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INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Swing Check Valve with flanges

GENEBRE Reference: 2455

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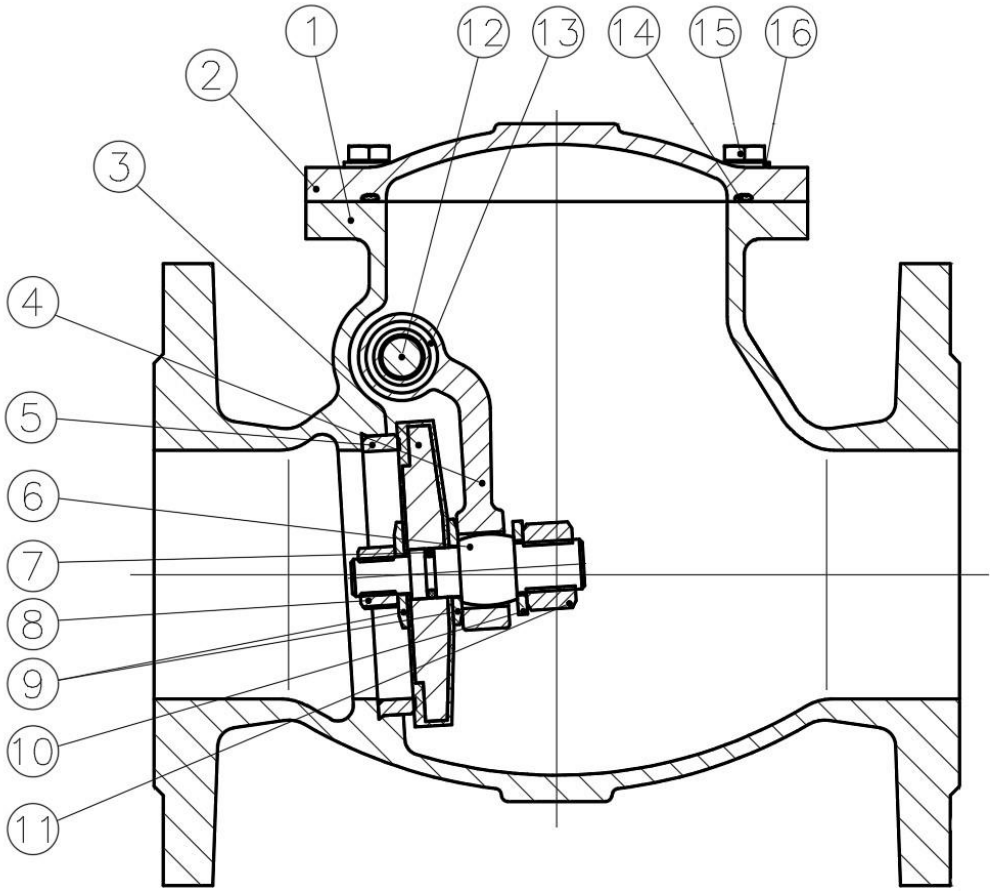
Installation, operation and maintenance instructions

1) Breakdown drawing



1.1) List of components

Nº	Denominación / *Name*	Material	Acabado Superficial / *Surface Treatment*
1	Cuerpo / *Body*	Fundición / *Ductile Iron* EN-GJS-400	Pintura epoxi / *Epoxy coating*
2	Tapa / *Cover*	Fundición / *Ductile Iron* EN-GJS-400	Pintura epoxi / *Epoxy coating*
3	Disco / *Disk*	Fundición / *Ductile Iron* EN-GJS-400 + EPDM	------
4	Brazo / *Bracket*	Fundición / *Ductile Iron* EN-GJS-400	------
5	Asiento / *Seat*	Bronce / *Bronze* C954	------
6	Eje disco / *Disk stem*	Acero Inox. / *SS* AISI 420	------
7	Junta tórica / *O'ring*	EPDM	------
8	Tuerca / *Nut*	Acero Inox. / *SS* AISI 304	------
9	Arandela / *Washer*	Acero Inox. / *SS* AISI 420	------

10	Arandela / *Washer*	Acero Inox. / *SS* AISI 420	------
11	Tuerca / *Nut*	Acero Inox. / *SS* AISI 304	------
12	Eje brazo / *Bracket stem*	Acero Inox. / *SS* AISI 420	------
13	Junta tórica / *O'ring*	EPDM	------
14	Junta tórica / *O'ring*	EPDM	------
15	Tornillo / *Screw*	Acero Inox. / *SS* AISI 304	------
16	Arandela / *Washer*	Acero Inox. / *SS* AISI 304	------

2) Storage

In case valve is not immediately installed, it is recommended to keep it inside the included protective wrapping to avoid damages or dirt accumulation. The wrap must not be removed until valve is to be installed. As much as possible, valves must be stored in a dry and clean environment.

3) Installation instructions

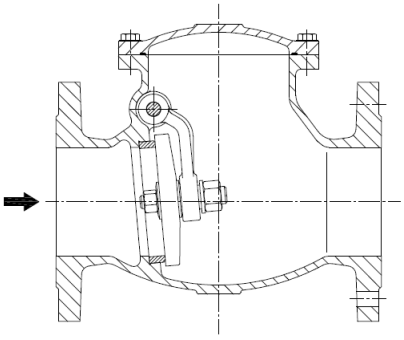
3.1) Preparation

Remove any material remains of the valve wrapping.
Serious problems may arise with the installation of a valve in a dirty pipe.
Make sure the pipe is not dirty and doesn't have welding particles, for example, before installing it. This may cause irreparable damages in the valve when the equipment is started → *prepare a clean working area*.
Plan beforehand enough space for future maintenance operations.
Have available some flat gaskets between valve and pipe flanges to keep then tight.
Check correct operation of the valve by pushing the *disc* (part.3) in the direction of the flow and making sure the disc goes back to the original position once it is released. If this is not the case, check if there are foreign particles inside the valve and repeat the whole operation. If the disc does not tilt smoothly, valve must not be installed.

