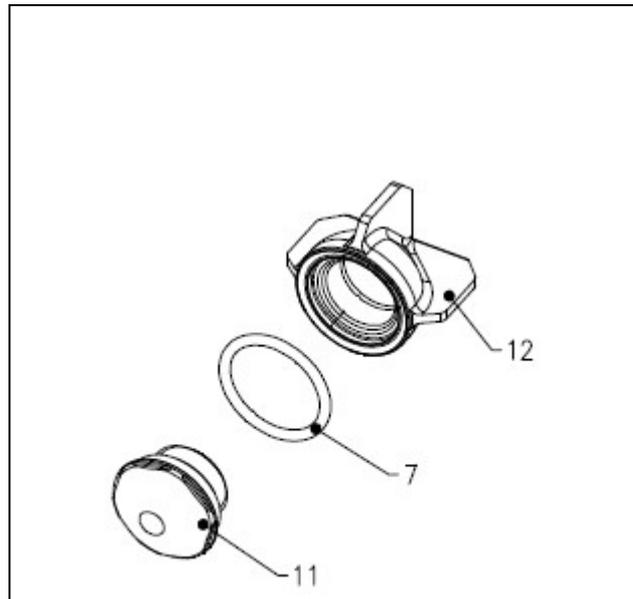
Remove the shutter (11-12) from the valve body (6), divide both sides shutter loosen and remove the O-Ring (7).

Shutter Assembly



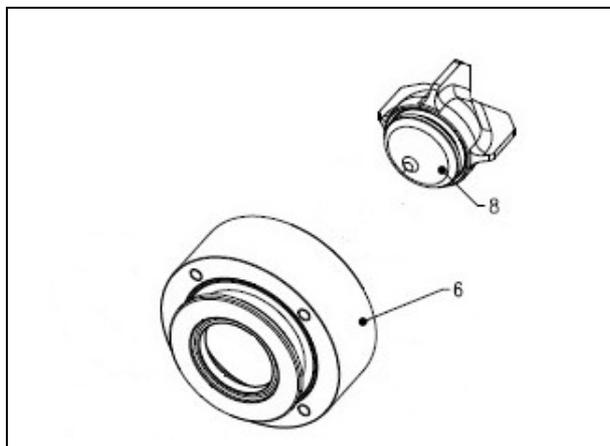
1.A ASSEMBLY OF ONE PIECE SHUTTER

Pre-heat the O-ring shutter (7) at about 70 ° C to soften it and place it in the cracks shutter (8). Insert the ring at crossing by pressing a plastic cylindrical tool.



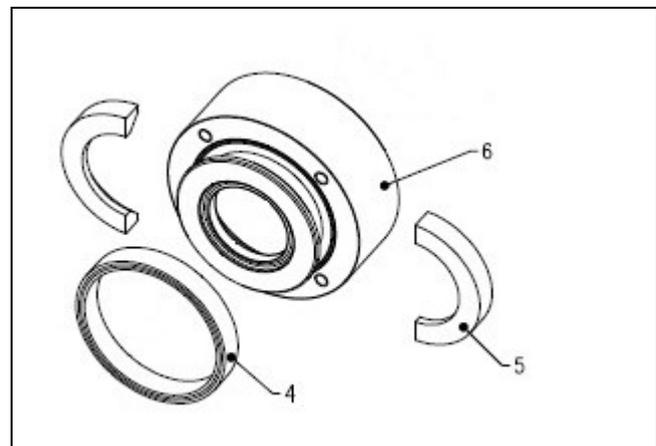
1.B ASSEMBLY OF TWO PIECES SHUTTER

Mount O-Ring (7) on the body front shutter (11) and screw it into the rear body shutter (12) to bring the upper body (11) in mechanical stop on the rear body (12).



2. INSERT SHUTTER IN VALVE BODY

Insert the shutter (8) complete with O-ring (7) into the valve body (6).



3. ASSEMBLY MAGNET

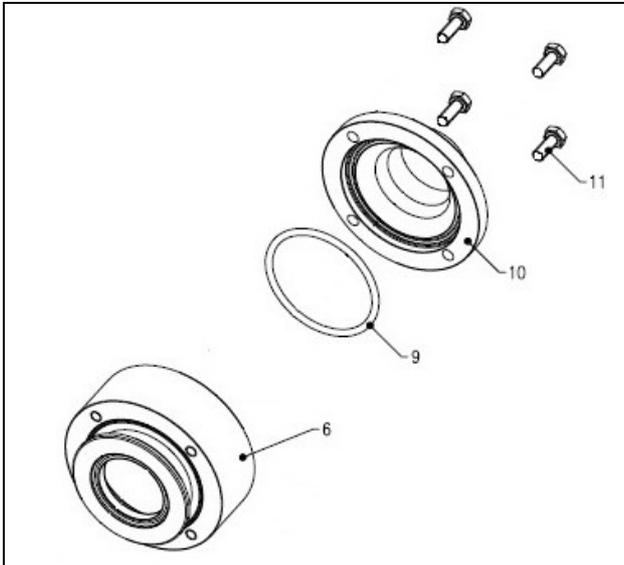
Place the two magnets (5) on the valve body (6) following the instructions prescribed in this manual and place the outer gasket (4).



