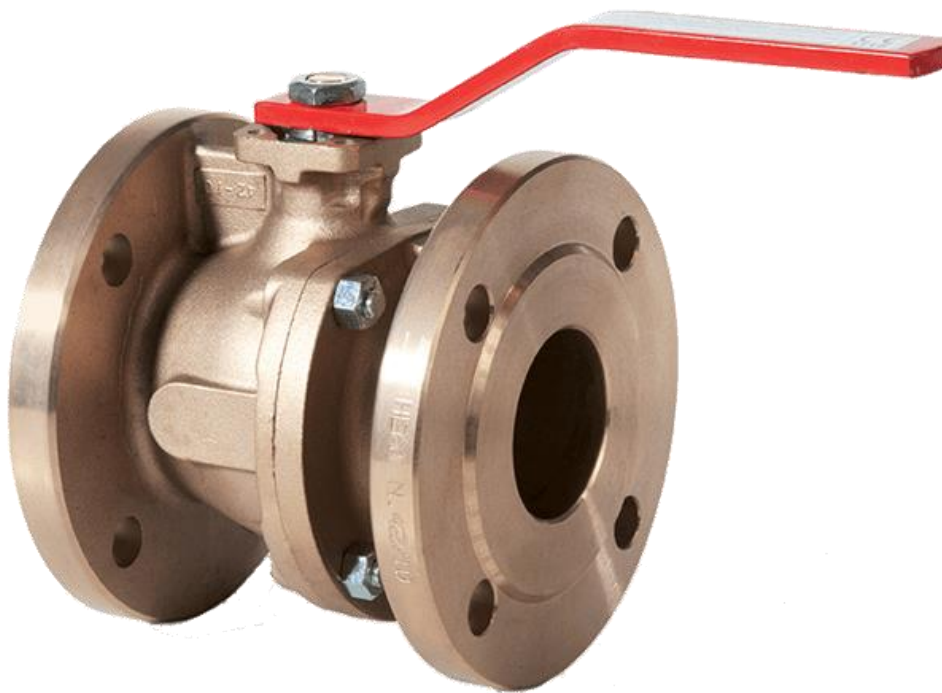




FLANGED BALL VALVES
Fig.15330 - 15360

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	INSTALLATION, MAINTENANCE AND USE HANDBOOK	MAINTENANCE
		FLANGED BALL VALVES
		www.valvomec.com

1. INTRODUCTION

The purpose of this manual is to provide the essential information for the installation, commissioning and maintenance of ball valves.

These valves follow the Quality system for development and manufacture, which complies with ISO 9001.

Perfect operation is guaranteed with correct installation and regular maintenance and repair work.

The manufacturer declines all responsibility for damage resulting from improper use of the product, even if only partial, and which does not comply with the information contained in this manual.

Note:

During operation, the valves may not exceed the limit values set out in the instruction manual / sales documentation / data sheet. Use outside the established conditions causes excessive stress and the consequent malfunction of the valve.

2. CONDITION OF USE

For the operating conditions and characteristics of each valve, please refer to the dedicated data sheets or contact Valvomec S.r.l.

3. RISK ANALYSIS

These transformer valves are suitable for indoor and outdoor use. The technical characteristics of the valves, such as valve type, size, maximum operating pressure, minimum and maximum operating temperature, fluids, material, flanges and seat type can be found on the data sheet.

The following are the main hazardous conditions that have not been eliminated:

1. The valves are not equipped with devices against internal overpressures, created by manoeuvring errors, incorrect procedures or the presence of fluids/liquids subject to an increase in volume and therefore pressure (the preparation of these devices must take place upstream of the valve and by the end user).
2. The valves are not equipped with safety devices in the event of a fire.
3. The valves are not designed to mechanically support loads due to natural/atmospheric events (e.g. wind, earthquakes, etc.).
4. The valves are not designed to withstand fatigue loads, flange loads, or loads on piping structures.
5. The valves do not accept the presence of ice inside (in this case the user must insulate the valves avoiding any residue of product inside the valve).
6. The compatibility between the valve materials and the fluids used is evaluated by the user who can request the technical support of Valvomec S.r.l. In any case, it remains the sole responsibility of the user to verify fluid/material compatibility.

Valvomec S.r.l. declines any responsibility for damage resulting from improper assembly of the product and that does not comply with the instructions provided.

