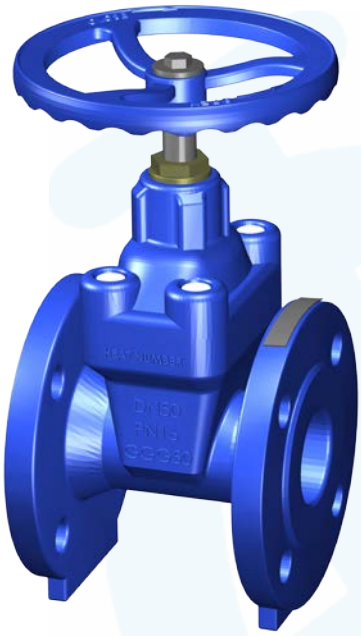
INSTALLATION, OPERATING AND MAINTENANCE MANUAL



UNIWAT® 504, 505

UNIWAT® 507

RESILIENT SEATED GATE VALVES

Contents

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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.
- The manufacturer reserves the right to make technical modifications at any time.

2. NOTES ON POSSIBLE DANGERS

2.1 Significance of symbols

ATTENTION!
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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 & 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 handwheels, actuators or hoods 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. Large size valves have eye bolts 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 wedge 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 wedge unstressed.
- The valve surface is protected by an epoxy paint. In order to prevent damage, corrosion or rust on the surface, avoid extreme temperatures (keep at 5ºC to 50ºC), 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

Resilient Seated Gate Valves are linear motion valves with rubber vulcanised wedge. Valves 504/505 are non-rising stem and handwheel. Valves 507 are rising stem and non-rising handwheel. 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

Resilient Seated Gate Valves are used for shut-off of media when necessary. Gate valves are not suitable for regulating purposes. Operation of the valve in intermediate position to be avoided since this would lead to increased wear.

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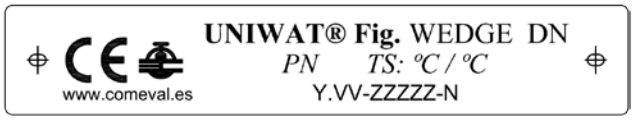
4.3 Operating principles
The valve closes by turning its handwheel clockwise and brings together the wedge to the seat area. When turning anti-clockwise the valve is open.

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

4.5 Marking/nameplate
Nameplate description of the valve:



Mark	Description
CE	CE-Marking
	Manufacturer logo
www.comeval.es	Website of manufacturer
PED 2014/68/EU	Directive 2014/68/EU
SEP	Sound Engineering Practice
UNIWAT®	Brand
Fig.	Valve code (504 / 505 / 507)
WEDGE	Wedge material (EPDM / NBR)
Y.VV	Manufacturing year (Y.16 = 2016)
ZZZZZ-N	Batch / Serial no.
TS	Min. / max. temperature at max. pressure
PN	Nominal pressure (max. pressure in bar)
DN	Nominal Diameter

4.6 CE marking. Intended use acc. to PED

PS	DN		
	≤250	250-300	350-600
10			
16			
25			

Fresh water and neutral liquids of group 2*, acc. to Directive 2014/68/EU, Annex II table 9 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.

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.
- There is not preferred direction of flow. Valve is bidirectional. The preferred installation position is in horizontal pipeline with stem pointing upwards (stem perpendicular to the floor), and especially for big sizes (DN200 and larger). It is allowed to install the valves in vertical pipelines or in horizontal pipelines with stem not pointing upwards, although this increases stem sealing wearing. In any case, avoid the installation with the stem pointing downwards.
- 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. Tighten in a crosswise, moderate and uniform manner.
- When the valve is operated, there is a crushing hazard between the wedge and the body. Ensure the valve is not under operation in case hands are introduced inside the valve.

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ATTENTION!

- 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 dilatations, guides, anchoring and proper support according to the weight of the components.
- The system and operation protocol should be conceived in such a way to avoid cavitation and high velocities (max. 3 m/s for PN10 valves, max. 4 m/s for PN16 valves), and lower in case of abrasive media. 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.
- The installation of a by-pass to equalize pressures will help the opening operation, especially advisable for big size/high differential pressure.
- 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 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 50ºC or below 0ºC 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.
- 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. Check for tightness in valve connections, body/bonnet union, and stem, and retighten crosswise and gradually if necessary until leakage elimination.
- For valves with gland packing (Series 507), gland is tightened at factory in a moderate way to pass the pressure tests. After a while before installation, packing rings experiment a relaxation and some retightening of gland bolting might be needed during start-up. Over tightening the bolts will increase operating torque and will reduce life of the packing. If leakage persists surfaces should be thoroughly cleaned and new gaskets or packing rings correctly placed.

