

USER AND MAINTENANCE GUIDE

NON-RETURN / UNIDIRECTIONAL VALVE

YEV VALVE DN15-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 with the manufacturer.

This manual's handbook is specifically intended for use by technical staff. For this reason some information are easily deducible 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 subjected to change or to 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:

- Front Valve Body
- Rear Valve Body
- Shutter
- Magnet (usually in 2 parts)
- Seals
- Clamp

Flanges can be chosen among:

- Welding ASME BPE
- Welding DIN 11850
- Tri-clamp ASME BPE

2. Working Principle

The magnets built into the valve body keep the shutter in a closed position preventing backflow. The YGROS check valve opens when the inflow pressure exceeds the magnetic force.

In the open position the shutter moves away from the magnet, which means lower attraction to the seat and therefore lower resistance to flow, so pressure drop is minimal.

When the forward flow in the pipe stops, the magnet will attract the shutter back to its seat, stopping any backwards flow.

3. Declaration of Conformity CE

CAROLLO srl

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Telef. 0445-314158/315214 Fax 0445-319538/319221
E-Mail: info@carollomacchine.com
Web: www.carollomacchine.com
Cod. Fisc. e P. IVA IT 00270990245
Reg. Imp. 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
Address of manufacturer 36010 Zanè (VI)

Dichiara
Declare

Che la valvola di non ritorno /unidirezionale ad azionamento magnetico individuate nel presente documento è conforme alla direttiva 97/23/CE + 2014/68/EU art. 13.
The unidirectional magnetic valve identified in the 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 read authorized personnel for the installation, operation and maintenance of the valve. The staff must perfectly know the valve and the manual.

Use the valve ONLY for the purpose intended.

ALWAYS apply the valve carefully.

Make sure there are no damages on the valve removing the packaging.

Try to avoid all physical contact with an overheated check valve.



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

Before mounting the valve, check the fluid chemical compatibility with materials from which the valve (see par. technical data) and the seals are composed of.

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

Install the valve at a safe distance from any external heat sources.

Be careful with detergents.

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

The permanent magnets assembled on the valve have a high magnetic field. 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, hearing aids and speakers.



To avoid any risk, make sure that the staff who arranges for the assembly / disassembly of the valve do not have the Pacemaker.

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

We decline 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** (standard)

MAX temperature use: **150°C**

MIN temperature use: **-10°C**

Nominal conditions:

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

Materials

Valve Body: 1.4404
 Shutter: 1.4462
 Magnet: Neodymium
 External Seals: EPDM

Product contact seals:

→ EPDM:

Chemical name: Ethylene propylene diene rubber.
 Resistance to hot water, steam, diluted acids, very good resistance to ozone.
 Temperature range: from -40°C to 160°C

→ VMQ (Silicone):

Chemical name: Vinylmethyl-polysiloxane.

Resistance to animal and vegetal oil and fat, ozone and weather conditions.

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

→ NBR:

Chemical name: Nitrile butadiene rubber.

Resistance to butane, propane, methane, ethane, emulsions, petrol, heating oil, mineral oils, mineral oil products, hydraulic fluids.

Temperature range: from -30°C to 90°C

→ FKM (Viton):

Chemical name: Fluorocarbon rubber.

Resistance to ozone, oxygen, natural gas, fuels, mineral oils, hydraulic oil, organic solvents.

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

→ FEP:

Chemical name: Fluorinated ethylene propylene

Resistance to almost all organic and inorganic chemicals.

Temperature range: from -60°C to 220°C

→ HNBR:

Chemical name: Hydrogenated nitrile butadiene rubber.

Resistance to heat, oils and chemicals chemical elements.

Temperature range: from -40°C to 165°C

→ PTFE:

Chemical name: polytetrafluoroethylene

Resistance to almost all aggressive agents, high temperatures, high pressure.

Temperature range: from -70°C to 250°C



Applications' parameters are considered in relation to a standard and proper use of equipment. For the disposal of the components, refer to the National Legislation where the valve has to be dismantled.