1. *Failure to comply this instructions can cause damage to things and people, for example:*
2. *Accidents due to fluid leakage (cooling/overheating, hazardous, pressurized).*
3. *Malfunction or serious damage to the valve.*

The instruction manual does not cover:

1. *Events that may occur during assembly, operation and maintenance.*
2. *The on-site safety rules that the plant manager must ensure that the installation personnel comply with.*

4. TRANSPORT AND STORAGE/ WAREHOUSING

4.1 Transport

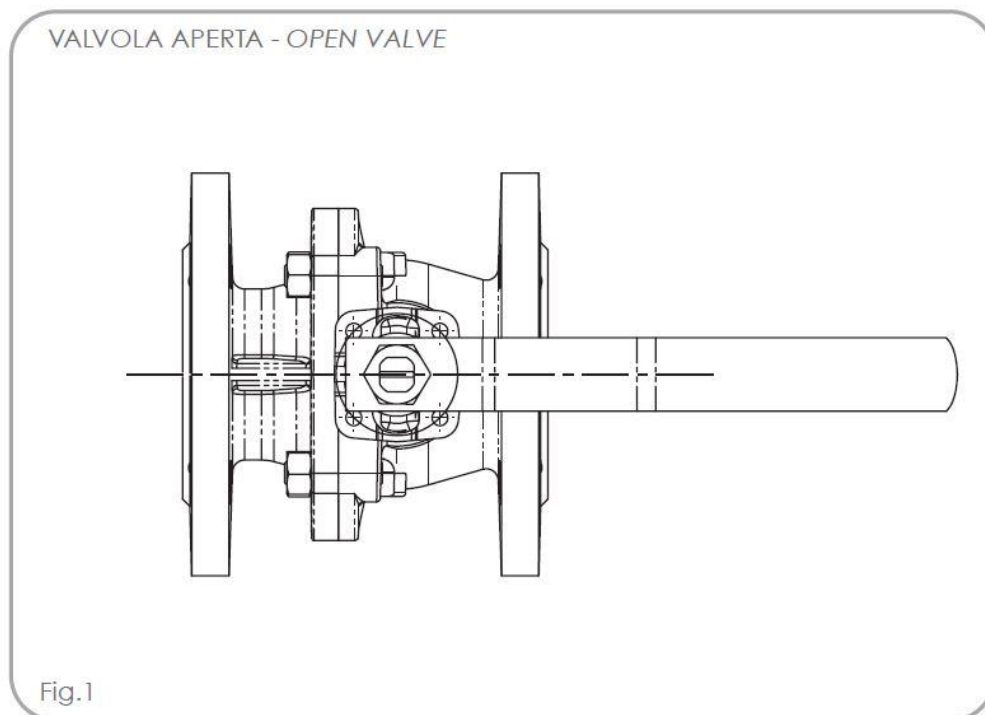
Ball valves are supplied in suitable packaging to ensure adequate protection during transport and handling. Since it cannot be excluded that the product may be accidentally damaged during transport, it is recommended to check it carefully upon receipt, before placing it in stock. Therefore, check that the packaging, when receiving, is intact, free of damage due to shocks or falls occurred during transport. Also check that the product you receive corresponds exactly to what you requested. The handling of packaging on pallets wrapped in film does not require special precautions; if the packaging is damaged, check for any damage to the product and any deficiencies.

If heavy valves need to be lifted during handling, remember not to lift it by supporting the fluid passage area as the sealing seat is in this area. If the valve is supported or lifted from this area, the surface and seat can be damaged and cause leakage problems during valve operation. All handling operations must be carried out with suitable equipment and by qualified personnel.

4.2 Storage

For storage, choose places that are clean, not excessively humid and with temperatures between -10 and $+60^{\circ}\text{C}$. If products are to be stored for long periods, it is preferable to keep the valves in their packaging during storage. Store the valves in a closed and dry environment.

During storage, the valve must be kept fully open to prevent damage to the sealing seats (**fig.1**).