- Ensure valve surface is in good condition and retouch coating protection when needed.
- Once the valve installed, make an initial opening and closing operation to check its proper operability, without additional tools.
- In case of risk of media freezing inside the valve, take due measures to avoid it.

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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.

> ***ATTENTION!***
>
> *- In the event of infrequent use, operate the valve as frequently as possible to avoid deposits of dirt and valve blocking.*
> *- Before disassembling the valve, note chapters 3, 10 & 12.*
> *- 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, secure the exit area.*
> *- Keep exposed machined surfaces cleaned and greased when necessary.*
> *- When the valve is operated, there is a crushing hazard between the wedge and the body. Ensure the valve is not under operation in case hands are introduced inside the valve.*
> *- Only carry out maintenance work in the pipework when the valve has been secured from operation (in case of actuator, ensure it has been disconnected from the mains supply and secured from reactivation).*
> *- Check the valve surface inside and outside and retouch coating protection when needed. If advanced corrosion or erosion is observed, double check service and valve features and replace the valve properly.*

- Grease periodically through grease nipple (Series 507).
- In case of body/bonnet leakage, dismount the bonnet, remove old gasket, clean sealing surfaces and use a new gasket.
- In case of seat leakage, remove the valve bonnet to clean the seating surfaces. When mounting the bonnet back use new gasket, and tighten the bonnet bolts evenly crosswise with moderate and uniform torque. Retighten them if leakage is detected under pressure. If it is not possible to repair the damages replace the valve and contact us for assistance.
- For valves with gland packing (507), after several open and close operations of the valve the stem gains some play with the packing rings, thus packing tightness should be checked periodically and retighten the packing gland gradually when necessary.
- If the valve is leaking through the stem:

For valves with stem tightness with O-rings (504, 505), remove the old ones, clean sealing surfaces and mount the new ones applying silicone grease to ease mounting and lubrication. If the sealing surfaces are damaged they should be changed.
For valves with stem tightness with packing (507), try first to retighten the packing gland without compromising stem smooth movement. If leakage cannot be corrected, old packing must be replaced.
Remove packing gland, remove old packing by means of a wooden dowel, make sure that stem and packing area are thoroughly cleaned and place new packing rings ensuring its correct position. If stem is worn out or scratched replace it. Then place back packing gland and tighten gland bolts moderately. Readjust during commissioning if neeeded.
Some designs have back seat feature (consult with our Technical Department for advice), in such a case packing can be dismounted in line under pressure after fully opening the valve. Anyway we strongly recommend to always release the pressure and cool down the system before any maintenance work, and drain the system especially if dangerous medium is involved.
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 packing rings and body/bonnet gaskets as spare parts. Other spare parts available are stem, stem nut, packing gland, wedge, etc. 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.*

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FAULT	POSSIBLE CAUSE	CORRECTING MEASURES
No flow Not enough flow	Flange covers or protection not removed	Clear valve entrances
	Valve closed or almost closed	Check valve position
	Piping clogged	Check piping system
Broken flange	Bolts not properly tightened	Realign piping and fit new valve
	Mating flanges not properly aligned	
Leakage between body and bonnet	Bonnet bolts loose or gasket damaged	Retighten bonnet bolts or change gasket
Leakage through the stem	Stem O-rings worn out (504, 505)	Replace O-rings (504, 505)
	Normal wear after cycles or long time without use	Retighten bolts (507)
	Packing or stem worn out or damaged (507)	Replace parts (507)
Valve not tight at closing	Valve is not in closed position	Check correct handwheel rotation
	Dirt in the seal	Open trying to eliminate dirt trapped and close back
	Seat surfaces damages	Machine seat surfaces or change seating parts
	Too much differential pressure	Check the system and actuator sizing
	Valve stem is not pointing upwards	Change installation position
Too high operating torque, handwheel hard to turn	Incorrect rotation of stem	Check rotation of stem (closes clockwise)
	Packing too tight (507)	Check packing
	Gland flange badly assembled (507)	Check gland flange assembly
	Stem or nut thread damage or with dirt	Inspect and clean/grease and replace parts if needed
	Stem is bended	Replace stem
	Too much pressure	Check the system
	Too much differential pressure when trying to open from close position	Equalize upstream and downstream pressure
	Valve stem is not pointing upwards	Check installation position

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

10. DISMANTLING THE VALVE OR THE TOP PART

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.

