

## INSTALLATION, OPERATION AND MAINTENANCE MANUAL

### Single disc check valve



Ref. GENE BRE: 2413 – 2416 – 2416N

# Installation, Operation and Maintenance Instructions

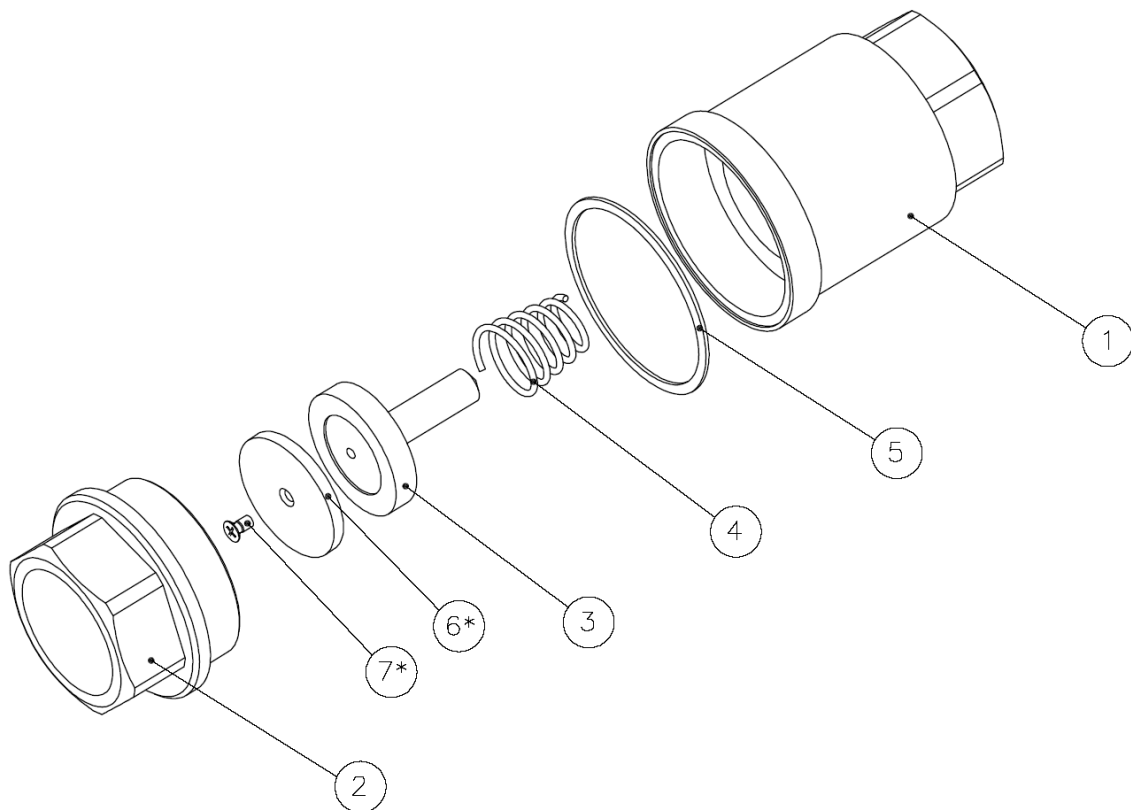
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## 1) Product description

**Genebre, S.A.** offers a wide range of valves 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 behaviour 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) Exploded view



\* only in soft-seated valves (Art. 2413)

### 2.1) List of parts Art. 2416/2416N (Metal seat)

Nº	Denominación / Name	Material	Acabado Superficial / Surface Treatment
1	Cuerpo / Body	Acero Inox. / Stainless Steel 1.4408	Granallado / Shot blasting
2	Tapa / Cap	Acero Inox. / Stainless Steel 1.4408	Granallado / Shot blasting
3	Disco / Disk	Acero Inox. / Stainless Steel 1.4408	-----
4	Muelle / Spring	Acero Inox. / Stainless Steel AISI 316	Granallado / Shot blasting
5	Junta / Gasket	PTFE	-----

### 2.2) List of parts Art. 2413 (Soft seat)

Nº	Denominación / Name	Material	Acabado Superficial / Surface Treatment
1	Cuerpo / Body	Acero Inox. / Stainless Steel 1.4408	Decapado / Shot Blasting + Pickling
2	Tapa / Cap	Acero Inox. / Stainless Steel 1.4408	Decapado / Shot Blasting + Pickling
3	Disco / Disk	Acero Inox. / Stainless Steel 1.4408	Decapado / Shot Blasting + Pickling
4	Muelle / Spring	AISI 316	-----
5	Junta / Gasket	PTFE	-----
6	Asiento / Seat	PTFE	-----
7	Tornillo / Bolt	AISI 316	-----

## 3) Storage

If the valve is not installed immediately, it is recommended that the protective packaging not be removed to prevent any blows or the accumulation of dirt. This packaging should not be removed unless the valve is going to be installed. Where possible, the valves must be stored in a dry clean place.

## 4) Installation Instructions

### 4.1) Preparation

Remove any remains of packing material from the valve.

Significant problems may arise with any valve installed onto dirty piping.