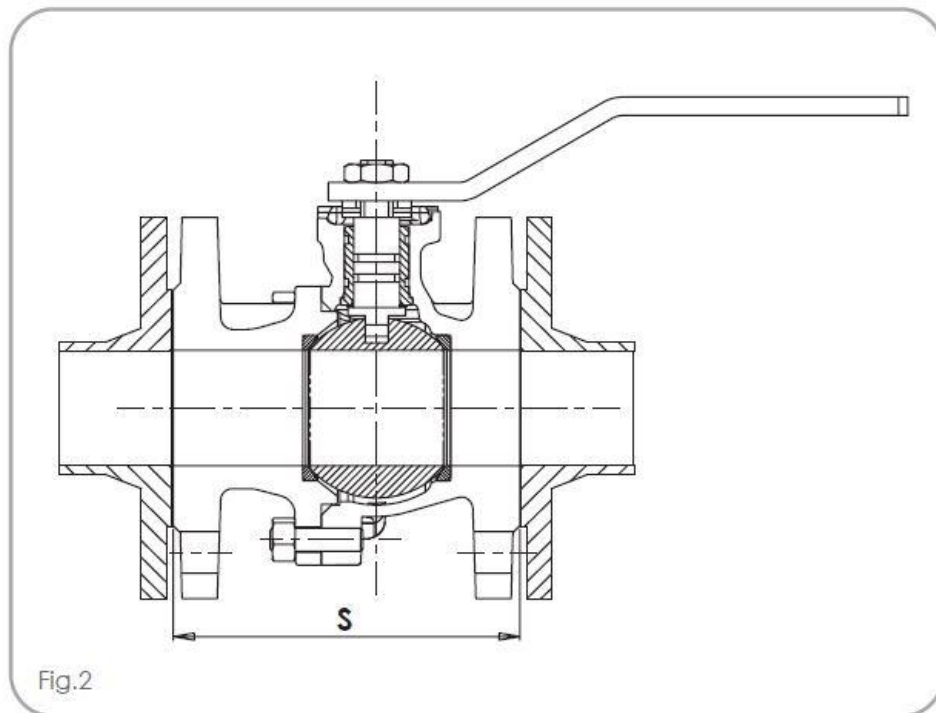


It is also recommended to carry out a complete opening and closing cycle. Polymer gaskets are subject to natural aging, losing their characteristics: for this reason, after storage periods of more than two years, it is advisable to perform a functional check and a leak check before mounting the valve in the system. In addition, it is advisable to comply with the storage requirements of elastomers.

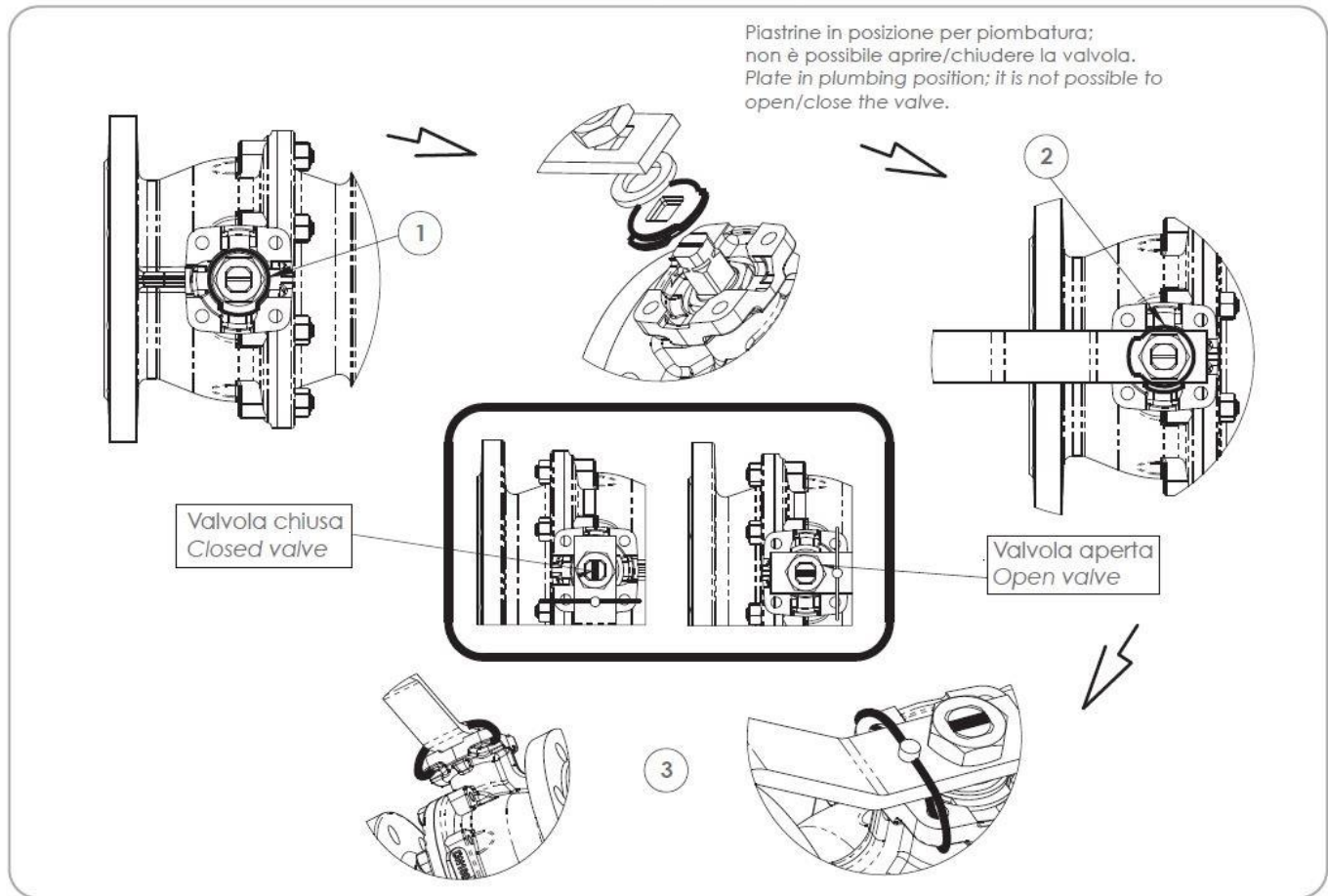
5. INSTALLATION

Please observe the following points carefully when installing the valve:

