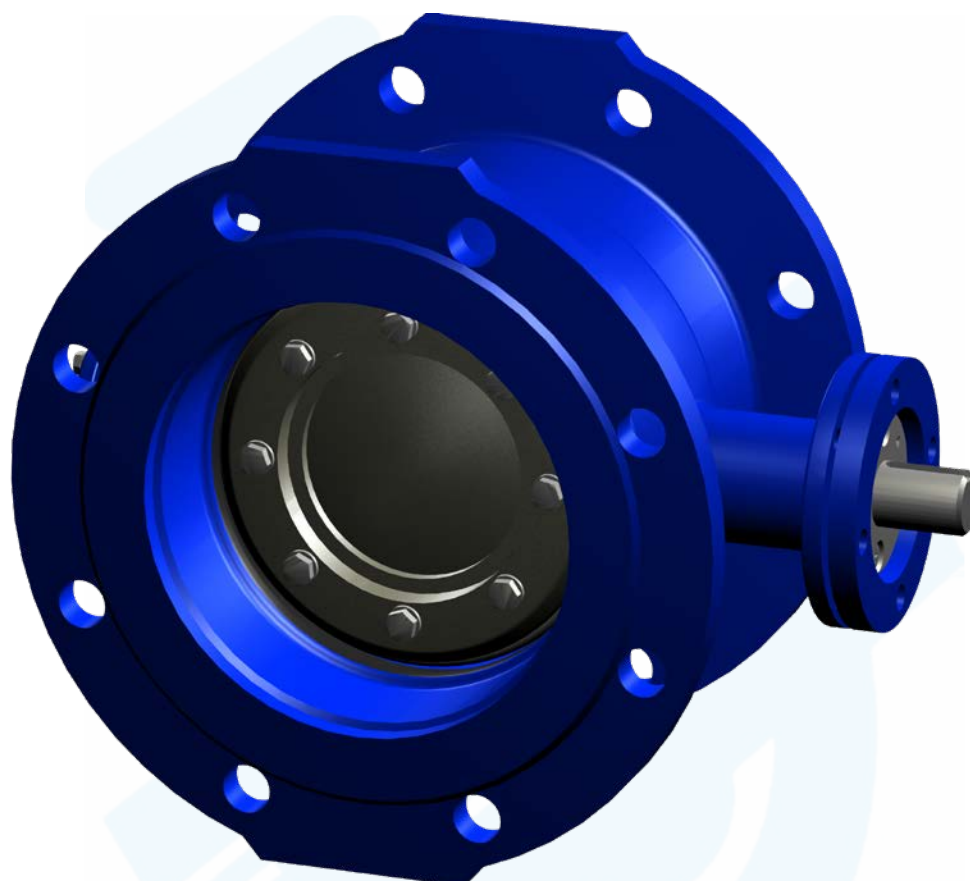


INSTALLATION, OPERATING AND MAINTENANCE MANUAL



Series UNIWAT® VF791

DOUBLE ECCENTRIC BUTTERFLY VALVES

Contents

1. GENERAL INFORMATION ON THE MANUAL	2	6. COMMISSIONING & OPERATION	4
2. NOTES ON POSSIBLE DANGERS	2	7. CARE AND MAINTENANCE	5
2.1 Significance of symbols	2	8. TROUBLESHOOTING	6
2.2 Explanatory notes on safety information	2	9. TROUBLESHOOTING TABLE	6
3. PRESERVATION, STORAGE, HANDLING AND TRANSPORT	2	10. DISMANTLING THE VALVE	7
4. DESCRIPTION	2	11. GOODS RETURN & DISPOSAL	7
4.1 General Description / Operating principles	2	12. WARRANTY / GUARANTEE	7
4.2 Area of Application	2	13. PARTS LIST	8
4.3 Technical data - remarks	3	14. ANNEXES	8
4.4 Marking/nameplate	3	14.1 Declaration of Conformity	8
4.5 CE marking. Intended use acc. to PED	3	14.2 Data Sheet	8
5. INSTALLATION	3		
5.1 General remarks on installation	3		
5.2 Assembling additional modules	4		
5.3 Requirements at the place of installation	4		