Finishing surfaces

Surfaces in contact with product: Ra < 0.8 µm

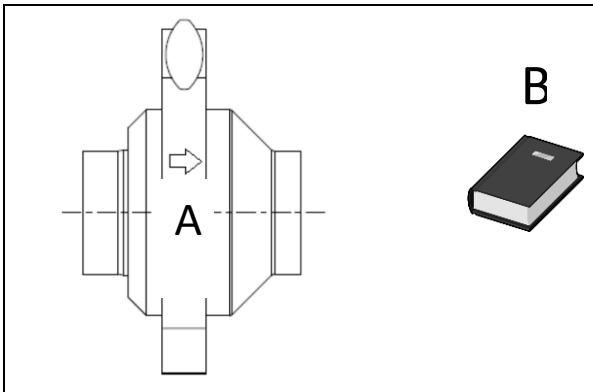
Surfaces not in contact with product: Ra < 3.2 µm

Installation position

All installation positions are possible.

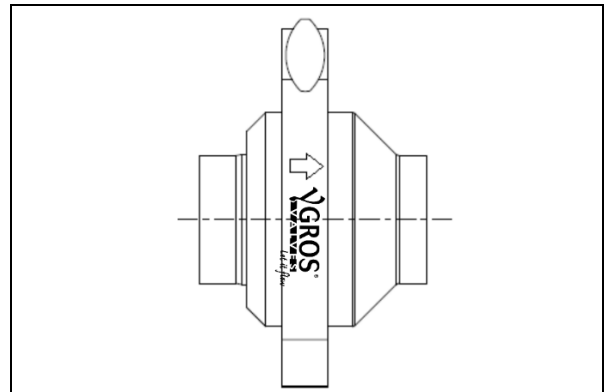
Check the flow direction (see the mark on the valve).

7. Unpacking / Storage



1. Unpacking and checking the delivery valve:

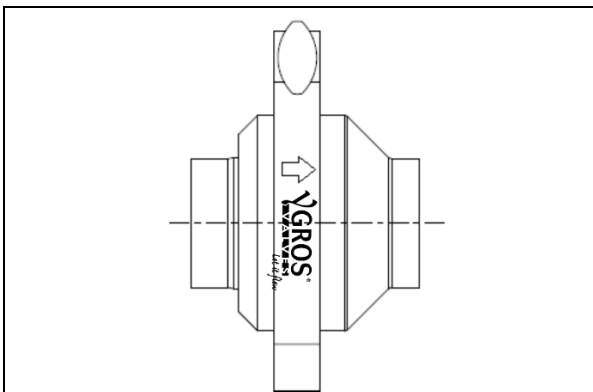
- A. Complete valve.
- B. Instruction Manual.¹



2. Handling split parts:

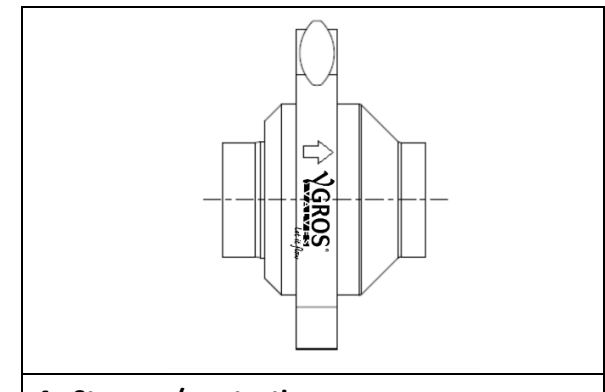


- Avoid dropping the product.
- Check the valve inside.
- Unpack and take the instructions for assembly / disassembly.



3. Control / complaints:

- Verify damages, missing or wrong parts.
- Contact Ygros srl, if necessary.



4. Storage / protection:



- Avoid dust, humidity, wet areas and with a direct heat source.
- Avoid vibration.
- Temp Min: -10°C
- Temp Max: +50°C

