

INSTALLATION, OPERATING AND MAINTENANCE MANUAL



Series BV42263

FLOATING BALL VALVES

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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.
- 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. Levers 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.*
- *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 ball and seat 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 full open (preferable) or full close position.
- The valve surface is primer coated. 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. 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

The valves are floating ball, split body and side entry design. They offer quick operation and low pressure drop thanks to their full bore design. Valve diagram with parts can be seen at the last page of the Manual.

4.2 Area of Application

Floating Ball Valves BV42263 are devices to stop the flow of the service fluid when necessary, not being suitable for regulating purposes. Operation of the valve in intermediate position to be avoided since this would lead to increased wear.

4.3 Operating principles

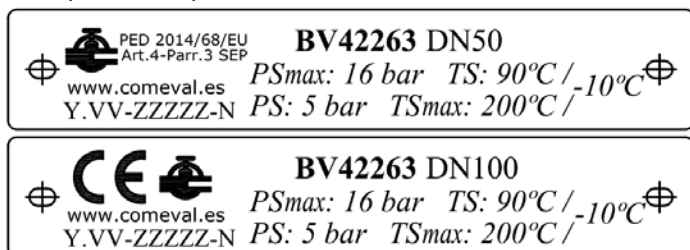
The valves close by turning the handle 90° clockwise, with tightness achieved by friction of the ball to the seats. When the handle is parallel to pipe the valve is open. Consult the manufacturer if a change of the actuation device is required.

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:



4.6 CE marking. Intended use acc. to PED

PS	DN	
	≤50	65-200
16		

Low pressure steam & neutral gases of group 2*, acc. to Directive 2014/68/EU Annex II table 7 up to category I

PS	DN
	≤200
16	

Fresh water and neutral liquids 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 seats and ball.
 - 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). 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.
- Before starting maintenance work on an end valve with a free stem end, you must mount a blind flange.
- Valves should be installed in open position.
 - 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.



ATTENTION!

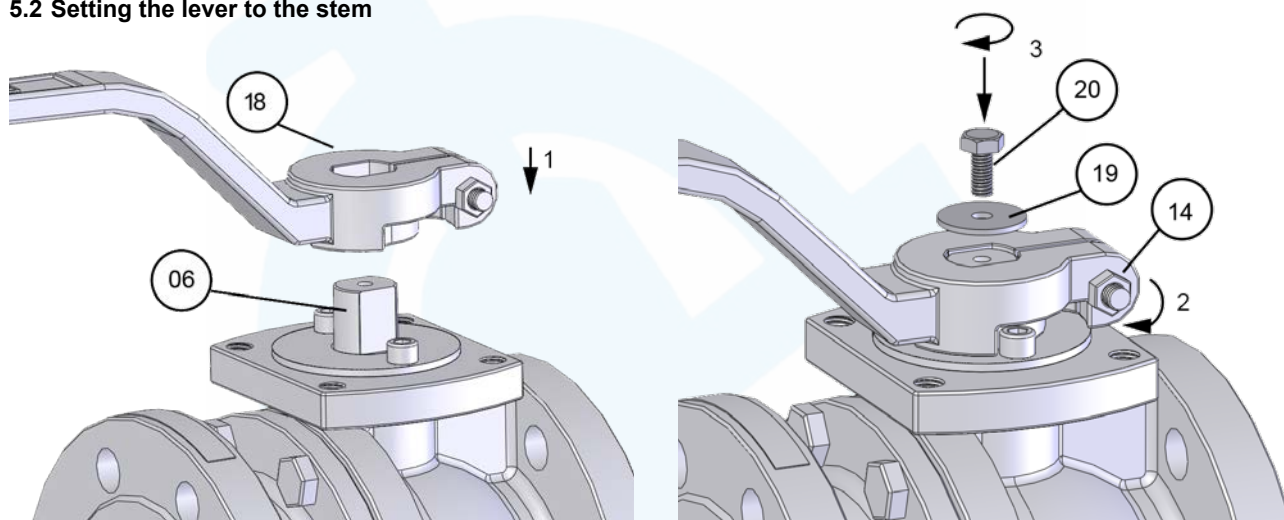
Flanges should fit smoothly. Select the proper flange face gaskets according to duty and centre them on the flange face properly. Do not force the counterflanges and do not try to tighten the bolts when a gap exists between valve and pipe or if misalignment is observed. Tighten in a crosswise, moderate and uniform manner.

