INSTALLATION, OPERATING AND MAINTENANCE MANUAL



UNIWAT® 3240



UNIWAT® 3141

BALL CHECK 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).
- 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



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 AND TRANSPORT



ATTENTION!

- Protect against external force (impacts, vibrations, etc.).
- Allow only skilled personnel; suitable handling and lifting equipment must be used.
- Always use suitable protection equipment, and minimize the use of human body force at any step to avoid injuries. See Data Sheet for weights or consult manufacturer.
- 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 crushing hazard between the ball and the body. Ensure the ball is in rest position in case of hands are introduced inside the valve.
- Check correct position of nameplate and handle with care to avoid personnel cuttings.

- Use proper packing for transportation.
- Keep storage protection before installation.
- Valves are protected with epoxy paint protection. 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

Ball Check Valves are devices for preventing the reverse of flow in a piping system.
Valve diagram with parts can be seen at the last page of the Manual.

4.2 Area of Application

With a simple design, they are an effective solution to handle clean and waste water, with full seat area tightness, being one of the preferred choices when sediments are present.

4.3 Operating principles

The fluid pushes a ball from the valve inlet allowing the flow to pass. When no positive flow, the ball falls down by gravity thus blocking the medium at the valve inlet.

4.4 Technical data - remarks

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

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4.5 Marking/nameplate

Nameplate description of the valve:





Mark	Description
	Manufacturer logo
PED 2014/68/EU	Directive 2014/68/EU
SEP	Sound Engineering Practice
www.comeval.es	Website of manufacturer
UNIWAT®	Brand
3240/3141	Valve code
BALL	Ball lining material (EPDM, NBR)
Y.VV	Manufacturing year (Y.16 = 2016)
ZZZZZ-N	Batch / Serial no.
TS	Min. / Max. temperature
PN	Nominal Pressure (max. pressure in bar)
DN	Nominal Diameter

4.6 CE marking. Intended use acc. to PED

PS	DN	
	≤150	200-300
10		
16		Out of scope

Liquids of group 2* compatible with materials of construction, 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.

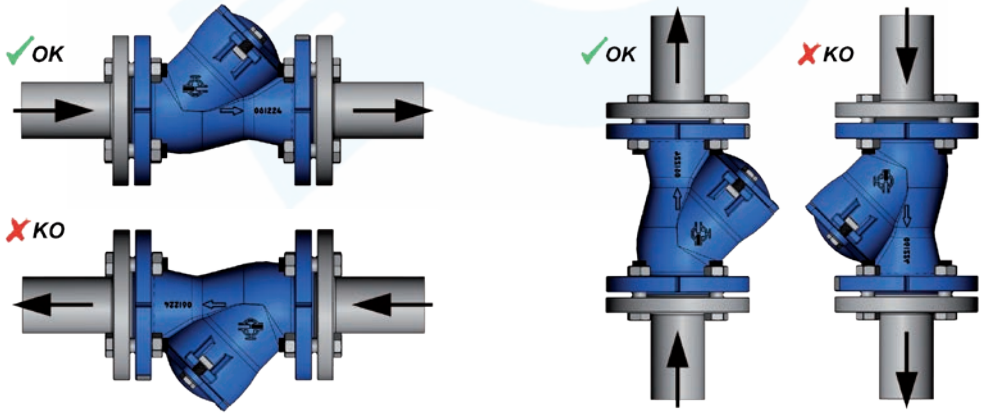
5. INSTALLATION

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.
- Observe all applicable safety measures during installation.
- 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.
- The valve is unidirectional. Follow the arrow in the body for installation. The valve can be installed either in vertical pipelines with normal flow upwards or in horizontal pipelines with cover upwards to allow proper working of the inside ball.



- Attention to utilization under low reverse pressure at ball closure, specially in the case of horizontal assembly, since this can lead to leakage in the reverse flow direction.
- There is a crushing hazard between the ball and the body. Ensure the ball is in rest position in case a hand is introduced inside the valve.
- When installing the valve, there is a crushing hazard between valve and pipe system. Mind the hands to avoid it.

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ATTENTION!

Flanged ends valves:

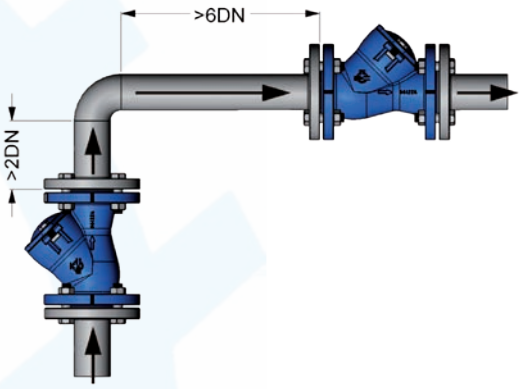
- Make sure that counterflanges are compatible with the standard of the valve flanges. When matching up flanges, avoid gradients, rotation and pipe misalignment that could cause pipe and valve stress and leakage once installed. Flanges should fit smoothly. Select the proper flange face gaskets according 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.