¹ Downloadable from www.ygros.com

8. Installation Instructions



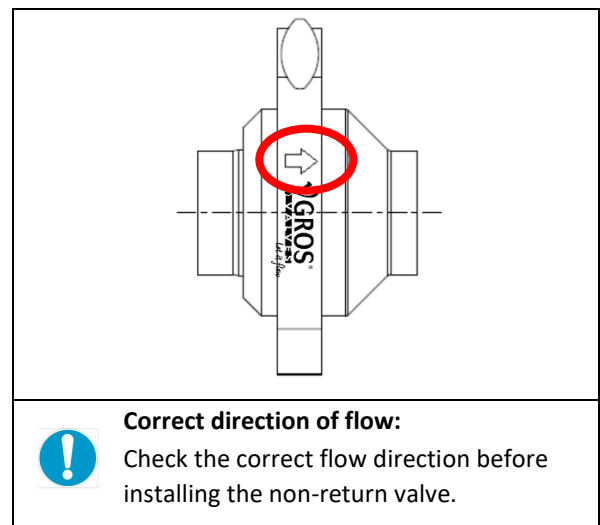
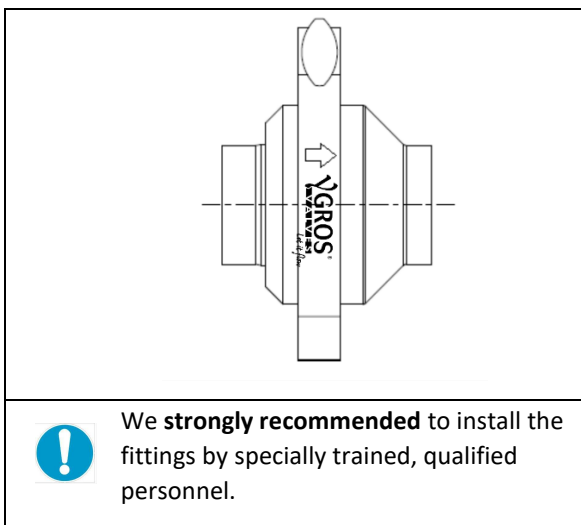
The valve must be installed at a safe distance from components that can lead to turbulent motions fluid through it. Turbulent flows can cause noise, vibrations and cavitations with consequent wear of valve components. In this case, the installation position of the valve is to be modified.

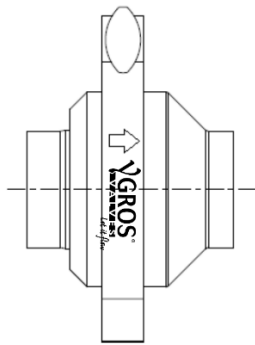
Always check the fluid chemical compatibility with materials from which the valve (see par. technical data) and the seals are composed of before assembling the valve.

In case of difficult and aggressive job check the possible wear of the components that make up the valve (see par. Planned Maintenance).

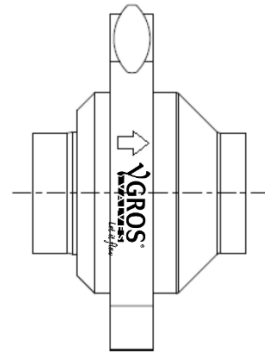
Install the valve at a safe distance from any external heat sources.

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





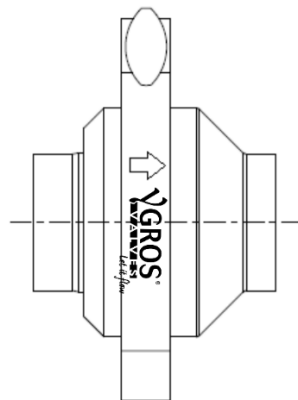
If the valve is a welding type, to perform welding, the valve must be disassembled to prevent damage to the seals and to the magnets.
To disassemble the valve see par. Disassembly/Assembly.



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

9. Start-up

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



Make sure that nothing impedes the flow in the pipeline.
Verify that the installation process has been carried out correctly before putting the system under pressure

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 leakage	Body seals worn	Replace seals.
	Excessive Pressure	Check the pressure of the installation (see par. Technical data usable) maximum pressure.
	Excessive Temperature	Replace seal of different kinds of materials.
Internal leakage	Shutter seal worn	Replace seal.
Closed valve has an internal loss incurred prematurely	Aggressive media	Replace seal of different kinds of materials.
Vale sticks in an opened/closed position.	Incorrect Type elastomers seal	Replace with seal of different kinds of elastomers
	Wrong installation	Correct the installation
Valve noise during an operation	Cavitation or fluid turbulence	Change the valve's position