- When the valve is operated, there is a crushing hazard between the ball and the seats. Ensure the valve is not under operation in case hands are introduced inside the valve.

- **ATEX:** For application in Ex-atmosphere of zones 1, 2, 21 & 22, ball valves may be used when they incorporate antistatic device (specify in the order or consult with manufacturer). Soft parts must be cleaned when needed with a wet cloth to avoid electrostatic charge.

- **ACTUATOR:** 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 Setting the lever to the stem



- 1- Set the lever (18) on the valve stem (06) as shown in the picture
- 2- Tighten the lever nut (14) until final fitting of lever to stem (06)
- 3- Set a washer (19) and thread a fixing screw (20) to the stem (06) (advisable for installation in vertical pipeline)

5.3 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.

5.4 Requirements at the place of installation

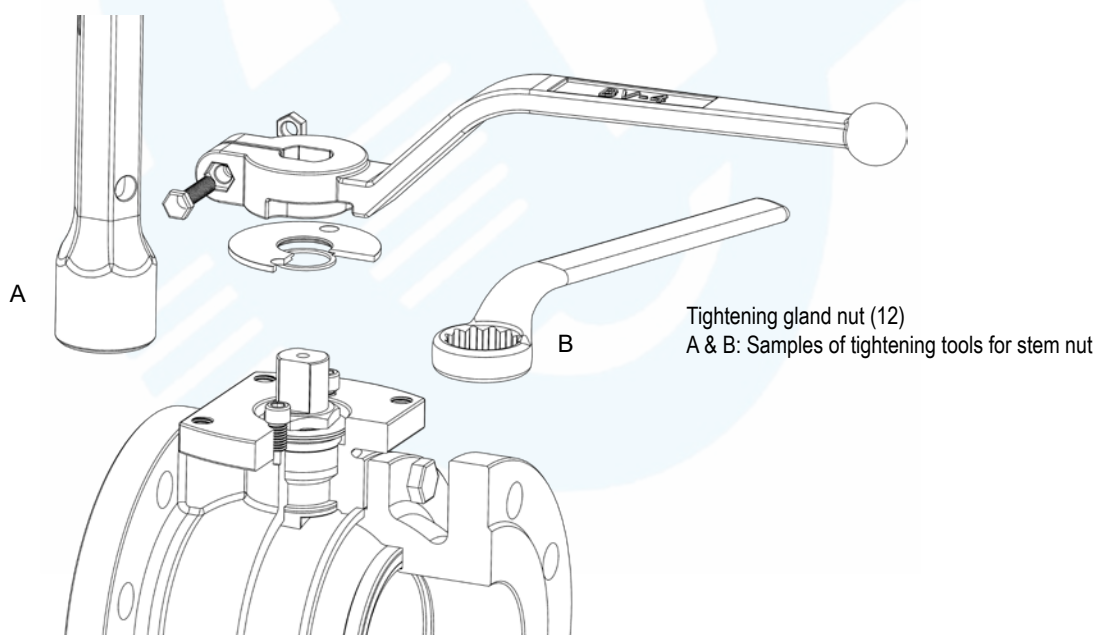
- Aggressive environmental conditions may reduce the life span of the product. Consider special construction/protective measures in such a case.
- Consider the interaction between the system and the equipment. Foresee elements to absorb vibrations, pipe dilations, guides, anchoring and proper support according to the weight of the components.
- 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 and other essential parameters. Always use the product within the scope of intended service and operating duties.
- Before commissioning, make sure previous chapters have been 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, 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 and body parts union, and retighten crosswise and gradually if necessary until leakage elimination. Over tightening the body bolts (part 02) will increase operating torque. An eccentricity between parts makes the ball turn asymmetrically and results in irreversible damage of the seats by effect of the ball push at closing thus causing seat leakage. Recommended bolts tightening torques depending on the metric as follows:
M8: 28Nm; M10: 50Nm; M12: 70Nm; M16 200Nm; M20 250Nm
- Packing gland nut (12) 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 slight retighten could be needed during start-up to correct stem leakage.



- 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.

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 specifies the use of a safety precaution such as a plug-in disc, blind flange, Before starting maintenance work on an end valve with a free stem end, you must mount a blind flange.
- When the valve is operated, there is a crushing hazard between the ball and the seats. 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.
- ATEX: Refer to notice in chapter 5 - Installation for application in Ex-atmosphere of zones 1, 2, 21, 22.