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13. PARTS LIST

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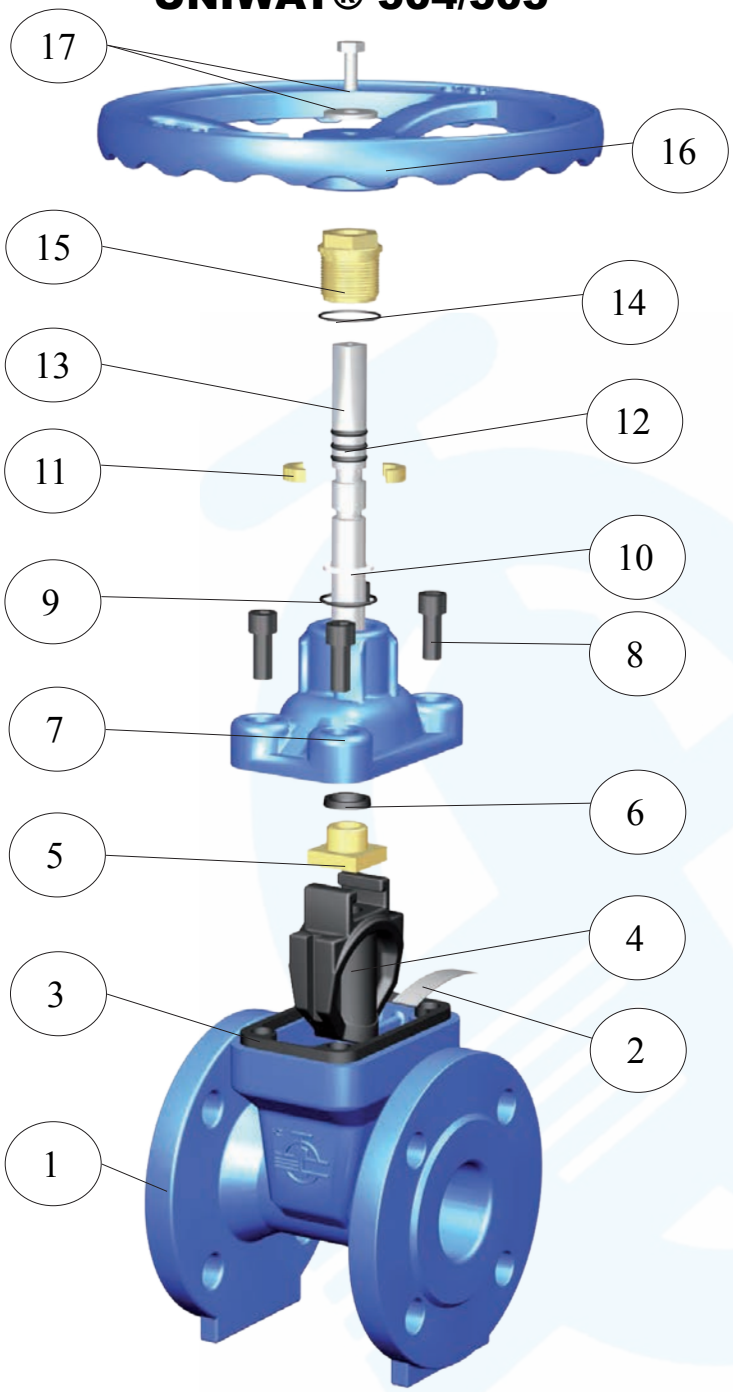

Nº	PART
1	Body
2	Nameplate
3	Gasket
4	Wedge
5	Stem nut
6	Auto-sealing ring
7	Bonnet
8	Screws
9	O-ring
10	Thrust washer
11	Holding ring
12	O-rings
13	Stem
14	Dust ring
15	Pusher nut
16	Handwheel
17	Handwheel Screw-washer