Threaded ends valves:

- Make sure that the pipe screw has the correct finish and compatible cone for the valve.
- Use proper sealant according to duty, such as hemp core, Teflon, etc.
- Check that pipe introduction in the valve does not exceed its thread, leave a safety margin of minimum 1 mm.
- Tighten with a plain or adjustable wrench on the hexagon end of the valve only. Apply force to other area of valve may seriously damage the valve. Do not use hook spanners or other wrenches that could damage the hexagon surface. Valve should be threaded smoothly. If not, do not try to force the thread and avoid wrench extensions since this could lead to breaking the valve or damaging the thread. A general recommendation is not to exceed the tightening torque of 30Nm.

5.2 Requirements at the place of installation

- Downstream from a disruptive element (pump, valve, elbow, pipe reduction) leave as much distance as possible; minimum distance recommended: 6 times the valve diameter (6DN).
- Upstream from a disruptive element leave at least a distance of 2DN.
- 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 high velocities. 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 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 50ºC or below 0ºC may cause personnel injuries if valves are touched.
- Leakage of media through valve, between counterflanges or at closing 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.
- The filling, warming-up and starting-up of the system shall be gradual so as to avoid any inadmissible stress. Check for tightness in valve connections and retighten crosswise and gradually if necessary until leakage elimination.

- Ensure valve surface is in good condition and retouch coating protection when needed.
- 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 area and connections tightness, and valve smooth operation without additional tools.



ATTENTION!

- Before disassembling the valve, note chapters 3, 10 & 12.
- There is a crushing hazard between the ball and the body seat area. Ensure the ball is in rest position in case a hand is introduced inside the valve.
- Only carry out maintenance work in the pipework when the valve has been secured from operation.
- 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.

- When reassembling the cover, clean gasket seat surface and use a new gasket if necessary. Then tighten the cover bolts evenly crosswise with moderate and uniform torque. Retighten bolts crosswise if any leakage is detected under pressure.
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 body/cover gaskets and balls as spare parts. 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 Not enough flow	Flange covers or protection not removed	Clear valve entrances
	Improper installation position	Check installation position
	Piping clogged	Check piping system
	Not enough pressure or flow	Check working parameters
	Ball blocked	Check and try to unblock
Broken flange	Bolts not properly tightened Mating flanges not properly aligned	Re-align piping and fit new valve
Valve not closing with reverse flow	Ball surface or seat area damaged	Check valve components
	Very low reverse pressure	Check the system
	Improper installation position	Check installation position
	Ball blocked	Check and try to unblock
Ball stick	Fine vacuum service	Use a degassing connection
Leakage between body and cover	Cover bolts loose or gasket damaged	Retighten cover bolts or change gasket

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

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10. DISMANTLING THE VALVE OR THE COVER

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

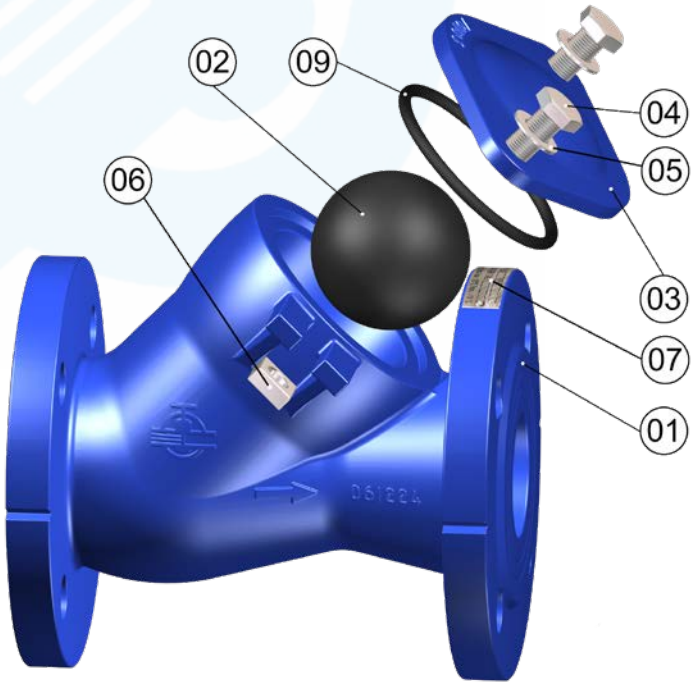
- For any returned goods, the issuing company must provide information in written on any hazards and the precaution in case of potentially polluting or harmful residues, or any mechanical damage that could present a health, safety or environmental risk, as enforced by EU Health, Safety and Environment 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
01	Body
02	Ball
03	Cover
04	Bolt
05	Washer
06	Nut
07	Name plate
09	O-ring



14. ANNEXES

14.1 Declaration of Conformity - DC06EN
14.2 Data Sheet - DS06

Updated documents on www.comeval.es

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