- If leakage is found and cannot be eliminated and/or the operating torque of the valve increases too much, valve should be dismantled for service or replaced by a new one.

- VALVE DISASSEMBLY/ASSEMBLY: Exploded view with parts can be seen at the end of this Manual. When dismantling side entry split body floating ball valves, it is advisable to mark the parts to ensure a better alignment when mounting again. Firstly separate the body halves (01&04) by removing the body bolting (02). Then handle (18) or actuator and cover (15-16) should be removed. Once the operator removed, get access to the gland nut (12) and relieve packing compression by loosening this nut. Turn the valve to the closed position. Remove the ball (03), that should slide out through the body port with a gentle push (use soft hammer), and remove the seats (07). Push the stem (06) and gasket (08) downwards and remove through the body port. Belleville washers (11), gland ring (10) and packing rings (09) can be removed from the top. Place all removed parts in a clean and secure place. Before mounting again bearing in mind chapter 5 *Installation*, make sure that seats and gaskets surfaces are free from dirt and in good condition. Follow the above steps in the reverse order to reassemble the valve. Seats should perfectly fit; if necessary slightly strike with a soft hammer. Once mounted, slowly operate the valve till a complete manoeuvre, to allow perfect adjustment between ball and seats. Operate again the valve once tightened to check that operating torque is not excessive.

- PTFE seats are self-lubricating so no additional lubrication is required.
 - In case of seat leakage, firstly operate the valve to sweep dirt trapped between ball and seat. If the problem does not disappear, dismount two halves (01 & 04) to inspect ball (03), seats (07), and seat surfaces. Remove the ball and check for damage by erosion or other damage, cleaning replacing if necessary.
 - If leakage is detected through the stem, remove handle or actuator (13), cover and cover ring (15, 16) and retighten gland nut (12) gradually until leakage elimination. If needed replace the packing rings (09) and also clean and polish or replace the stem (06), or replace the complete valve.
 - For dangerous fluids, test in a bench before installing again.
- 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 (09), body seats (07), gasket (08) and body union gasket (05) as spare parts. Type and number of each spare part to be stored according to many factors: service level, valves quantity, etc. In some 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
Broken flange	Bolts not properly tightened	Re-align piping and fit new valve
	Mating flanges not properly aligned	Check pipe system anchoring, guiding, vibration and thermal changes
	Tensions in the pipe	Check the system
Leakage between body halves	Too much pressure or temperature	Check alignment
	Bolts loose or gasket damaged	Retighten bolts or change gasket
	Parts not well aligned	Repair or change damaged surfaces
	Metal sealing surfaces damaged	Check the system
Leakage through the stem	Too much pressure or temperature	Retighten bolts
	Normal wear after cycles or long time without use	Replace parts
	Packing or stem worn out or damaged	Repair or change damaged surfaces
	Metal sealing surfaces damaged	Check correct handwheel rotation
Valve not tight at closing	Valve is not in closed position	Check the system
	Too much pressure or temperature	Open and close the valve under pressure to sweep the dirt trapped. Clean the system and set a strainer upstream of the valve. Repair or replace the valve if needed
	Dirt trapped between ball and seats	Replace seats
	Seats damaged	Repair or change ball
	Ball surface damaged	Turn in the correct direction
Too high operating torque, handle hard to turn	Wrong turn direction (opposite)	Valve open being handle parallel to pipe, clockwise direction to close
	Too much pressure or temperature	Check the system
	Too viscous or sticky fluid	Check packing gland nut tightening
	Packing gland nut too tightened	Inspect and replace/clean parts
	Packing rings damaged or with dirt	Inspect and replace if needed
	PTFE seats damaged or deformed	Recheck valve duty
	Body halves union bolts too tightened	Check bolts tightening
	Stem seizure	Clean/lubricate/replace stem
	Stem is bended	Replace stem