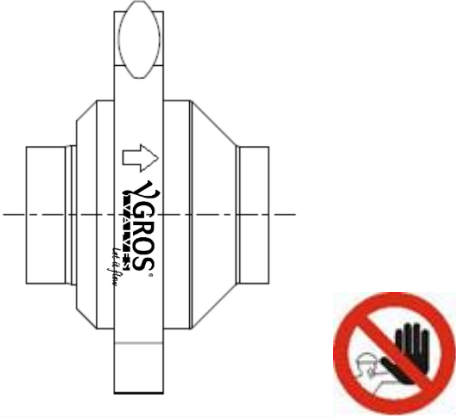
11. Cleanliness

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



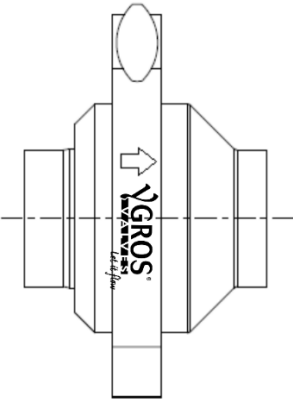
CLEANING VALVE:

- Only authorized personnel is allowed to clean the valve.
- Follow the specified concentrations in detergents.
- Follow the instructions of the detergents suppliers
- Always wear gloves and safety glasses.



! WARM VALVE/PIPE:

Do not touch an overheated valve or piping.
Alternatively, wear protective gloves.



**RISK
DAMAGE
ELASTOMERS**

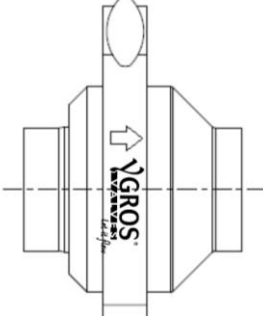
! HANDLING DETERGENTS:

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


12. Maintenance

Before starting maintenance work make sure that:


- the pipeline must be empty of liquids or residual pressure;
- Perform maintenance ONLY if the piping system is NOT in pressure and free;
- The staff must be informed about the possible risks that may occur and take the necessary security measures;
- Assemble the valve following assembly instructions (see par. Disassembly / Assembly)

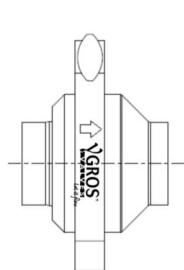



**AIR
PRESSURE
REQUIRED**




VALVE / PIPE UNDER PRESSURE:

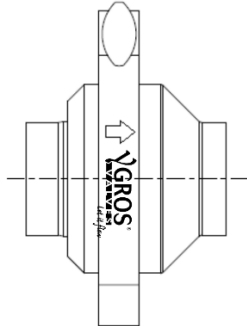
 Before removing the valve , always discharge fluid pressure from the valve and from the pipe.





WARM VALVE / PIPE:


 Do not touch an overheated valve or piping, as an alternative, wear protective gloves.

**WASH AND
THOROUGHLY
CLEAN**



 **CLEANING:**

- Before disassembling, wash and thoroughly clean all parts of the valve
- Pay attention on detergents' deposits and other aggressive residues within the valve;
- Always use goggles and gloves.

