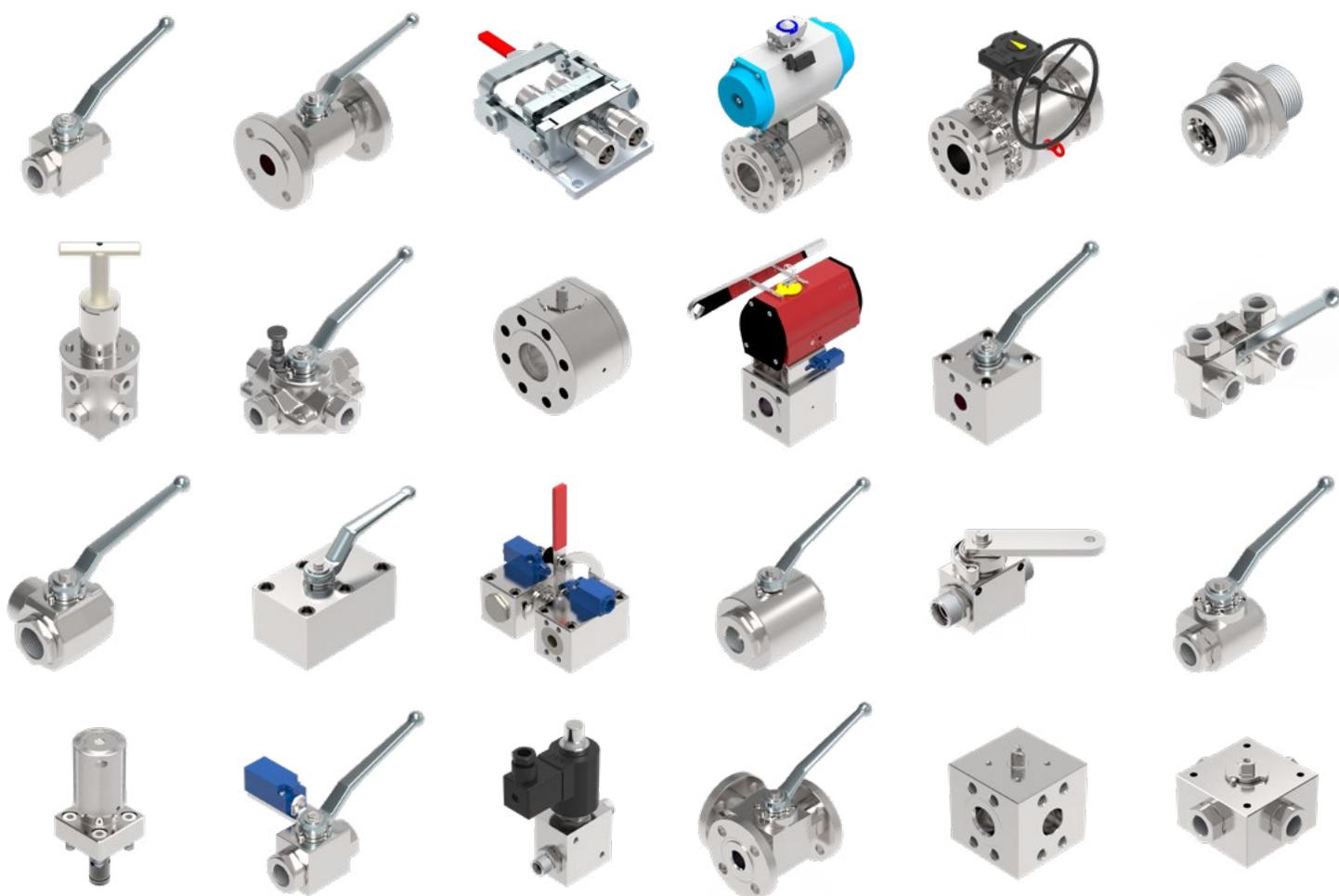


PRODUKTKATALOG

PRODUCT CATALOGUE



1. Introduction

These instructions are designed to assist the user (=operator) during installation, operation and maintenance of ball valves. These instructions apply only to the ball valve itself, not for other mounted parts (actuator, solenoids, position switch etc.). Refer to the instructions of the respective manufacturer.

Warning



The instructions and safety warnings of the Operation Manual have to be read carefully. Retain the operating manual. Questions to installation and handling will be answered by the manufacturer. For damage caused by incorrect handling, the manufacturer assumes no liability or warranty.

Ball valves are to be used only for the application declared by the manufacturer! For damage caused by incorrect installation or implementation as well as incorrect handling by unqualified personnel, the manufacturer of the ball valve assumes no liability. The operating distance of ball valves is strictly from stop-pin to stop-pin.

Follow and control the instructions of this manual to avoid physical or material or environmental damages and personal injury or death.

Qualified personnel are necessary to the application of this manual. It is the responsibility of the operator or planner to ensure that national regulations for accident prevention such as local safety regulations of the operating company has to be observed.