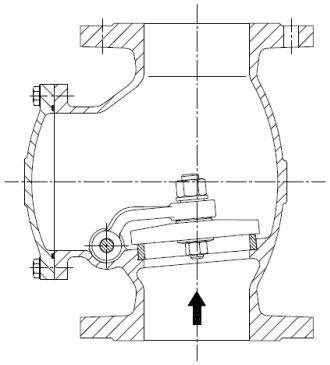
3.2) Assembling

Swing Check Valves can only be installed in two different positions:

A.- Horizontal or **B.- Vertical** (ascendant fluid), as shown in the following sketch:



A.- HORIZONTAL
(COVER UPWARDS)



B.- VERTICAL
(ASCENDANT FLUID)

IMPORTANT:

- Swing Check Valve by Genebre, S.A. (art. 2455) is designed to be assembled between flanges EN 1092 PN16.

- Be extremely cautious when placing the valve in the center of the pipe axis to keep tightness between body and flanges.

- Do not weld once the valve is already assembled, as it could be damaged due to overheating and deformation of the seat area.

- Pay attention to the direction of the valve's flow, indicated with an arrow in the body.

- Verify good parallelism of the flanges. Leave enough space between them so that valve can be easily inserted or removed.

- Tighten the flanges screws until they make firm contact with the valve’s body. Apply the alternate tightening method to assure a correct installation.

- Valve must never be assembled adjacent to an elbow, reducer, valve or pump in order to avoid turbulences. Minimum distance recommended between these elements is 10 times pipe's diameter -waters up- and 3 times pipe's diameter -waters down- according to CR 13932:2000.

- Never try to install the valve with a different setup than the one indicated in section 3.2.

4) Operational instructions

4.1) Usage

Check valves are mostly used to avoid fluid from going back to the system, by providing a leakproof lock when used adjusted to the pressure and temperature values for which they have been designed.
Body material for the valve, disc and rest of components have to be fully compatible with the fluid circulating through the pipe. Otherwise, valve could be seriously damaged.

4.2) Operation

By default, this type of valve does not need to be operated. Opening and closing are automated, depending on pressure and direction of the flow. For more information on opening pressure for the valve, please consult the technical specifications for the product.

5) Maintenance operations

Check valves with soft lock are designed so that they do not need any lubrication and/or periodical maintenance during their life cycle.
However, periodical checks explained below will be useful to extend the service life of the valve and reduce installation problems:

- Keep the valve in a completely closed position.

- Verify all locks and threaded ends to check if they are loose or rusted. Tighten them if necessary.

- Inspect the valve and surrounding areas to verify if there is any leak.

6.) Reparation instructions

In case the fluid continues to circulate through the line once the valve is completely closed, the leak may be caused by damages in the seat and/or the disc, so it will be necessary to disassemble the valve so that it can be repaired. However, it may occur that (for example in an area difficult to access), due to financial reasons, it is not recommended to repair the valve but directly replace it.

6.1) Disassembling

It is not necessary to remove the valve, but it is recommended for a better operation.

Make sure the line is cold, drained and depressurized.

Prepare a clean working area and adequate tools to perform mechanical tasks.

a - Loosen flanges' setscrews. Be careful not to drop the valve. Help yourself with a fastening element if necessary. Place the valve in a valid bench screw in ascendant fluid position.

b.- Remove the *screws* (part.15), the *cover* (part.2) and the *stem* (part.12).

c.- Extract the assembly of *bracket* (part.4) and *disc* (part.3) from inside the valve with your hands and separate the two parts joined by the *stem* (part.6) and the two *nuts* (part.8 and part.11).

6.2) Reassembling

Before proceeding to reassemble the valve, make sure that reparation kit and/or pieces to be used are appropriate and original from factory.
When it is reassembled, cleaning is essential for a long life for the valve.

a.- Clean the *seat* (part.5) inside the *body* (part.1).

b.- Insert the assembled *bracket* (part.4) and *disc* (part.3) into its location.

c.- Insert the *stem* (part.12) from the outside and fix the assembly of *bracket* (part.4.) and *disc* (part.3). Check that it swings freely.

d.- Place the *cover* (part.2) back in its working position, checking that the *o'ring* (part.14) has not been damaged during the disassembly process. Tighten the *screws* (part.15) firmly.

e.- Reinstall the valve between flanges. See *Installation instructions* on page 4.

7.) Pressure for opening

Swing Check Valve by GENEBRE, S.A. (art.2455) has been designed to work with minimal operational pressures (to obtain more information, please consult the technical specifications).

8.) Hygiene and Safety Instructions:

8.1) Fluids that go through a valve can be corrosive, toxic, flammable or pollutant. They can also be found at very high or low temperature. When operating valves, you must follow the security instructions and it is recommended to use personal protection gadgets:

1) Protect your eyes.
2) Wear gloves and appropriate working clothes.
3) Wear safety footwear.
4) Wear a helmet.
5) Have running water at hand.
6) To operate flammable fluids, make sure you have an extinguisher at hand.

Before removing a valve from a pipe, always check if the line is completely drained and depressurized.

8.2) Operate the valve in open position to make sure there is no pressure in the internal cavity.

8.3) Any valve being used by toxic services department needs to obtain a cleanliness certificate before being operated.

8.4) Any type of repair or maintenance should be performed in ventilated places.