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

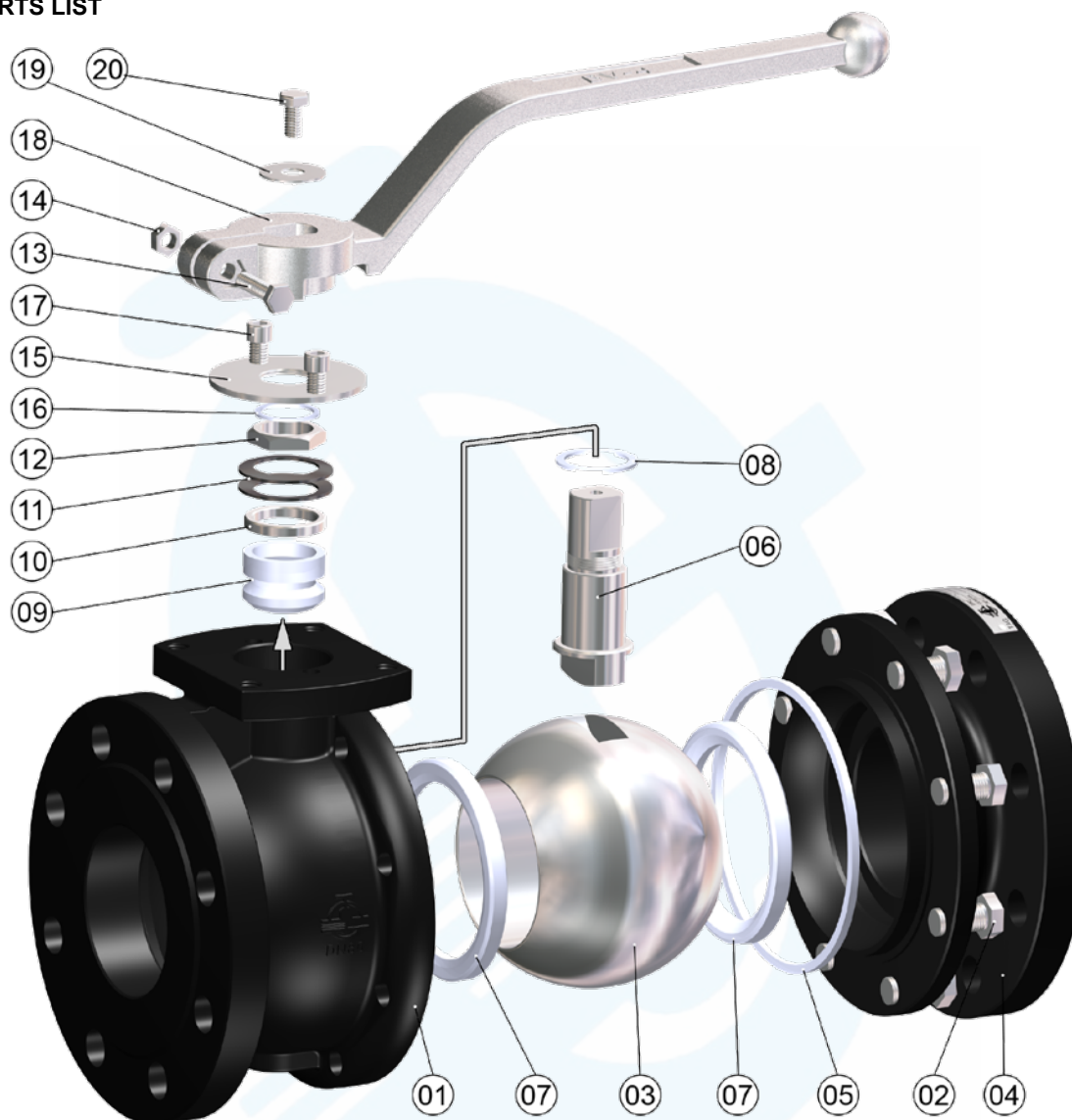
- For any returned goods, the issuing company must provide information in written on any hazards and the precaution in case of potentially polluting or harmful residues, or any mechanical damage that could present a health, safety or environmental risk, as enforced by EU Health, Safety and Environment 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
01	Body	11	Belleville washer
02	Stud bolts	12	Gland nut
03	Ball	13	Bolt
04	Cap	14	Nut
05	Gasket	15	Cover
06	Stem	16	Cover ring
07	Seat	17	Stud bolt
08	Gasket	18	Handle
09	Packing	19	Whaser(option)
10	Gland ring	20	Screw(option)

14. ANNEXES

14.1 Declaration of Conformity - DC10EN

14.2 Data Sheet - DS10

*Updated documents on
www.comeval.es*

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