2. Intended use

Ball valves were manufactured using the best available technology and they are safe to operate. However, they can bear a source of danger when they are used inappropriately or when disregarding the safety instructions of this manual.

According to the user's indication of medium, pressure, temperature and other details, the manufacturer selects the material of the housing, the seats and the seals of the ball valve (requirement specification).

When planning or determining ball valves, emerging working pressures (pressure peaks / impulse pressures) must be taken into consideration by the user. Pressure ratings in catalogue refer to static loads (load case I). For pulsating loads (load case II) or alternating loads (load case III) pressure reduction has to be done.

After installing the valve in the pipeline, these ball valves are designed exclusively for shutting off or to pipe media. Ball valves are not approved for controlling or throttling flow.

Danger



Ball valves must be used for indicated media only and the permissible pressure/temperature rating.

Ignoring this information may cause physical or material damages and could cause personal injury or death.

Note



The operating distance of ball valves is strictly from stop-pin to stop-pin. They must be operated in either fully open or completely closed position.

Note



If there are no indications of media, pressure and temperature from the user, the ball valves must be operated with inflammable hydraulic fluids only in a temperature range of -20°C to +60°C. Otherwise early breakdown possible.

Note



Special applications or ambient conditions (humidity, vibrations, operation frequency, electromagnetic fields, explosive zones, antistatic etc.) must be well-defined when ordering ball valves.

Warning



The ball valve body contains small amounts of medium in the closed and open position. In the case that the heat in the surroundings where the valve is installed can heat up the medium in the valve, use for floating ball valves the version with a relief bore to prevent an impermissible rise in pressure and leakage.

Warning



Semi fluid or hardening media must not be used. Contaminated media must be avoided. Contaminated media lead to damage of the sealing elements. Consequently, leakage will lead to the breakdown of the ball valve.

- Ball valves open and close by turn operations by 90°. According to EN ISO 5211 the operator must be turned clockwise in order to close the ball valve. The notch on the face of the spindle square indicates the current position of the ball.
- Ball valves can be operated by lever or actuator.
- Ball valves are intended for assembly in pipe systems with identical pressure ratings in between the fittings or in between the flanges.
- Parts subject to wear as i.e. ball seats, o-rings and other sealing materials are not covered by the warranty.
- The safety and control related design of the valve in the system is under the responsibility of the user.
- For the intended use observance of section 3 <Safety instructions> is presumed.

Interpretation of directive 2014/68/EU (97/23/EG)-Pressure Directive

Depending on media, size and pressure ball valves are subject to the Pressure Directive and will be marked with a CE mark if applicable. In this case a declaration of confirmation will be prepared and delivered separately.

Interpretation of directive 2006/42/EU-Machinery

For mounted parts such as actuators refer to the instructions of the respective manufacturer. The machinery directive 2006/42/EU has to be observed by the user after installing the valve in the pipework.

Interpretation of directive 2014/34/EU (94/9/EG)-ATEX

Ball valves have no own potential ignition source after validation of ignition risk in accordance to DIN EN 13463-1 and therefore are not subject of the directive 2014-34/EU (94/9/EG). A CE marking in accordance with this Directive is not allowed. The incorporation of the valves into the equipotential bonding system of the site applies to all metal parts in hazardous areas, irrespectively of the Directive. Make sure that ball valves with cover version contain antistatic function, if necessary

contact manufacturer. In order to prevent the ball valves from self warming the operation frequency must be limited to 10/min and prevent the valve from impact pressure loading in closed condition.

Ball valves must be operated in fully open or fully closed position only. Intermediate positions lead to rise of temperature on the surface of the ball valve. For mounted parts such as actuators, positions switches or solenoids refer to the instructions of the respective manufacturer.

3. Safety instructions and warnings

For ball valves, the same safety regulations apply as for the pipelines in which they are installed, as well as for the control equipment connected to the actuator, solenoid or position switch.

It is the sole responsibility of the user to make sure that:

- the valve is installed, operated and maintained by qualified personnel only,
- the valve is to be used only for its intended use as described in section 2,
- the valve is installed correctly to the pipeline and to the control equipment,
- make sure the usual flow velocities are not exceeded in continuous service. Exceptional operating conditions such as oscillations, impulse pressures, water hammering, cavitation and proportions of solid matter in the process medium - especially abrasive - must be prevented,
- at operating temperatures lower than -20°C or greater than +50°C valves must be protected against being touched.

Warning



It is important to make sure that the selected materials for wetted parts in the ball valve are suitable for the media used.

Ignoring this information may cause physical or material damages and could cause personal injury or death.

Warning



It is recommended to operate the valve in regular intervals. Depending on type of ball valve, materials, media, pressure, temperature valves must be operated at least every six months to preserve their function.

After a long time of storage or non-use, the operating torque for the first operation (breakaway torque) is noticeably higher compared to the real operation torque.