 **WEAR VALVE REPLACEMENT PARTS**

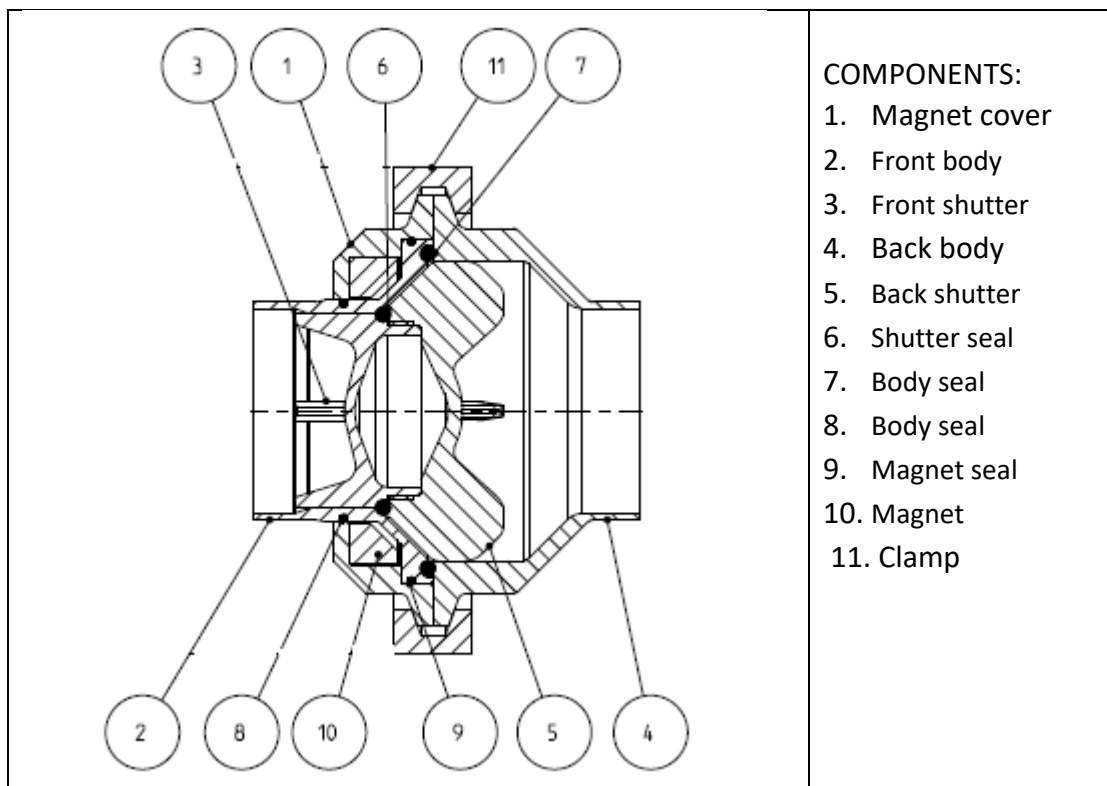
- Always use original spare parts.
- To order spare parts contact Ygros Inc. or retailers with reference to the code marked on the valve.

13. Planned Maintenance

Planned Maintenance	Valve	Seal
Preventive	For the turbulent fluid motion and consequent noise valve, check daily (see possible remedy on par. Troubleshooting)	Replace after 12 months
	In case of use of particularly aggressive fluids control it monthly.	
In case of internal leakage	Check at the end of the day any unusual wear	Replace at the end of the day
Periodic	Check the correct operation and the absence of leakage.	Check correct operation and leakage
	Register all actions	Register all actions

14. Disassembly / Assembly

View the sections of the valve:





WARNING PRESENCE OF PERMANENT MAGNET:

