

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Wafer butterfly valve



GENEBRE Reference: 2101 - 2104

Installation, operation and maintenance instructions

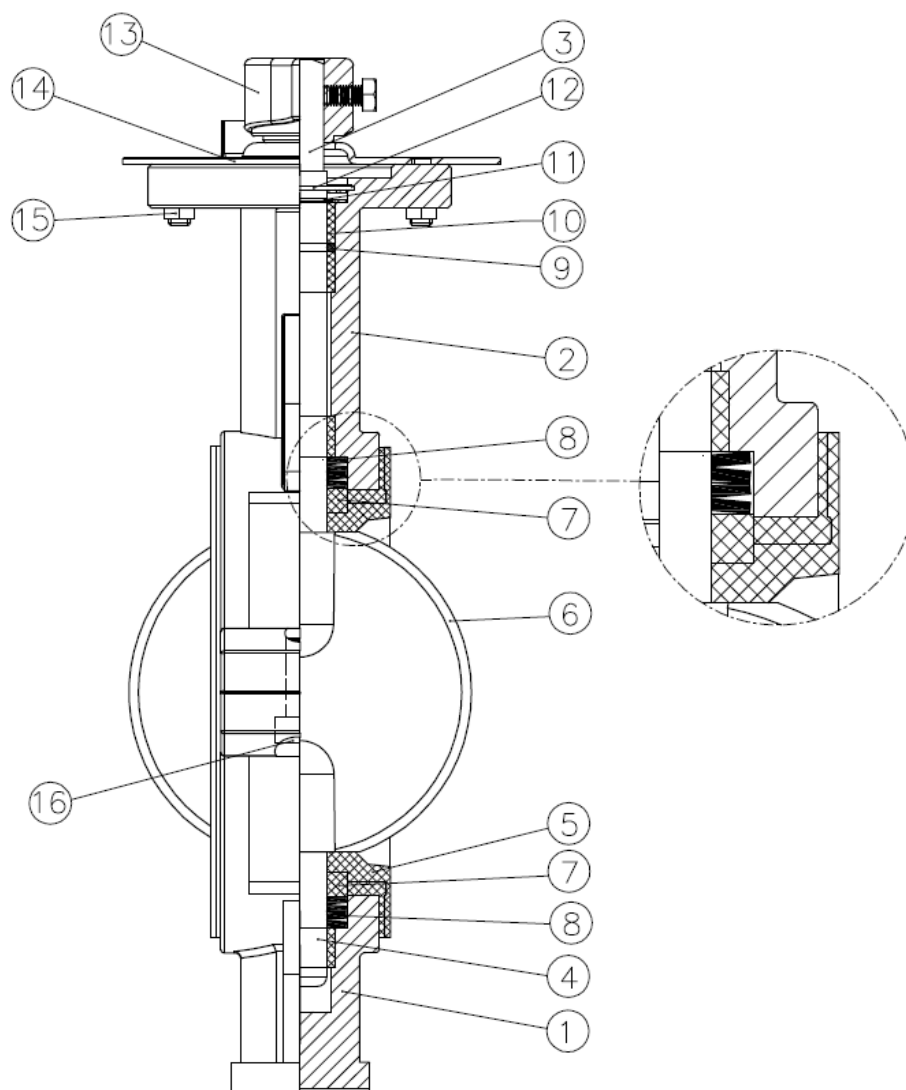
1) PRODUCT DESCRIPTION	3
2) VALVE BREAKDOWN	3
2.1) DRAWING AND COMPONENTS	4
3) STORAGE	5
4) INSTALLATION INSTRUCTIONS	5
4.1) PREPARATION	5
4.2) ASSEMBLING	5
5) OPERATION INSTRUCTIONS	6
5.1) USAGE	6
5.2) MANUAL OPERATION	6
5.3) REMOTE OPERATION	7
6) MAINTENANCE OPERATIONS.....	7
7) REPAIR INSTRUCTIONS.....	8
7.1) DISASSEMBLING	8
7.2) REASSEMBLING	8
8) TORQUES	9
8.1) BREAKAWAY TORQUE (N.M).....	10
9) HYGIENE AND SAFETY INSTRUCTIONS.....	10

1) Product description

Genebre, S.A. offers a wide range of valves (90° turn), designed and assembled to handle and drive fluids in industrial procedures.

The compatibility of materials used to build the valves (see technical specifications) and the application of valves to the different industrial processes is at user's risk. Valves will have an optimal behavior when working conditions do not exceed pressure and temperature limits (pressure curve) for which they have been designed. Please, refer to the product datasheet.