1. GENERAL INFORMATION ON THE MANUAL

- This Manual provides information on safely using the product, being binding for preservation, storage, handling, transport, installation, commissioning, operation, maintenance, repair and disposal, and must be thoroughly observed at any step.
- Please contact the supplier or the manufacturer in case of issues which cannot be solved by reference to this Manual.
- Any deviation from this Manual and sound engineering practice or modification on the product shall be notified to manufacturer for advice or approval.
- In addition, regional safety requirements must be always applied and observed at any step.
- All the work related to the product must be carried out, supervised and inspected by specialist personnel. It is the owner's responsibility to define areas of responsibility and competence and to ensure the proper monitoring.
- This Manual is in accordance with Directive 2014/68/EU on Pressure Equipment (PED) and Machinery Directive 2006/42/EC.
- For ATEX applications, please refer to ATEX Specific instructions.
- The manufacturer reserves the right to make technical modifications at any time.

2. NOTES ON POSSIBLE DANGERS

2.1 Significance of symbols



Warning of general danger.

2.2 Explanatory notes on safety information

In this Manual dangers, risks and items of safety information are highlighted to attract special attention.

Information marked with the symbol above describes practices, which if fail to comply with, can result in serious injury or danger of death for users or third parties or in material damage to the system or the environment. It is vital to comply with these practices and to monitor compliance.

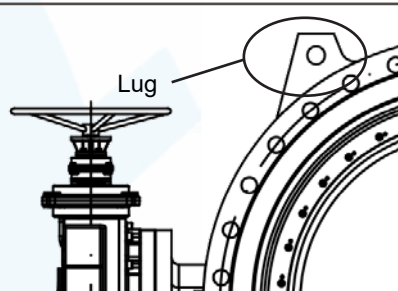
The rest of information not specifically emphasized in this Manual, along with Data Sheet and product marking, must also be observed and complied with for safely using the product.

3. PRESERVATION, STORAGE, HANDLING AND TRANSPORT



ATTENTION!

- *Protect against external force (impacts, vibrations, etc.).*
- *Allow only skilled personnel; suitable handling and lifting equipment must be used. See Data Sheet for weights or consult manufacturer.*
- *Always use suitable protection equipment, and minimize the use of human body force at any step to avoid injuries.*
- *During handling make sure that operating device is well attached to the valve or removed to avoid danger of detachment. Product parts such as hand levers, handwheels or actuators must not be used to take up external forces that they are not designed for: e.g. do not use them as climbing aids, or as connecting points for lifting gear, etc. Valves have lugs to ease their lifting.*
- *There is a risk of body member (hand, finger, arm...) crushed against any other solid element (wall, pipe, floor, etc.) during handling. Take this into account and handle with care.*
- *There is a risk of body member trapped between valve body and disc during operation of the valve. Make sure no operation / supply to actuator disconnected if access to the interior of the valve.*
- *There is a risk of body member injury in case there is any exposed moving part between valve and actuator (special arrangements). Take appropriate measures and set warning notes when required.*
- *Check correct position of nameplate and handle with care to avoid personnel cuttings.*



- Use proper packing for transportation.
- Keep storage protection before installation.
- Keep the valves in a slightly open position and with the sealing unstressed.
- Valves are protected with epoxy paint protection. In order to prevent damage, corrosion or rust on the surface, avoid extreme temperatures (keep at 5°C to 50°C), avoid high environmental humidity or corrosive environment. Keep the valves away from direct sunlight, dust, flames or rain. Protect rubbers also against UV light. Do not pile up excessive weight. In case of severe bumping inspect the material for any damage and replace if necessary.