*Ensure that the pipe is free from dirt, welding particles, etc. prior to installation as the valve may suffer irreparable damage during the start-up of the equipment → prepare a clean working area.*

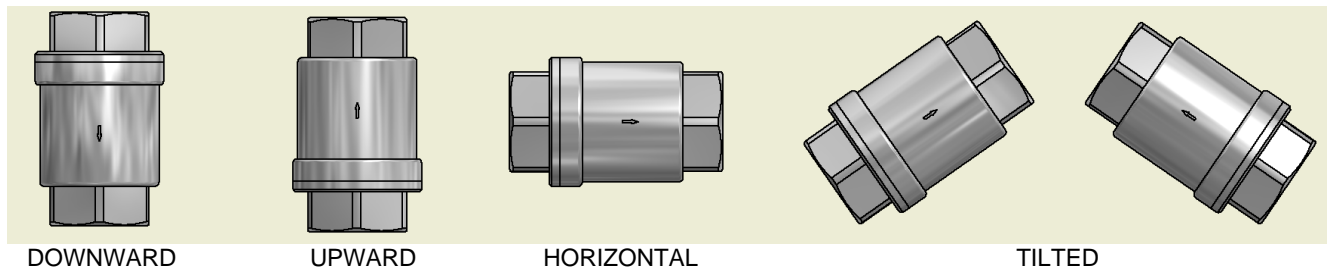
Make sure there is enough space for future maintenance operations.

Monitor the correct functioning of the valve by pushing the *disc* (part. 3) in the direction of the flow and observing that it returns by itself once the *disc* is released. If this is not the case, check that there are no foreign bodies in the interior of the valve and repeat the operation. If the disc does not slide freely, the valve must not be installed.

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) Assembly

Single disc check valves can be installed in any position, but we should make sure that the arrow marked on the body of the valve follows the direction of the flow.



**CAUTION:** if the valve is installed without the spring, it must only be installed in a vertical position (upward flow).

### **IMPORTANT:**

- Do not dismantle these valves in order to install them
- Ensure that the pipe and valve thread are clean and that they are compatible (thread type)

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- Apply a suitable sealer on the pipe threads and fasten the valve to the pipe taking care not to over tighten the tapered threads
  - Do not perform any welding when the valve has been assembled as it could be damaged by overheating and the seat area may deform
  - We recommend fastening the valve to the pipe using an open-ended or an adjustable spanner and by only applying force on the hexagonal area of the valve ends. It is recommended that the force applied is lower than 30 Nm
  - The valve must never be assembled adjoining an elbow, reducer, valve or pump to avoid any turbulence. The minimum distance recommended between these elements is 10 times the pipe diameter -upstream- and 3 times de pipe diameter -downstream-, according to the CR 13932:2000

## 5) Operating Instructions

### 5.1) Use

Check valves are mainly used to prevent any back-flow in the system. Soft-seated valves (Art. 2413) provide a tight seal when used in accordance with the pressure / temperature values for which they have been designed.

The material from which the valve body and the rest of components are made must be compatible with the fluid circulating through the valve; otherwise, the valve may become seriously damaged.

### 5.2) Operation

This type of valve, by definition, does not require operating. The valve opens and closes automatically depending on the pressure and direction of the flow. For further information on the opening pressures of the valve, consult the product technical sheet.

## 6) Maintenance Instructions

The check valves are designed in such a way that they do not require any regular lubrication or maintenance during their useful lives.

However, the following checks will aid in prolonging the useful life of the valve and reduce problems during installation:

- maintain the valve in a totally closed position
- verify that all the threaded joints and fasteners are neither loose nor rusty. Fasten as required

- inspect the valve and the surrounding areas verifying that there are no leaks

## 7) Repair Instructions

If the fluid continues to circulate through the piping when the valve is completely closed, the leak is due to either the seal surface being damaged or an excessive wear of the spring as a result of metal fatigue after many continuous operation cycles. In both cases, the valve will require dismantling in order to carry out any repair. In some cases the repair of a valve may not be advisable due to economic reasons (for example, areas of limited access) and a complete replacement should be carried out instead.

### 7.1) Disassembly

In order to carry out repair work, it is necessary to remove the valve from the installation.

*Ensure that the piping is cold, drained and depressurised.*

*Prepare a clean work area and the appropriate tools for the mechanical tasks.*

- a.- Place the valve on a suitable vice, holding it by its body
- b.- Slowly unscrew the *cap* (part. 2) until removed
- c.- Remove the *disc* (part. 3), the *spring* (part. 4) and the *gasket* (part. 5) with your fingers
- d.- (*only art. 2413*) Unfasten the *screw* (part. 7) until the *seat* is released (part. 6)

### 7.2) Reset

Before reassembling the valve, ensure that the parts to be used are appropriate and are the originals from the factory.

When the valve is reset, cleaning is essential for a long useful life of the valve.

- a.- Clean the sealing area inside the *body* (part. 1)
- b.- Install the *spring* again (part. 4) together with the *disc* (part. 3) in their working position, checking that they have not been damaged during the disassembly process. If it is a soft-seated valve (art. 2413), previously assemble the *seat* (part. 6) using the *screw* (part. 7)
- c.- Finally, install a new *gasket* (part. 5) in the body's groove and fasten the *cap* (part. 2), taking care not to move the gasket from its position

d.- Install the valve on the pipe again. See 3) *Installation Instructions*

## 8) Opening pressures

The single disc check valve by GENE BRE, S.A. (Art. 2413/2416/2416N) has been designed to operate with minimum operating pressures. For further information, refer to the product datasheet.

## 9) Health and Safety

**9.1)** The fluids that pass through a valve can be corrosive, toxic, flammable or of a contaminating nature. They can also be found at very high or low temperature. When handling the valves, take the necessary safety measures, and it is advisable to use personal protective equipment:

- 1) Wear eye protection
- 2) Wear appropriate gloves and work clothes
- 3) Wear safety shoes
- 4) Wear a helmet
- 5) Check the availability of running water
- 6) In the case of flammable fluids, ensure that the appropriate extinguisher is available

**9.2) Before removing a valve from any piping, always ensure that the line is completely cold, drained and depressurised.**

**9.3)** Any valve that has been used in toxic services must have a certificate of cleaning before it is handled.

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