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

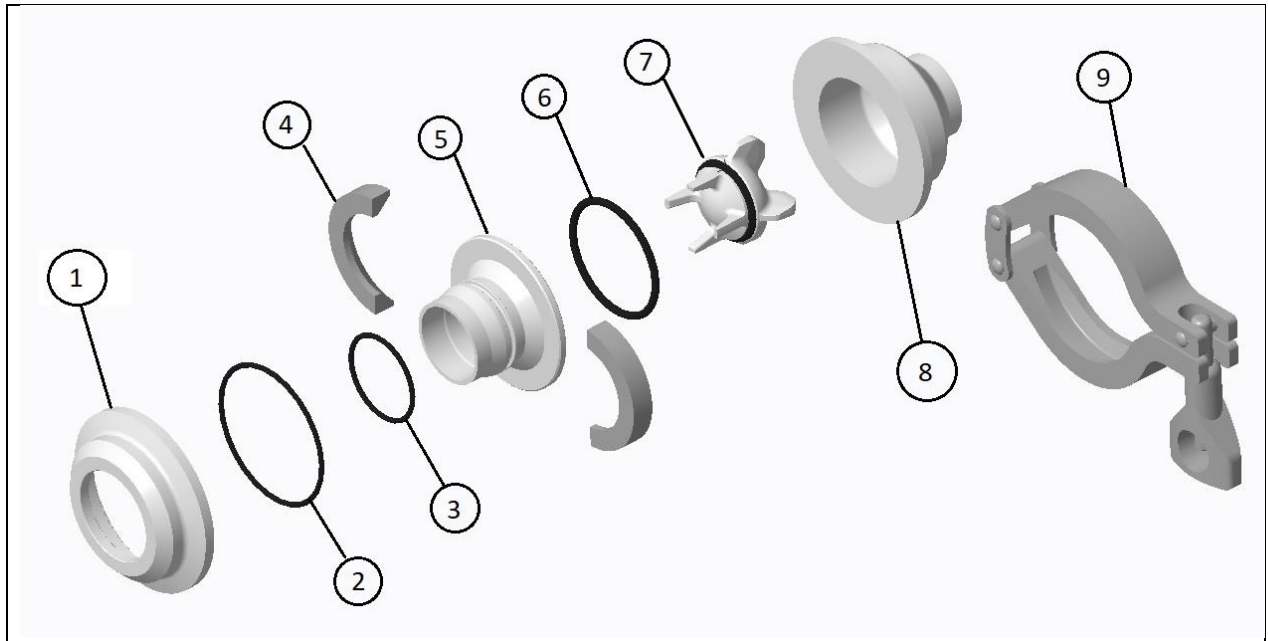


The permanent magnets assembled on the valve have a high magnetic field. You must keep a safe distance between the magnets and all electrical and electronic equipment and objects that can be damaged by a magnetic field such as monitors, credit cards and ATMs, computers, diskettes and other data, mechanical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

To avoid any risk, make sure that the staff who arranges for the assembly /disassembly of the valve do 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.

Valve disassembly



1. REMOVING THE CLAMP AND THE BACK BODY

Remove the clamp (9), the back body and extract the shutter (7) from the valve body.

2. REMOVING THE FRONT BODY

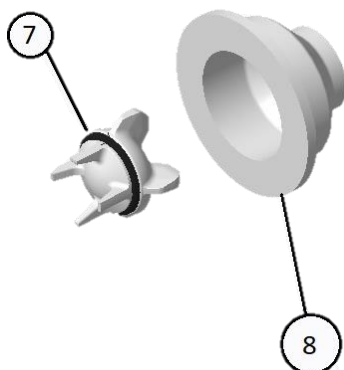
Remove the seal (6) and the front body (5).

3. REMOVAL OF MAGNET

Remove the magnet casing (1), then the seals (2 and 3) and finally the magnets (4).

4. SHUTTER DISASSEMBLY

Remove the shutter (5-6) from the valve body (4), divide both sides shutter loosen and remove the shutter seal (10).