4. DESCRIPTION

4.1 General Description / Operating principles

Butterfly valves VF791 are quarter turn rotary valves, with preferred flow direction. The closure is carried out by turning the handwheel or actuator clockwise, that rotates a stem 90° in conjunction with the disc with elastomeric seal, placed in the interior of the valve body. See visual position indicator of gear or actuator to check position of the valve. The first offset moves back the disc rotation axis from the disc sealing surfaces. This allows having a continuous sealing surface on the disc. The second offset moves away the disc rotation axis from the center-line of the valve body which reduces the interference at closing. Consult the manufacturer if a change of the actuation device is required.

Valve diagram with parts can be seen at the last page of the Manual.

4.2 Area of Application

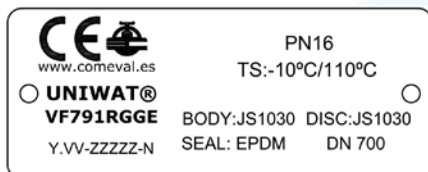
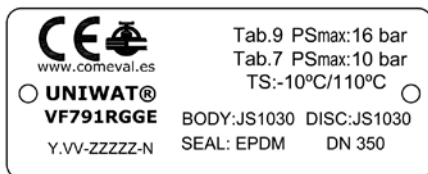
The valves are used to stop the flow, and they have also a certain throttling capacity by placing the disc in intermediate positions. They are mainly used in water systems (distribution, watering, water treatment plants, etc.).

4.3 Technical data - remarks

For data such as main features, duties/limits of use, dimensions, etc. refer to also Data Sheet.

4.4 Marking/nameplate

Nameplate description of the valve:



Mark	Description
	CE-Marking
	Manufacturer logo
www.comeval.es	Website of manufacturer
UNIWAT®	Brand
VF791RGGE	Valve code
Y.VV	Manufacturing year (Y.16 = 2016)
ZZZZZ-N	Batch / Serial no.

Mark	Description
Tab.	Applicable tables acc. to PED 2014/68/EU Annex II
PSmax	Max. pressure
PN	Nominal pressure, max. pressure in bar
TS	Min. / max. temperature
BODY	Body material
DISC	Disc material (JS1030, CF8M...)
SEAL	Disc sealing material (EPDM, NBR...)
DN	Nominal Diameter

4.5 CE marking. Intended use acc. to PED

PS	100	150	200	250	300	350	400	500	600-1200
6									
10									
13									
16									

Neutral gases of group 2*, acc. to Directive 2014/68/EU, Annex II table 7 up to category I

* Classification of fluids group 2 acc. to Directive 2014/68/EU, Article 13.

Check valve selection, material compatibility, pressure and temperature limits and other essential parameters. Ensure proper safety devices/measures are implemented to prevent exceeding intended use of the product. Contact the manufacturer for advice in case of pressure tests exceeding the intended use. Refer to Data Sheet and consult the manufacturer for further information.

PS	≤300	350-1200
10		
16		

Liquids of group 2* compatible with materials of construction, acc. to Directive 2014/68/EU, Annex II table 9 up to category I

5. INSTALLATION

5.1 General remarks on installation

The following points should be taken into account in addition to the general principles governing installation work:



ATTENTION!

- Before installation, make sure previous chapters are thoroughly followed.
- Ensure safe access and working conditions for proper performance.
- Only operate the valve while observing all the safety measures.
- Remove flange covers or any other remaining packing/storage protection if present.
- Lay pipelines such that damaging transverse, bending and torsional forces are avoided.
- Protect valves from dirt during construction work. The interior of the valve and the pipeline must be free of foreign particles.
- Protect the valve soft parts from heating caused by welding works at the plant during commissioning.
- Avoid mechanical damage to the seat area and disc.
- Mount the valve in preferred direction, with the "Flow Arrow" marking pointing to the lower pressure side so that the shaft side of the disc will be upstream when the valve is in closed position.
- Recommended installation orientation is with valve shaft horizontal. This will minimize any problems associated with solid particles present in the process that otherwise could deposit in the lower bearing.
- The valve should be installed in the closed position to ensure that the laminated seal in the disc is not damaged during installation. Particular care should be taken with those valves equipped with "Fail-open" actuators.
- If the pipe is lined, confirm that the disc does not contact the lining during the opening stroke.