- Handle with care
- Keep the valve between the pipes and insert the sealing between the flanges. Make sure that the sealing is correctly placed. The distance (S) between the flanges must be equal to the gauge of the valve. Do not use counter flange bolts to bring the pipe closer (**fig. 2**). Clamping bolts must be cross tightened.
- Flanges must not be welded to pipes once the valve has been installed. Ensure that the installation is equipped with expansion joints to prevent leakage or breaking due pipes tensions, vibrations or shifts.
- Water hammer can cause damage and breakage. We recommend avoiding them as much as possible or adopting elastic couplings or systems that can mitigate their effects.
- During heating from room temperature to a high operating temperature, the fluid contained between the body and the ball (open valve) or in the passage of the ball (closed valve) expands and can damage the ball and seats, we recommend an intermediate opening and closing manoeuvre during heating up (e.g. at 40°C/60°C/...).
- At sub-zero temperatures, the fluid contained between body and ball can freeze and cause irreparable damage. If the valve is exposed to those conditions, we recommend isolating the valve.
- It is recommended to handle the ball valves periodically to avoid the deposit of materials on the ball and seats.



5.1 Lead seal valve procedure



6. MAINTENANCE

Before proceeding with any maintenance or dismantling work: wait for the pipes, valve and fluid to cool down, relieve the system pressure and drain the line and pipes in the presence of toxic, corrosive, flammable or caustic fluids. Temperatures over 50° and below 0° can cause injury to people.

The efficiency of the product is the result of good and careful maintenance; for this type of valve, it is recommended to replace the rubber O-rings at least every 24 months and the PTFE seats at least every 48 months. Periodically clean the surface of the valve avoiding dust accumulation as much as possible. The frequency of maintenance and the duration of these seals varies from the type of use and depends on the working conditions of the valve, such as: pressure, temperature, number of operations, type of fluid and others.

To avoid personal or property damage when conducting maintenance activities, it is recommended to follow the instructions below:

1. Personnel who maintain or operate the devices must be qualified and prepared.
2. Use appropriate Personal Protective Equipment (PPE) (gloves, safety shoes, goggles).
3. Close all lines that adversely affect the valve and place a warning sign to advise that work is being carried out.
4. Isolate the valve completely from each process. Depressurize the process.
5. Drain all line fluid from the valve.

If the drain is free, without conveying pipes, it must be positioned in such a way as not to risk the safety/physical integrity of people, in the event of accidental opening.

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If the valves suffer damage due to improper handling or without adequate authorization, Valvomec S.r.l. will not assume responsibility.

Valves must not be modified without the express authorization of Valvomec S.r.l.

7. DISPOSAL OF END-OF-LIFE PRODUCTS

Once the valve has reached the end of its operational life, it can be removed from the system following the procedure appropriate to the type of valve itself and the operating conditions. If the valve intercepts toxic, corrosive and/or harmful substances, it must first be cleaned through an appropriate flushing cycle and the residues disposed of according to current regulations. Once removed from the system, protect the ends and any openings through a suitable closure system, to prevent dispersion into the environment and contact with any polluting or hazardous materials remaining inside the valve. If fluid leaks from the inside of the valve, it is required to intervene promptly, remediate and secure the contaminated environment, as required by current legislation and regulations. The personnel in charge of disassembly and disposal/recovery must be qualified and equipped with appropriate personal protective equipment (PPE) according to the size, type and service for which the device has been intended (polluting, corrosive, etc.). Once disassembled and protected, take the valve to a site that is suitable for storage and complies with the requirements of European, national, regional and municipal environmental and safety standards.

The management of waste produced during installation, extraordinary maintenance or following the disposal of the product is governed by the regulations in force in the country where the product is installed, the following general indications are reported:

- Metal components (bronze/brass) can be recovered as raw material.
- Gaskets/sealing elements (PTFE, PEEK, NBR, EPDM, FKM...), as they are contaminated by intercepted fluids and lubrication materials, must be sent for disposal.
- The packaging materials accompanying the product must be delivered to the separate collection system in the area.