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

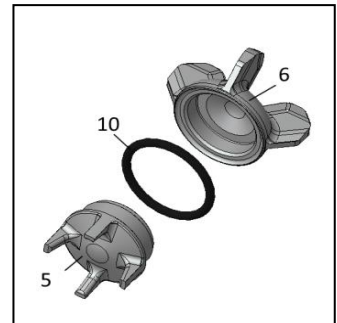


WARNING PRESENCE OF PERMANENT MAGNET

Valve Assembly

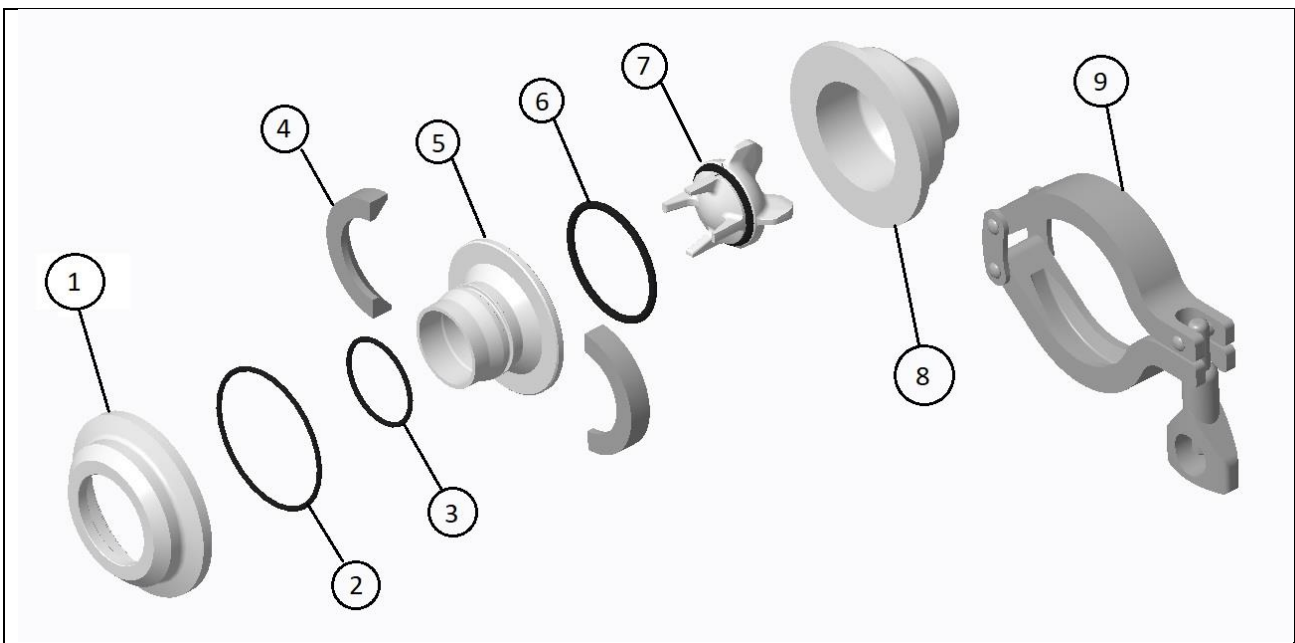
1. SHUTTER ASSEMBLY

Mount shutter seal (10) on the shutter front (5) and screw it into the shutter back (6) to bring the shutter front (5) in mechanical stop on the shutter back (6).



2. INSERT SHUTTER IN THE VALVE BODY

Insert the shutter (5-6) complete with shutter seal (10) into the valve body (4).



3. ASSEMBLY MAGNET

Place the two magnets (4) on the front body (5) following the instructions prescribed in this manual and place the magnet cover (1) after the two seals (2 and 3).

4. ASSEMBLY THE FRONT BODY

Place the front body (5) followed by the seal (6) and at the end place the shutter (7) into the front body (5).

5. ASSEMBLY THE BACK BODY

Assemble the back body (8) and close the valve with the clamp (9).

15. **Warranty / Guarantee**

1. CONVENTIONAL WARRANTY:
 - 1.1. YGROS srl guarantee its products against possible defects in construction and operation and for 12 (twelve) months from the date of delivery.
 - 1.2. The defects and / or product defects must be reported accurately in writing to YGROS srl within 8 (eight) days of discovery, with proper documentation proving the allegation of their existence.
2. EXCLUSION OF WARRANTIES
 - 2.1. Seal are always excluded from the provided guarantee the seals.
 - 2.2. It is also excluded the application of the guarantee:
 - To defects and/or damages attributable to Buyer and due to the same mode of use/maintenance/storage of products not complying the requirements of "Instruction manual use and maintenance";
 - To defects and/or damages due to normal wear and tear of the product or of parts thereof and / or components;
 - To defects and/or damages of the product if there were caused by repairs and/or intervention by anyone not authorized by YGROS srl or not professionally qualified;
 - 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 of the product or part of the defect's product at YGROS srl discretion.
 - 3.2. In the case of repair and/or replace of the product or of one of its components, the parties become the property of YGROS srl and fees will be paid by YGROS srl.
 - 3.3. The services performed under warranty does not entail an extension of the warranty period beyond the period of 12 (twelve) months, a term which will be deemed exhaustive.
 - 3.4. No dealer, agent, or employee of YGROS srl, is authorized to make any modification, extension or addition to this guarantee.

16. Recommendations

All statements, directions, and the technical information given here are based on test data which are deemed reliable, but not referable 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 the use it wants to make, 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 grant guarantees different from those shown here:

1. We always recommend our customers to consult our technical and commercial staff to request specific information about the technical characteristics of our products.
2. Representations may not correspond to the real conditions of the products.
3. This manual only refers to our standard version of the product (mentioned in the header).
4. YGROS srl is not responsible for flaws or defects arising from installation of the product not in according to what is stated in the "Use and Maintenance Instruction Manual" or otherwise arising from improper installation or improper or incorrect use of the product.
5. YGROS srl is not responsible for product defects resulting from incorrect transport and/or arising from improper and/or unsuitable storage and/or maintenance of the same.
6. YGROS srl is not responsible for defects in the product caused by tampering and/or interventions conducted by unqualified professional personnel and it is not responsible for damage caused by bumps, darts, carelessness, negligence, and defects attributable to construction, manufacturing and material.