ATTENTION!

- When using the valve as an end seal, the employers' liability insurance association of the gas and waterworks specifies the use of a safety precaution such as a plug-in disc, blind flange, etc. With a medium jet that freely exists, you must secure the exit area.
- When installing the valve, there is a crushing hazard between valve and pipe system. Mind the hands to avoid it.
- Make sure that counterflanges are compatible with the standard of the valve flanges. When matching up flanges, avoid gradients, rotation and pipe misalignment that could cause pipe and valve stress and leakage once installed. Flanges should fit smoothly. Select the proper flange face gaskets according to duty and centre them on the flange face properly. Do not force the counterflanges and do not try to tighten the bolts when a gap exists between valve and pipe or if misalignment is observed. Add anti-seize compound on the threads. Tighten in a crosswise, moderate and uniform manner. During start-up tighten again if leakage is noticed or replace gasket if necessary.
- NOTE: Cap screws will be necessary for the top and bottom alignment tapped holes. The studs should be used in the through-holes.
- When the valve is operated, there is a crushing hazard between the disc and the body. Ensure the valve is not under operation in case hands are introduced inside the valve.
- ACTUATORS: If the valve requires pneumatic, electric or hydraulic actuator, separate actuator Manual shall be also followed. To avoid unnecessary stress and risk of valve break, consider the weight and the relative position of actuator to evaluate its support. Make sure that the actuator is suitable for service particular requirements, valve adaptability, function needed, adequate torque for the valve, adequate speed, need for limit switches, etc. Contact our Technical Department for advice. In case of actuator mounted, disconnect the energy supply before starting work.

5.2 Assembling additional modules

Optional accessories (limit switches, extensions, etc.) that are supplied with valves must be fitted as required for their functions as shown in the system plan.

5.3 Requirements at the place of installation

- Aggressive environmental conditions may reduce the life span of the product. Consider special construction/protective measures in such a case.
- Consider the interaction between the system and the equipment. Foresee elements to absorb vibrations, pipe dilations, guides, anchoring and proper support according to the weight of the components. Max. recommended velocities as follows: PN6: 2,5 m/s; PN10: 3 m/s; PN16: 4 m/s.
- The system and operation protocol should be conceived in such a way to avoid high velocities and cavitation. Prevent pulsing flow or water hammers, which are very harmful for valves and the rest of the components.
- Flooding of the product is not recommended.
- Allow enough space for valve installation, operation and maintenance.
- It is recommended to install a proper sized mesh strainer upstream the valve in order to protect seating surfaces from abrasion or erosion that could lead to seat leakage.
- Planners / construction companies or the owner are responsible for positioning and installing products.

