

Introduction

InterApp PFA-lined flanged body ball valves are the perfect solutions for corrosive applications.



Technical data

Designation

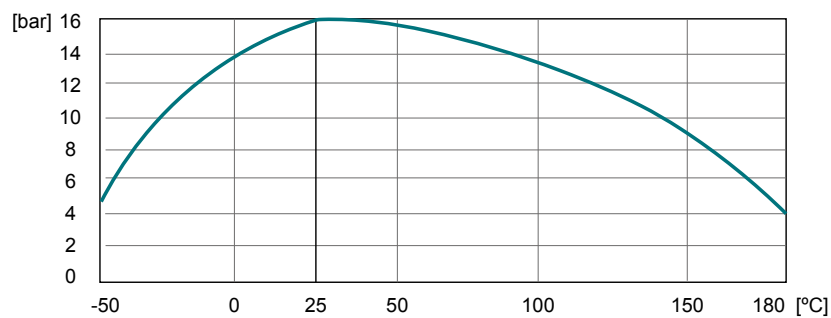
Three-piece ball valves: assembly body and two welded flange connection sets.
Two-piece ball valves: assembly body and one welded flange connection set.
Product features and construction are according to the product datasheet.

Flange bolting tightening torques

PTFE has the tendency to cold-flow. Therefore, it is very important to observe the tightening torques of the flange bolting according to the table below.

Flanges nominal size DN (mm)	Screws (ISO/DIN)	Tightening torque (Nm)
15	4xM12	12
20	4xM12	12
25	4xM12	12
32	4xM16	22
40	4xM16	22
50	4xM16	30
65	4xM16	30
80	8xM16	25
100	8xM16	30

Pressure- / temperature diagram



Notes on safety

This operating manual contains fundamental information which is to be observed during installation, operation and maintenance. It must therefore be read before installation and commissioning.

For valves which are used in potentially explosive areas, see Section Safety notes for applications in potentially explosive areas based on the Directive 2014/34/EU (ATEX).

Installation and operation are to be performed by qualified staff.

Safety symbol:



General hazard symbol!
People may be put at risk



Safety symbol!
The valve and its function may be put at risk if this safety symbol is not observed.

It is imperative to observe warnings and signs attached directly to valve and they are to be kept fully legible.

Non-observance of the notes on safety may result in the loss of any and all claims for damages.

For example, non-observance may involve the following hazards:

- Failure of important functions of the valve/plant.
- Risk to people from electric, mechanical and chemical effects.
- Risk to the environment through leaks of hazardous substances.

Intended use

Ball valves are on/off valves. All components of the ball valves are manufactured in accordance with Directive PED (Pressure Equipment Directive).

The valves are suitable for vapours, gases and non-boiling liquids and have a corrosion-resistant lining.

Solids can lead to increased wear, damage to sealing surfaces or to a reduction in the service life of the valve.

For the customer/operator

If used as a safety valve, the operator must ensure that:

- actuators which are retrofitted are adapted to suit the valve,
- hot or cold valve parts are protected by the customer against being touched,
- the valve has been properly installed in the pipe system,
- the operating conditions stipulated in the data sheet are not exceeded in continuous operating mode.

This is not the manufacturer's responsibility. Loads caused by earthquakes were allowed for in the design.

Mounting end of line

Ball valves which are used as ends valves must be sealed with blind flange at the free connection end or appropriately secured against unauthorised operation.



Improper operation

The operational reliability of the valve supplied is only guaranteed if it is used properly in accordance with valve operation condition, according to the product datasheet.

The operation limits specified on the identification plate and in the pressure-temperature diagram must under no circumstances be exceeded.



Safety notes for applications in potentially explosive areas based on the Directive 2014/34/EU (ATEX)

Antistatic lined valves can be used in a potentially explosive area and are therefore subject to the conformity assessment procedure of the directive 2014/34/EU (ATEX).

As part of this conformity assessment, an ignition hazard analysis to EN 13463-1 to satisfy the fundamental safety and health requirements was conducted with the following results:

- The valves do not have any ignition source of their own.
- The valves may be used in potentially explosive area.
- Electric/mechanical actuators must be subject to their own conformity assessment to ATEX.

It is imperative to observe the individual points of intended use for application in a potentially explosive area.

Intended use

Inadmissible working conditions, even for brief periods, may result in serious damage to the valve. In connection with explosion protection, potential sources of ignition (overheating, electrostatic and induced charges, mechanical and electric sparks) may result from these inadmissible working conditions; their occurrence can only be prevented by adhering to the intended use. Furthermore, reference is made in this connection to the Directive 95/C332/06 (ATEX 118a) which contains the minimum regulations for improving the occupational health and safety of the workers who may be at risk from an explosive atmosphere.

A difference is made between two cases for the use of chargeable liquids:

I. Chargeable liquid and non-conductive lining

INSTRUCTIONS FOR SAFE USE OF BALL-VALVES IN EXPLOSIONPRONE AREAS.