2) Valve breakdown



2.1) Drawing and components

(Art. 2101)

Nº	Denominación / Name	Material	Acabado Superficial / Surface Treatment	Cód. Recambio Spare Part Code
1	Cuerpo Inferior / Downside Body	Fund. nodular / Ductile Iron EN-GJS-400	Epoxy	-----
2	Cuerpo Superior / Upside Body	Fund. nodular / Ductile Iron EN-GJS-400	Epoxy	-----
3	Eje Superior / Upside Stem	Acero Inox. / Stainless Steel AISI 316	-----	-----
4	Eje Inferior / Downside Stem	Acero Inox. / Stainless Steel AISI 316	-----	-----
5 *	Asiento / Seat	PTFE c/base EPDM / PTFE on EPDM	-----	ET2101
6	Disco / Disc	Acero Inox. / Stainless Steel 1.4408	Pulido / Polished	-----
7	Buje / Hub	Nylon	-----	-----
8	Arandelas Muelle / Spring washer	Acero / Steel	Dacromet	-----
9	Tórica / O'ring	Viton	-----	-----
10	Casquillo / Bush	RPTFE	-----	-----
11	Arandela / Washer	Acero / Steel	Galvanizado / Galvanized	-----
12	Arandela Seeger / Seeger ring	Acero / Steel	Galvanizado / Galvanized	-----
13	Maneta / Handle	Aluminio / Aluminium	Epoxy	-----
14	Plato / Plate	Acero / Steel	Galvanizado / Galvanized	-----
15	Tornillo-Tuerca / Screw-Nut	Acero / Steel	Galvanizado / Galvanized	-----
16	Tornillo / Screw	Acero / Steel	Galvanizado / Galvanized	-----

(Art. 2104)

Nº	Denominación / Name	Material	Acabado Superficial / Surface Treatment	Cód. Recambio Spare Part Code
1	Cuerpo Inferior / Downside Body	Acero Inox. / Stainless Steel 1.4408	Granallado / Shot Blasting	-----
2	Cuerpo Superior / Upside Body	Acero Inox. / Stainless Steel 1.4408	Granallado / Shot Blasting	-----
3	Eje Superior / Upside Stem	Acero Inox. / Stainless Steel AISI 316	-----	-----
4	Eje Inferior / Downside Stem	Acero Inox. / Stainless Steel AISI 316	-----	-----
5 *	Asiento / Seat	PTFE c/base EPDM / PTFE on EPDM	-----	ET2104
6	Disco / Disc	Acero Inox. / Stainless Steel 1.4408	Granallado / Shot Blasting	-----
7	Buje / Hub	RPTFE	-----	-----
8	Arandelas Muelle / Spring washer	Acero Inox. / Stainless Steel AISI 301	-----	-----
9	Tórica / O'ring	Viton	-----	-----
10	Casquillo / Bush	RPTFE	-----	-----
11	Arandela / Washer	Acero Inox. / Stainless Steel AISI 304	-----	-----
12	Arandela Seeger / Seeger ring	Acero Inox. / Stainless Steel AISI 304	-----	-----
13	Maneta / Handle	Acero Inox. / Stainless Steel AISI 304	Pulido / Polished	-----
14	Plato / Plate	Acero Inox. / Stainless Steel AISI 304	Pulido / Polished	-----
15	Tornillo-Tuerca / Screw-Nut	Acero Inox. / Stainless Steel AISI 304	-----	-----
16	Tornillo / Screw	Acero Inox. / Stainless Steel AISI 304	-----	-----

* Piezas de recambio disponibles / Available spare parts

3) Storage

Manual valves are provided by default in a half-open position whereas automated valves usually are in a close position due to the standard error position NC (normally closed). During storage it is recommended to keep them in this same position, with the included protective wrapping to avoid damages or dirt accumulation. The wrap must not be removed until valve is to be installed. As far as possible, valves must be stored in a dry and clean environment.

4) Installation instructions

4.1) Preparation

Remove any material remains of the valve wrapping.

Serious problems may arise with the installation of a valve in a dirty pipe.