6. COMMISSIONING & OPERATION

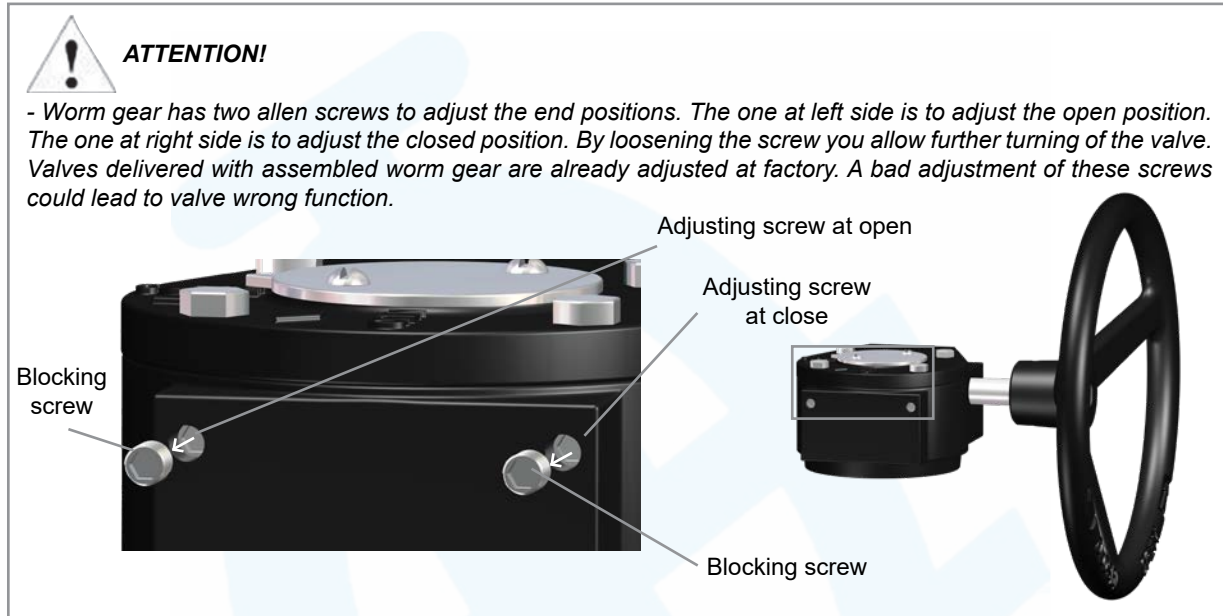


ATTENTION!

- Before commissioning the valve, check the material, pressure, temperature, flow direction and other essential parameters. Always use the product within the scope of intended service and operating duties.
- Before commissioning, make sure previous chapters are thoroughly followed.
- Regional safety instructions should be adhered to.
- It is essential to flush the pipe system thoroughly to eliminate all the particles and impurities which could remain in the pipes and particularly welding residue, chips, tool remains, etc. that could damage the equipment during start-up. Ensure that during cleaning of the pipe system, any chemicals used and temperature are compatible with the valve construction.
- Temperatures above 50°C or below 0°C may cause personnel injuries if valves are touched.
- Leakage of media through valve stem, between counterflanges or at closing (end of pipeline) may also cause scalding, health harm, pollution, fire or damage to other parts of the installation depending on the media. Use suitable protection equipment when approaching the valve, ensure that the corresponding warning signs are displayed on the valve or surrounding area, and/or isolate the equipment in case of danger.
- Do not pressurize if the valve does not have operating device. Butterfly valves are not self-locking.
- Before commissioning a new plant or restarting it after repairs or modification, always ensure that:
 - All work has been completed correctly.
 - The valve is in the correct position for its function.
 - Safety devices/measures have been implemented.
- Valve operation, filling, warming-up and starting-up shall be gradual so as to avoid any inadmissible stress.

- Ensure valve surface is in good condition and retouch coating protection when needed.
- Check for tightness in valve connections and stem sealing. If leakage in valve connections, retighten flange bolts crosswise and gradually if necessary until leakage elimination. If leakage persists, correct alignment and centring of the valve should be checked, and surfaces should be thoroughly cleaned. If contact surfaces are irreversibly damaged replace them. If valve leaks through the stem please contact us for advice.
- Once the valve installed, make an initial opening and closing operation to check its proper operability, without additional tools.
- We recommend control operation in the range of 15° to 75° disc open angle only. Leaving the disc near to closed position can lead to premature wear.
- In case of risk of media freezing inside the valve, take due measures to avoid it.

