

# INSTALLATION, OPERATING AND MAINTENANCE MANUAL



**UNIFLOW® 3S**



**UNIFLOW® 39**

## SWING 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



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



- *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 disc and the seat area. Ensure the disc is in rest position in case a hand is 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.
- 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 / Operating principles

Swing Check Valves are devices for preventing the reverse of flow in a piping system, by means of its articulated disc. Valve diagram with parts can be seen at the last page of the Manual.

### 4.2 Area of Application

They are used for fluids like water, oil, petroleum products, natural gas, air and other liquids and gases compatible with materials of construction.

### 4.3 Technical data – remarks

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 for data such as main features, duties/limits of use, dimensions, weights, etc and consult the manufacturer for further information.

#### 4.4 Marking/nameplate

Nameplate description of the valve:

Mark	Description
	CE-Marking
NB	Number of notify body
	EAC marking (compliance with TR/CU 032/2013 & TR CU 010/2011)
	Manufacturer logo
	Explosion protected mark for EU free circulation (see separate instructions for code)
www.comeval.es	Website of manufacturer
UNIFLOW®	Brand
PED 2014/68/EU	Directive 2014/68/EU
FIG.	Valve code*
SEP	Sound Engineering Practice
Y.20VV	Manufacturing year
SN: VVZZZZ-N	Batch / Serial no.
SIZE	Valve size
CLASS	Valve class
B	Body material
STD	Main manufacturing standard
D	Disc material
S	Seat material
PSmax	Max. pressure
TS	Max. temperature at max. pressure
PS	Max. pressure at max. temperature
TSmax	Max. temperature

				UNIFLOW® FIG. SIZE CLASS BODY:B STD TRIM: D / S Y.20VV SN:VVZZZZ+NNN	PSmax: bar/ psig TS: °C/ °F PS: bar/ psig TSmax: °C/ °F
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				UNIFLOW® 3SA05000A10050 2" 150# BODY:WCB API6D TRIM: A105+HF / WCB+HF Y.2018 SN:1801702-001	PSmax:20bar/290psig TS:38°C/100°F PS:5.5bar/79psig TSmax:425°C/797°F
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				UNIFLOW® FIG. II 2 G - Ex h IIB TX II 2 D - Ex h IIIC TX	°C Gb °C Db

				UNIFLOW® FIG. II 2 G - Ex h IIB TX II 2 D - Ex h IIIC TX	°C Gb °C Db

				UNIFLOW® 39A05S00A80015 II 2 G - Ex h IIB TX II 2 D - Ex h IIIC TX	°C Gb °C Db

				UNIFLOW® 39A05S00A80040 II 2 G - Ex h IIB TX II 2 D - Ex h IIIC TX	°C Gb °C Db

\* See coding system on Data Sheet.

#### 4.5 CE marking

DN≤25	DN>25

### 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 disc and seat.
- Follow the arrow in the body for normal flow direction for installation. The valve can be installed in horizontal pipeline, with cover in the upper part, or in vertical pipeline with normal flow upwards.
- There is a crushing hazard between the disc and the body. Ensure the disc 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.

#### 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.

#### Screwed ends valves:

- Make sure that the pipe screw has the correct finish and compatible cone for the valve.



**ATTENTION!**

**Screwed ends valves:**

- Use proper sealant according to duty when needed, 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.

**Welding ends valves:**

- Welding works must be carried out in accordance with approved procedure and following appropriate safety measures. Check correct pipe alignment. Clean valve and pipe connections carefully, tack-weld each end of the valve on to the pipe in 4 or more points depending on size and weight. Put trim away if containing any soft part to prevent heat exposure. Only put the trim back once the valve is cooled down. Take the necessary precautions to prevent thermal stressing/overheating of the valve.
- In case of PWHT, temperature, gradient and time exposure should be controlled to the minimum required depending on the material. PWHT should be applied firstly to one end and secondly to the other end (not simultaneously), and only to a limited area of each end of the valve, in order to limit the temperature exposure on the welding area, rest of the valve body and trim. An appropriate method is the use of ceramic blankets covering the length of the welding area plus a minimum additional length that is determined by the standard of the pipe, being the heating zone limited to the minimum necessary as mentioned before. Electrical resistances must be set carefully in order to allow uniform heating and avoid too hot points. Permanent control and register of the temperature should be carried out during the process in order not to exceed the established temperature/time cycle. Also the adjacent areas should be monitored to control reached temperatures.