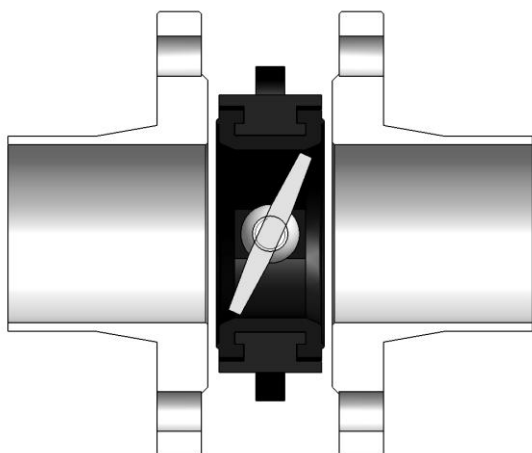
Make sure the pipe is not dirty and doesn't have welding particles, for example, before installing it. This may cause irreparable damages in the valve when the equipment is started → *prepare a clean working area.*

Plan beforehand enough space for future maintenance operations.

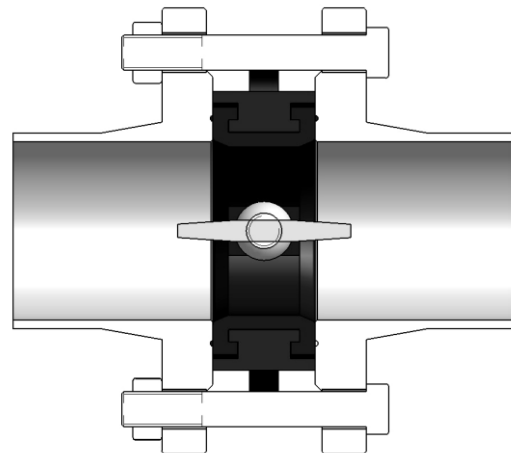
Joints between valve and pipe flanges are not necessary, as the elastomer is designed to keep tightness amongst them.

In case of vibrations in the pipe it is strongly recommended to mount anti-vibration elements to absorb them. Otherwise, the life of the product could be drastically reduced.

4.2) Assembling



Leave enough space between the flanges so that valve can be easily inserted or removed



Fully open the valve before tightening the screws of the flanges

REMARKS:

- Wafer butterfly valves by Genebre, S.A. are designed to be assembled between flanges DIN PN10, DIN PN16 and ANSI 150
- Be extremely cautious when placing the valve in the center of the pipe axis to avoid interferences between disk and inside part of the pipe. The valve must not be assembled in any case if the internal diameter of the pipe is lower than the nominal diameter of the valve
- When assembling with a loose flange and a round pipe (or collar) try to avoid the weld bead to stand out on the inside part of the pipe because this could damage the disk and even render the valve inoperative
- Verify good parallelism of the flanges
- Do not install the valve in a completely closed position
- Tighten the screws until the flanges make firm contact with the valve.
- When applying it in mud fluid, place the valve in horizontal position (axis being parallel to the floor) opening the bottom part of the disk in the direction of the flow to avoid sediment deposits.
- Valve must never be assembled adjacent to an elbow in order to avoid turbulences. Minimum distance recommended between elbow and valve is 3 to 5 times the pipe diameter

5) Operation instructions

5.1) Usage

Butterfly valves provide a leakproof seal when used adjusted to the pressure and temperature values for which they have been designed.

Seat material for the valve, joints, body, disk and axis has to be fully compatible with the fluid circulating through the valve. Otherwise, valve could be seriously damaged.

5.2) Manual operation

When operating the valve you must avoid excessive lateral efforts with the handle.

To close it, you must turn the handle 90 degrees clockwise. When the handle is inline with the pipe, valve is open.

Torques required to operate valves are listed in the table *Torque to activate the valves*, on page 9.

For the valves operated with gear box (or gear operator), the quantity of turns to be done for a complete operation cycle of the 90 degree valve will be conditioned by the transmission ratio of the gear box. See following table:

Art. 2101	Transmission Ratio	Nr. of handwheel turns (90°)
2" - 5" (+ art. 5975)	24:1	6
6"	24:1	6
8"	30:1	11,25

Art. 2104	Transmission Ratio	Nr. of handwheel turns (90°)
2" - 5" (+ art. 5984 04)	40:1	10
6"	37:1	9,25
8"	45:1	11,25

5.3) Remote operation

When automation of butterfly valves is required, GENE BRE S.A. can provide a great variety of pneumatic actuators, electric actuators, pneumatic positioners and electropneumatic ones to cover a large range of operations.

6) Maintenance operations

It is recommended to operate the valve at least once a month.

Elastic-seat butterfly valves 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:

- Close the valve –from position completely open to completely closed.
- Verify all locks and threaded ends to check if they are loose or with rust. Tighten them if necessary.
- Inspect the valve and surrounding areas to verify if there is any leakage in the stem or in the flange connections.
- For an automated valve, verify pipe connections and/or electrical connections of actuators to check if they are loose due to operation or vibrations.