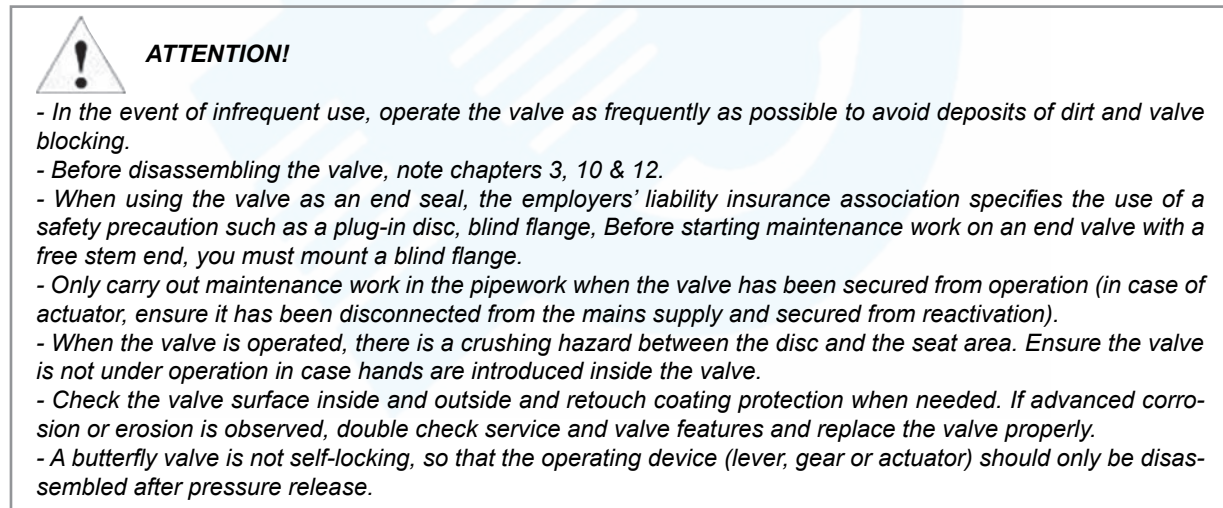
For worm gear adjustment:



7. CARE AND MAINTENANCE

The operator must define maintenance and maintenance-intervals to meet requirements.

- Check for body, seat and connections tightness, and valve smooth operation without additional tools.



- When being replaced, the disc sealing (18) and the o-rings should always be slightly greased.

- Replacement of the disc sealing:

Due to the double-eccentric bearing the disc sealing can be replaced without disassembly of the disc. Valves up to DN1000 must either be completely dismantled from the pipeline or at least disconnected from the pipeline on one side to replace the disc sealing.

- Open the disc (14) until the disc sealing (18) emerges from the body (28).
- Unfasten the retainer screws (30).
- Remove retainer (17) and disc sealing.
- Clean the disc in the sealing zone.
- Check the seat ring in the body (19) for damage or deposits.
- Insert the new disc sealing into the groove of the disc and slightly grease it.
- Insert the hexagonal screws and fasten them crosswise, moderately and uniformly, checking that the disc sealing is not protruding excessively.

- Replacement of the O-rings in the bearings: Please consult us.

After any maintenance work please refer to chapters 5 and 6 for installation / commissioning.

Recommended Spare parts:

Use only original spare parts.

It is advisable to keep disc sealings and o-rings as spare parts. Other spare parts available are stem and disc. Type and number of each spare part to be stored according to many factors: service level, valves quantity, etc. In many cases a good choice is to keep complete valves as spare part.

8. TROUBLESHOOTING

In the event of malfunction or faulty operating performance, check that the installation and adjustment work has been carried out and completed in accordance with this Manual.



ATTENTION!

- It is essential that the safety regulations are observed when identifying faults.

9. TROUBLESHOOTING TABLE



ATTENTION!

- Read the complete Manual before carrying out installation and repair work.
- Read chapter 6 before recommissioning.