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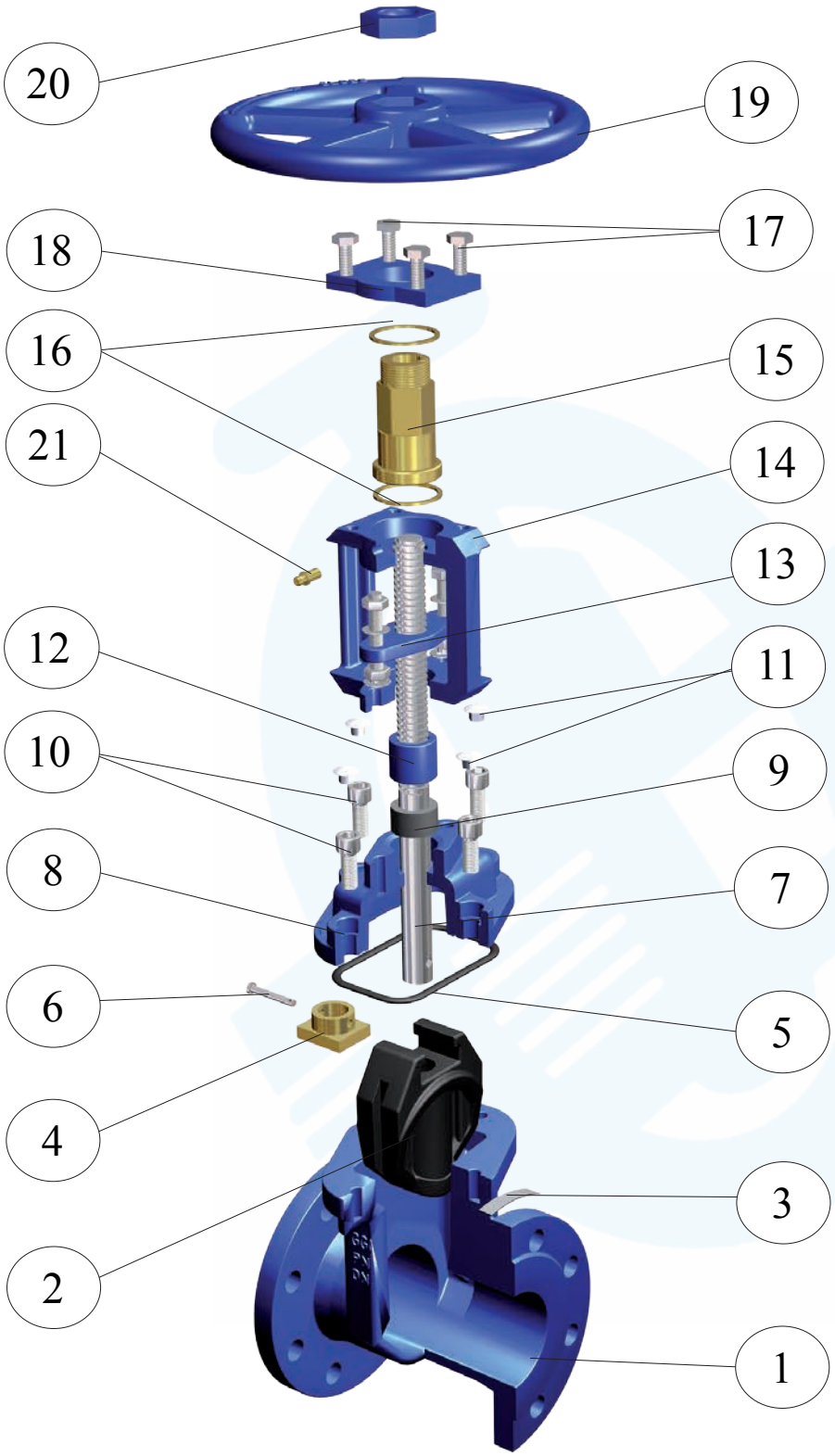

Nº	PART
1	Body
2	Wedge
3	Nameplate
4	Disc nut
5	Gasket
6	Pin
7	Stem
8	Bonnet
9	Packing
10	Bonnet screws
11	Plugs
12	Gland follower
13	Gland
14	Yoke
15	Stem nut
16	Washers
17	Studs
18	Cover
19	Handwheel
20	Handwheel nut
21	Grease nipple

14. ANNEXES
14.1 Declaration of Conformity - DC01EN
14.2 Data Sheet - DS01

Updated documents on www.comeval.es

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