7) Repair instructions

In case the fluid continues to circulate through the line once the valve is completely closed, the leakage may be caused by damages in the seat and/or the locking surface, so it will be necessary to disassemble the valve so that it can be repaired. In this particular case, GENE BRE, S.A. have different replacement seats or elastomers (part. 3). However, due to financial reasons, it is not recommended to repair the valve but directly replace it.

7.1) Disassembling

You must remove the valve from installation to repair it.

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

a.- Close the valve. Loosen and extract the screws or bolts from the flanges. Be careful not to drop the valve. Help yourself with a fastening element if necessary. Place the valve in a valid clamp.

b.- Remove the lever (part. 13) and plate (part. 14) or the gear operator or the actuator.

c.- Before the body is disassembled, mark the body halves, is important to reassemble the body halves in their original position.

Unscrew both body bolts (part. 16) alternately because the body are spring loaded for the spring washer (part. 8).

d.- When remove the body parts pay attention not to lose spring washer (part. 8) or packing (part. 7).

Remove assembled Seat (part. 5) – Disc (part. 6).

e.- Gently bang the *disk* (part. 6) on its central part with a rubber mallet or similar tool until it comes off the inside part of the *seat* (part. 5). Avoid banging the whole perimeter of the disk because even a small scratch could cause leakage.

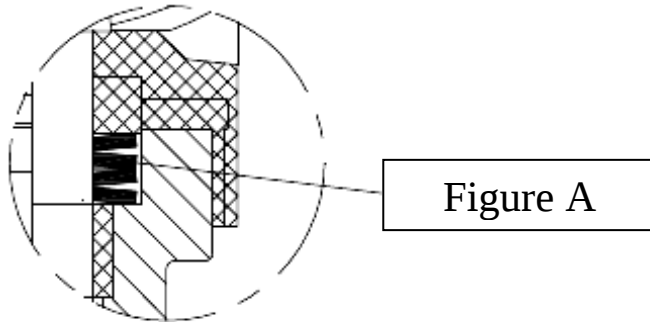
7.2) Reassembling

Before proceeding to reassemble the valve, make sure that repair kit and/or pieces to be used are appropriate and original from the factory.

When it is armored again, cleaning is essential for a long life for the valve.

a.- Please stand the top body half (part. 2) on the top flange upside down and hold.

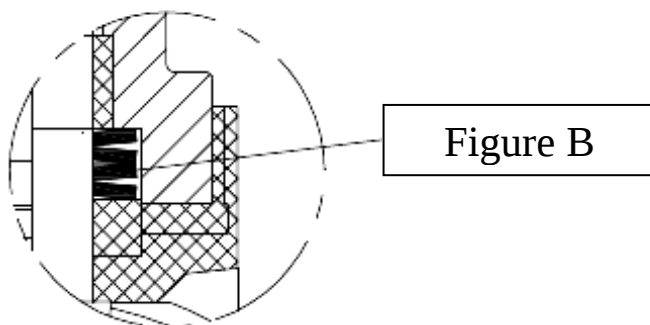
b.- Put the spring washers (part. 8) according to the Figure A in the up stem (part. 3) of the valve and after put the packing.



c.- Replace the Disc (part. 6) in its working position within the seat (part. 5) proving it has not been damaged during the disassembly process and aligning the holes in the disc with the holes in the seat.

d.- Put the whole disc / seat in the upper body by matching the square of the disk housing with the valve axis.

e. - Put in the other opening round of the whole disc / seat lower shaft (part 4) ensuring that it reaches the bottom of the housing of the disk (part 6), place gasket ring (part 7) in the lower shaft until it contacts the seat (part 5), subsequently placing the spring washers (part. 8) as shown in Figure B in the bottom of the valve axis.



f. - Place the lower body (part 1) in all pre-assembled, matching the marks previously made in the body parts to keep its original position.

g. - Place the side screws (part 16) and alternately set to leave about a 3 mm on both sides of marriage, place the disc in the closed position and finish side tighten the screws until metal-metal contact between the two parts of the body.

h. - After the final adjustment of the side screws to open the valve to verify that the operating

torque responds to those shown in Table 7.1.

i. - Finish by placing the handle, steering gear or actuator as appropriate, given its open or closed position.

j. - Reinstall the valve between flanges. See Installation Instructions page. 4.

8) Torques

8.1) Breakaway torque (N.m)

DN	50	65	80	100	125	150	200
Torque N·m	25	30	35	65	110	200	300

9) Hygiene and Safety Instructions:

9.1) Fluids that go through the 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.

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

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

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