FAULT	POSSIBLE CAUSE	CORRECTING MEASURES
No flow	Flange covers or protection not removed	Clear valve entrances
Not enough flow	Valve closed or almost closed	Check valve position
	Piping clogged	Check piping system
Valve is impossible or difficult to open or close	Service conditions (e.g. medium, temperature) may be outside the specified limits	Replace the valve
	Power failure	Consult the supplier or manufacturer
	Actuator fault	Check the power supply
		Overhaul the actuator or replace it
	Wrong direction of rotation	Turn in the correct direction (anticlockwise for opening)
	Solid matter is blocking the valve disc	Rinse or clean the valve
	The parallel key on the stem has sheered off	Determine the cause and replace the parallel key
Valve is leaking at closing	Liquid has solidified between the bearings	If possible, flush the bearings and the stem via the flushing connections
	The disc is not completely closed	Put the disc into the closed position
	Dirt trapped at closing	Move the disc and flush the valve in the open position
	Mechanical stop of the worm gear at closing not well adjusted.	Adjust it according to chapter 6
Stem leakage	The disc sealing or seat is damaged	Replace the disc sealing or repair the seat
	Stem seals or stem damaged or worn down	Revise and replace if needed
	Excessive pressure or temperature, fluid not compatible	Revise working conditions
Body or flanges break	Assembly bolts with counterflanges has been wrongly tightened or counterflanges are misaligned or with too much gap.	Revise installation and tightening according to this Manual
	Weight not properly supported	
	Working parameters beyond allowable limits	Replace by suitable valve

Technical support always available through our website www.comeval.es or your local distributor.

10. DISMANTLING THE VALVE



ATTENTION!

The following points must be observed:

- *Pressureless pipe system.*
- *Medium must be cool.*
- *Plant must be drained.*
- *Note chapter 3 for proper handling and lifting.*
- *Additionally, in case of toxic, corrosive, flammable or caustic media:*
 - *Purge pipe system carefully.*
 - *Use proper protection equipment to avoid health harm.*
 - *Adopt proper actions to avoid pollution of the environment.*