**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 (6xDN).
- Upstream from a disruptive element leave at least a distance of 2xDN.
- 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. 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. Ensure that the corresponding warning signs are displayed on the valve or surrounding area, or isolate the equipment in case of danger.
  - Leakage of media through valve, connections 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 body/cover union, and retighten crosswise and gradually if necessary until leakage elimination. If leakage persists surfaces should be thoroughly cleaned and new gaskets correctly placed.



**ATTENTION!**

- For steam systems, proper system layout and operation procedure should be well established and followed. It is essential to ensure condensate properly drained, gradual filling of the system and slow valve operation to avoid water hammer / thermal shock do to revaporizing

- Check valve surface is in good condition and retouch coating protection if any when needed.
- 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.



**ATTENTION!**

- Before disassembling the valve, note chapters 3, 10 & 12.  
 - There is a crushing hazard between the disc and seat. Ensure the disc 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 if any when needed. If advanced corrosion or erosion is observed, double check service and valve features and replace the valve properly.  
 - In case of body/cover leakage, dismount the cover, remove old gasket, clean sealing surfaces and use a new gasket.  
 - In case of seat leakage, remove the valve cover to clean the seating surfaces or grind them if necessary. Check that disc articulation is not blocked. When mounting the cover again use always new gasket, and tighten the cover 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.
- 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 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	Follow the arrow in the body
	Piping clogged	Check piping system
	Not enough pressure or flow	Check working parameters
	Swing mechanism blocked	Check and try to unblock
Broken flange	Bolts not properly tightened	Re-align piping and fit new valve
	Mating flanges not properly aligned	
Valve not closing with reverse flow	Improper installation position	Check installation position
	Disc surface or seat damaged	Check valve components
	Low pressure	Check the system
	Swing mechanism blocked	Check and try to unblock
Disc 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](http://www.comeval.es) or your local distributor.

## 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

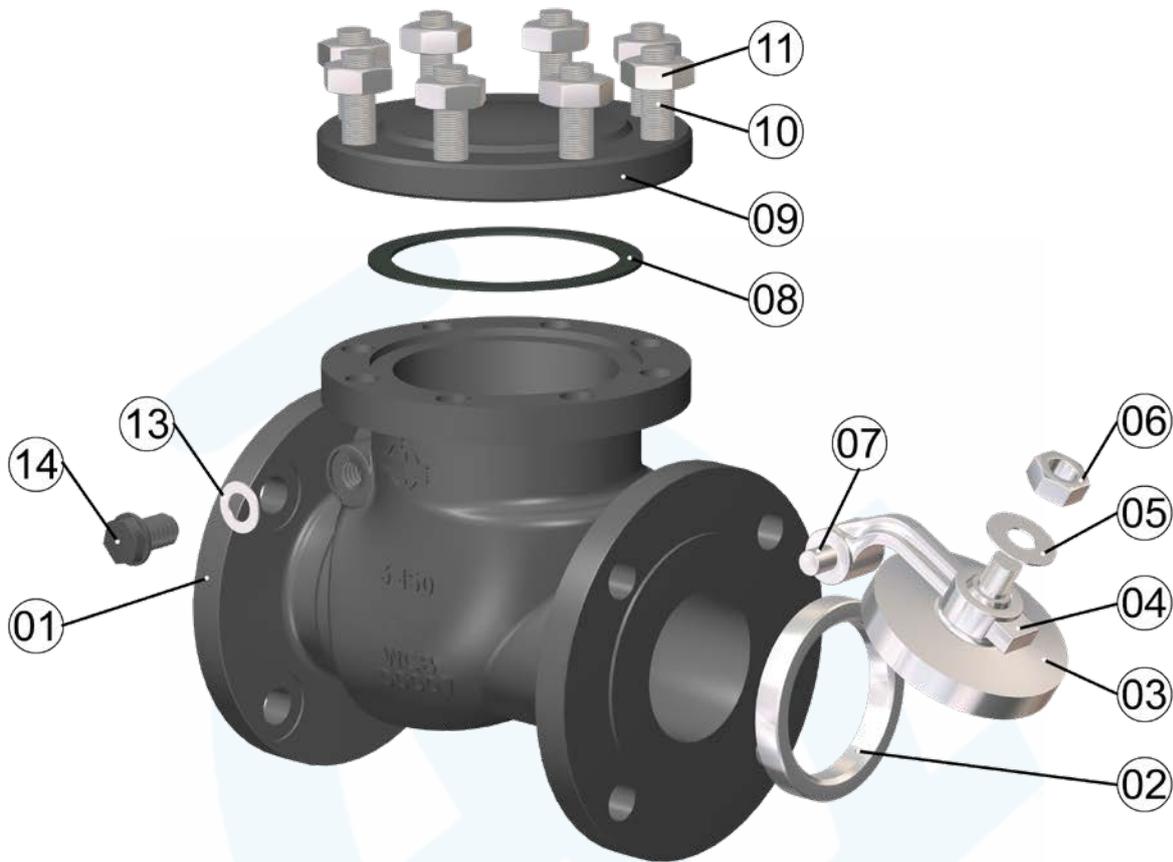
- For any returned goods, the issuing company must provide information in written on any hazards and the precaution in case of potentially polluting or harmful residues, or any mechanical damage that could present a health, safety or environmental risk, as enforced by EU Health, Safety and Environment 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.