1. Valves may be installed in explosion-prone areas, where zone 1 (except for the group IIC), 2, 21 or 22 is required, provided that all conductive valve parts are properly grounded at all times. Furthermore, any process that might cause excessive collection of electric charge on the external surface of the valve is to be prevented. Also, because the valves are painted with an electrically non-conductive paint, the storing of items, which may collect a lot of static charge on their surface, in the vicinity of such valves must be avoided. In this way, any potential ignition of explosive atmosphere due to electrostatic discharge from the valve outer surface is prevented.
2. For maintaining the safe operation, the following points must be considered:
 - a. Inertisation of valve inner surfaces, including each part of the installation components the valve is attached to/mounted on or
 - b. That the valve is, at all times, reliably filled with a liquid medium such that the eventual emergence of an explosive atmosphere or the accumulation of explosive mixture of air and vapours. In addition to positions 2a and 2b, significant accumulation of the static charge on the valve inner coating must be prevented by decreasing the flow rate. Also, it must be made sure that the inner coating is not damaged to avoid additional damage due to branching electrical discharge from its surface.
3. With regard to installation, application and maintenance, the following must be considered:
 - a. Proper and reliable earthing of every valve component part.
 - b. Provided that conditions under the point 2 are met, these valves may also be used for transporting liquids.
 - c. This instructions for use and installation encompass only those risks relating to ignition due to electrostatic discharge, should these valves be used in explosion-prone areas. The remaining risks are not covered by these Instructions for Use and Installation.

If the valve is not completely filled with medium, during evacuation and filling, the formation of an explosive atmosphere must be prevented. It is recommended to wait 1 hour before removing the valve from the plant in order to permit the elimination of static peak charges.

II. Chargeable liquid and conductive lining

No hazardous charges can occur as charges are discharged direct via the lining and the valve body (surface resistance < 109 Ohm, leakage resistance < 106 Ohm).

- The temperature of the medium must not exceed the temperature of the corresponding temperature class or the maximum admissible medium temperature as per the operating manual.
- To achieve safe and reliable operation, it must be ensured in inspections at regular intervals that the unit is properly serviced and kept in technically perfect order.
- Increased wear to the valve can be expected with the conveyance of liquids containing abrasive constituents. The inspection intervals are to be reduced compared with the usual times.
- Actuators and electric peripherals, such as temperature, pressure and flow sensors, must comply with the valid safety requirements and explosion protection provisions.
- The valve must be grounded. This can be achieved in the simplest way via the pipe screws using tooth lock washers. Otherwise grounding must be ensured by other action.
- Equipment which is mounted near valve must be design in EX version.
- Special attention must be paid to the appropriate safety and explosion notes in the respective operating manuals.

Transport and storage

It is imperative, for all transport work, to observe generally accepted engineering practise and the accident prevention regulations.

The valve is supplied with flange caps. Do not remove them until just before installation. They protect the plastic surface against dirt and mechanical damage. Handle the valve being transported with care. During transport the valve must be protected against impacts and collisions. Directly after receipt of the goods, the consignment must be checked for completeness and any in-transit damage. Do not damage the external epoxy coating.



Storage

If the valve is not installed immediately after delivery, it must be put into proper storage. It should be stored in a dry, vibration-free and well-ventilated room at as constant a temperature as possible.

Return consignments

Valve which have conveyed aggressive or toxic media must be well rinsed and cleaned before being returned to the manufacturer's works. It is imperative to enclose a safety information sheet/general safety certificate on the field of application with the return consignment.

Installation

Examine valve for transport damage, damaged valves must not be installed. Before installation the valve and the connecting pipe must be carefully cleaned to remove any dirt, especially hard particles. During installation, pay attention to the correct flange screws tightening torque, aligned pipes and tension-free assembly.

Flange gaskets

There is no need to use gaskets between the flanges and the valve. However, where the valve must be mounted between flanges which are uneven or slightly distorted, or when installing the valve between metal or enamel flanges that could damage the sealing surfaces of the valve, so it is recommended to use PTFE sandwich with a rubber gasket or the filler TESNIT. Please contact our technical support if you need these gaskets.



Direction of flow and installation position

Installation is independent of the direction flow. Any installation position can be chosen.

Grounding

The valve must be grounded. The simplest solution is to use tooth lock washers which are placed under one pipe bolt of each flange. Otherwise grounding must be ensured by different measures e.g. a cable link.

Test pressure

The test pressure PT of an open valve must not exceed the value of 1,5 x PS (PN) as per the identification of the valve.

Operation

Initial commissioning

Normally, the valves have been tested for leaks with air or water. Unless otherwise agreed, there could be residual amounts of water in the flow section of the valve; this could result in a possible reaction with the medium.

To prevent leaks, all connection screws should be retightened after the initial loading of the valve with operating pressure and operating temperature.

Improper operation and their consequences

- The ball valve is an on/off valve and shall not be operated in an intermediate position.
- Crystallisation may result in damage to the seat rings or ball/stem unit. This can be prevented by heating.
- In extreme cases this may cause blocking.
- If the ball blocks, do not apply force as the ball/stem unit may break if the max. admissible torque is exceeded.
- Operation with solids leads to increased wear.
- Non-observance of the pressure-temperature diagram can lead to damage.
- Do not use a lever extension as otherwise there is a risk of damage.

Shutdown

The local regulations are to be observed when dismantling the valve. prior to undoing the flange connection ensure, that the plant is depressurised and emptied. Prior to starting any repair work, the valve is to be thoroughly cleaned. Even if the valve has been properly emptied and rinsed, residual medium may still be found in the valve. After dismantling, immediately protect the valve flanges against mechanical damage with flange caps. Ensure that a remotely actuated actuator cannot be accidentally switched on.