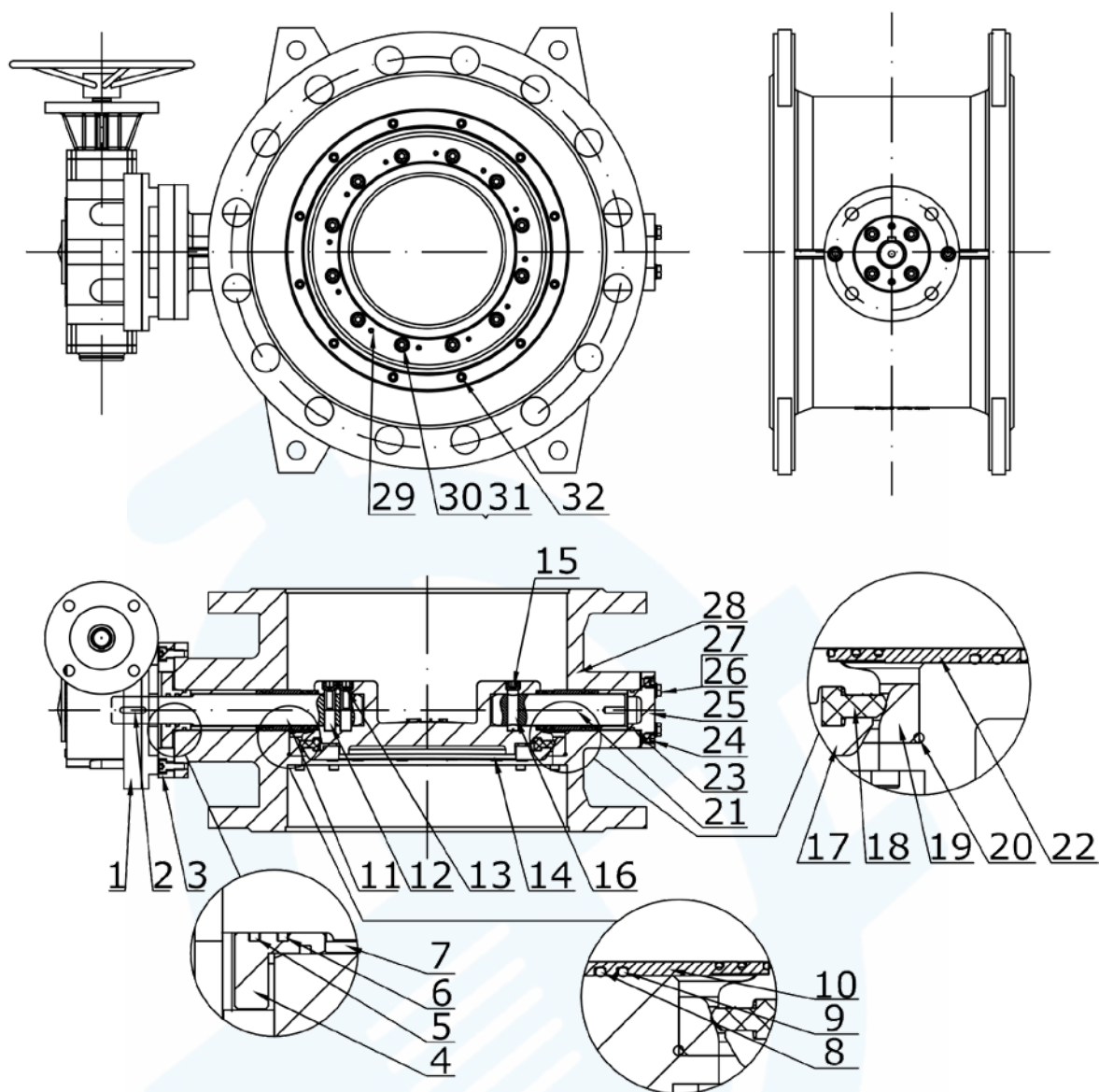
11. GOODS RETURN & DISPOSAL

- For any returned goods, the issuing company must provide information in written on any hazards and the precaution in case of potentially polluting or harmful residues, or any mechanical damage that could present a health, safety or environmental risk, as enforced by EU Health, Safety and Environment Law, including the Safety Data Sheet of the substances identified as potentially hazardous.
- Valves are recyclable and not expected hazard to the environment, with the exception of soft parts (PTFE and rubber compounds) that should be disposed separately only by approved procedure, and no incineration is permitted.

12. WARRANTY / GUARANTEE

- The extent and period of warranty cover are specified in the "General Sales Terms" of COMEVAL VALVE SYSTEMS valid at the time of delivery or, by way of departure, in the contract of sale itself.
- We guarantee freedom of faults in compliance with state-of-the-art technology and the confirmed application.
- No warranty claims are accepted for any damage caused as the result of incorrect handling or disregard of this Manual, Data Sheet and relevant regulations.
- This warranty also does not cover any damage which occurs during operation under conditions deviating from those laid down by specifications or other agreements.
- Justified complaints will be eliminated by repair carried out by us or by a specialist appointed by us.
- No claims will be accepted beyond the scope of this warranty. The right to replacement delivery is excluded.
- The warranty shall not cover maintenance work.
- Our guarantee coverage does not cover for any commissioning, maintenance or installation of the product or external parts.
- Our guarantee does not cover products proved to have been tampered with or faulted by material wear and tear.
- The Purchaser is responsible for checking that the incoming product is received in good condition and conforms to the ordered specifications. In case of damage caused during transit it is necessary to immediately complain to the carrier within 24 hours. After this time carriers could not assume the derived costs. In case of any deviation in relation to order specifications, please contact us.

13. PARTS LIST



Nº	PART	Nº	PART
1	Gear box	17	Retainer
2	Key	18	Disc sealing
3	Connection	19	Body sealing
4	Gland	20	O-ring
5	O-ring	21	Lower shaft
6	O-ring	22	Bushing
7	Space washer	23	O-ring
8	O-ring	24	Locking screw
9	O-ring	25	Bottom cover
10	Bushing	26	Screw
11	Uppershaft	27	Washer
12	Cylindric pin	28	Body
13	Locking screw	29	Socket screw
14	Disc	30	Socket head bolt
15	Locking screw	31	Spring washer
16	Cylindric pin	32	Screw

14. ANNEXES

- 14.1 Declaration of Conformity - DC08EN
14.2 Data Sheet - DS08

Updated documents on www.comeval.es