WARNING PRESENCE OF PERMANENT MAGNET :

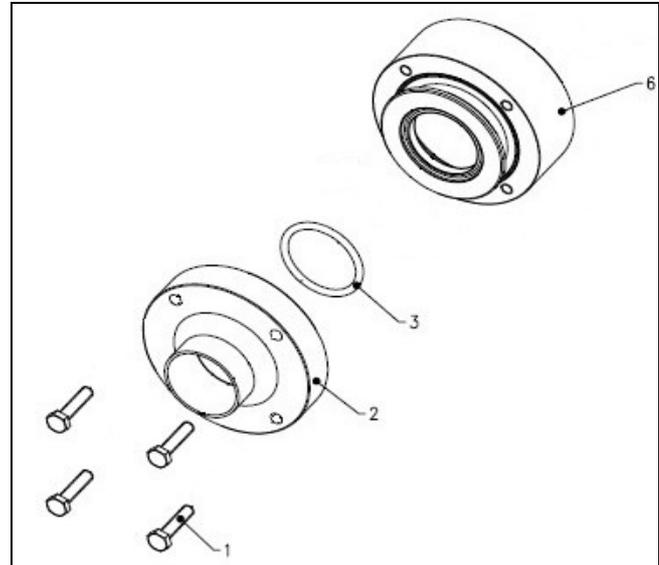
FOR THE MAGNET ASSEMBLY, FOLLOW THE SAFETY INSTRUCTION IN THE par. DISASSEMBLY/ASSEMBLY.

Valve Assembly



4. ASSEMBLY REAR FLANGE

Ensure that the shutter inside the valve body (6). Place the O-ring (9) on the valve body (6) and push the rear flange (10) on valve body (6) taking care not to pinch the OR (9), secure the rear flange (10) on body valve (6) through screws (11).



5. ASSEMBLY FRONT FLANGE

Place the O-ring (3) on the valve body (6) and push the front flange (2) on the valve body (6) taking care not to pinch the rings (3), attach the front flange (2) through the screws (1).

Tighten the screws with a torque wrench as defined in Table for screws in A2 stainless material, which is given also below:

M4= 2.6 Nm

M5= 5.1 Nm

M6= 8.8 Nm

M8=21.4 Nm

15. *Warranty*

1. CONVENTIONAL GUARANTEE

- 1.1. YGROS srl warrants its products against possible defects in construction and operation and bad material for 12 (twelve) months from the date of delivery.
- 1.2. The defects and / or product defects must be reported accurately in writing YGROS srl within 8 (eight) days of discovery, with proper documentation proving the allegation of their existence.

2. EXCLUSION OF WARRANTIES

- 2.1. Detain and affect any rights which the purchaser by mandatory provisions of law, are excluded from the guarantee provided elastomers.
- 2.2. It also excluded the application of the guarantee:
 - Defects and/or damages attributable to Buyer and due to the same mode of use or maintenance or storage of products not meeting the requirements of "Instruction manual use and maintenance";
 - Defects and/or damages due to normal wear and tear, or parts thereof and / or components;
 - Defects and/or damages if the product were carried out repairs and / or intervention by anyone not authorized by YGROS srl professionally qualified or not;
 - Defects due to falls, collisions, abuse, accidents caused by negligence of Buyer.

3. CONTENT OF THE GUARANTEE

- 3.1. This warranty is only in the repair and/or replacement, at the discretion of YGROS srl, product or part of the approved product /s defect /s.
- 3.2. In the case of repair and/or replace the product or its component, the parties have become the property of YGROS srl and the cost of return shall be borne by YGROS srl.
- 3.3. In any case, YGROS srl, will not be obligated to repair or indirect and intangible damage shall under no circumstances be liable for damages and/or indirect or consequential losses which are merely examples, damages for any loss of business opportunities, time, production, profits, and goodwill or damage its image.
- 3.4. The services performed under warranty does not entail an extension of the warranty period beyond the period of 12 (twelve) months, a term which shall be deemed exhaustive.
- 3.5. No dealer, agent or employee of YGROS srl, is authorized to make any modification, extension or addition to this guarantee.

16. Recommendations

1. All statements, claims, and the news given herein are based on test data which are deemed reliable, but not due to any possible use of the product.
Since conditions of use and application are beyond our control, the Buyer must first establish the suitability of the product for which you will support, assuming all risk and liability arising from the use itself.
YGROS srl assumes no responsibility for any accident, loss or damage, direct or consequential loss arising from the use or inability to use the product.
No one is authorized to issue loan guarantees greater than or different from those shown here.
2. Recommend our customers to always consult our technical and commercial staff to request specific information about the technical characteristics of our products.
3. Representations, all of general value and not binding, may not correspond to the real conditions of the products.
4. Reported in this publication refers to products of our normal production and in no case be a basic reference for products made to specific requests.
5. YGROS srl is not responsible for flaws or defects arising from installation of the product according to what is stated in the "Use and Maintenance Instruction Manual" or otherwise arising from improper installation or improper or incorrect use and/or improper product.
6. YGROS srl is not responsible for defects and / or product defects resulting from improper transport and/or arising from improper and/or unsuitable storage and/or maintenance of the same.
7. YGROS srl is not liable for defects and/or defects in the product due to tampering and/or interventions conducted by unqualified personnel, professionally, and it is not liable for damage caused by bumps, bruised, carelessness, negligence, and usually causes no fault defects in construction, manufacturing and material defects.