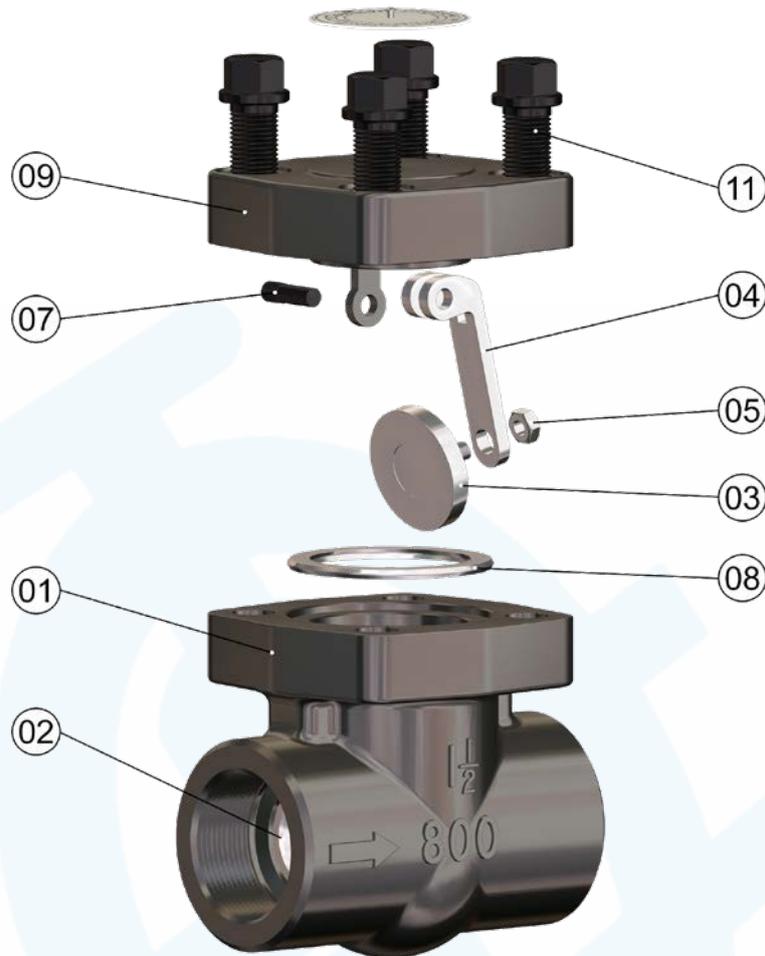
13. PARTS LIST

**UNIFLOW® 3S**



Nº	PART
01	Body
02	Seat ring
03	Disc
04	Hinge
05	Washer
06	Disc nut
07	Hinge pin
08	Gasket
09	Cover
10	Cover bolt
11	Cover nut
13	Gasket
14	Plug

**UNIFLOW® 39**



Nº	PART
01	Body
02	Seat ring
03	Disc
04	Hinge
05	Disc nut
07	Hinge pin
08	Gasket
09	Cover
11	Bolt

**14. ANNEXES**

14.1 Declaration of Conformity - DC20\_06EN

14.2 Data Sheet - DS20

Updated documents on [www.comeval.es](http://www.comeval.es)