When an actuator is mounted subsequently on the ball valve by the user, dimensioning, installation and adjustment is under the sole responsibility of the user.

Warning



Certain warnings, e.g. wearing gloves when turning the handle, must be obeyed (the ball valve adopts the temperature of the fluid).

Warning



Do not insert your hand into the valve while it is not installed into the pipeline. Otherwise serious injuries may occur when operating the valve.

Danger



It is strictly forbidden to unscrew or loosen any screws or bolts connecting the body parts (i.e. covers, adapters).

Ignoring this information may cause physical or material damages and could cause personal injury or death.

Danger



Any modification of the ball valve design, especially the drilling of mounting holes or the attachment of plates by welding, is strictly forbidden.

Ignoring this information may cause physical or material damages and could cause personal injury or death.

Note



A repair is realisable by the manufacturer only.

When ball valves are dismantled improperly by unqualified personnel, any claim of guarantee and damage against the manufacturer are null and void.

Additional safety instructions must be observed in the other sections.

Secure end connection



No welding, drilling etc.



No welding, drilling etc.



Don't dismantle



Don't operate a ball valve with a tool or an extension



Risk of injury by remainders



4. Storage and transport

- Ball valves must be inspected for transport damages right after receipt and before installation. Possible damages shall be reported to the manufacturer without any delay. Damaged ball valves may not be installed.
- Store the ball valve free from dust and moisture in its original packaging with protection caps. Avoid UV rays and direct sunlight. Max. storage temperature: 40 °C. Solvents, chemicals, acids, fuels or similar fluids must not be stored in the same room as ball valves and their spare parts.
- Store the ball valve in the „open“ position. Do not operate the ball valve.
- Big valves must be lifted and transported using lifting eye bolts screwed into the tapped holes of the body intended for this purpose.

5. Installation

The same instructions apply for installing the ball valves in the pipeline as for connecting pipes and similar pipeline equipment. The following instructions additionally apply for ball valves.

General instructions & operating manual for ball valves

- Before installing the ball valve, an appropriate check whether the ball valve meets all necessary requirements regarding version and application is advisable.

The operating position of the ball valve must be in accordance to the layout of the pipe system. Pressure rating, connection and overall length of the pipe system must correspond with the ball valve.

- Before installation ball valves must be inspected for transport damages. Possible damages shall be reported to the manufacturer without any delay. Damaged ball valves may not be installed.
- Remove original packaging and protection caps first at the point of installation to protect ball valve from dirt.

Danger



Ball valves must be used for indicated media only. Do not install a ball valve if its permissible pressure/temperature range do not apply to the operating conditions.

Ignoring this information may cause physical or material damages and could cause personal injury or death.

Warning



The installation of ball valves may be done only by qualified personnel and only when pipe and ball valve are depressurised. Pipe must be free of traction when being connected to the ball valve. The pipe ends must align with the ball valve ends and be plane-parallel (flanged versions).

Warning



The pipe system has to be drained completely when dealing with noxious, combustible and explosive media. Take care of appropriate ventilation.

Possibly dropping residues must be taken into account.

Appropriate protective clothing is necessary.

- All pipes and hoses must be rinsed thoroughly before the installation of the valves. Residues in the pipe system damage the sealing elements of the ball valve and lead to leaks and malfunctions.
- Make sure the arrow on the valve body corresponds with the direction of flow in the pipeline.

Note



Connection pipe fitting:

When tightening the fittings (pipe end) it is absolutely necessary that the end-adaptor of the ball valve is counter-secured with an adequate tool. The ends of the ball valve must not be turned in any further or unscrewed, because this leads to an increase of the breakaway torque or to leakage.

Note



Flange connection:

Ball valves with flange connection must be centred with the bolts of the counter flanges, before the screws are tightened crosswise. Where necessary, the valve has to be lifted into the pipe-system with a hoist. An undamaged seal that meets the respective standards has to be fitted in between the flanges. Screws or dowel pins must be selected according to the flanges considering

the size and the strength category. The length of engagement has to be respected, especially for tapped holes.

Note



Welding ends:

Ball valves with welding ends must be welded in without any welding particles left in the internal space of the ball valve. Welding particles must be removed. Make sure that the cavity of the ball valve does not exceed the tolerable temperature limits. Exceeding the limits can cause damage of the seal elements.

Warning



Ball valves intended for dead-end service:

When ball valves are installed as pipe-line-ends, the open adaptor must be closed properly with a blind plug or blind flange. The valve must be secured against unauthorized operation.

If a ball valve used for dead-end service must be opened in a pressurized pipeline, special care must be taken to ensure that any process media escaping under pressure do not cause any damage.

Warning



Ball valves with actuator:

Actuators are not designed to be used as step-ladders. Do not apply any load to the actuators.

Actuators that weigh more than the ball valve: support any actuator which due to its size and weight would cause the valve to bend. Install valve with actuator upright with sufficient support.

Warning



Metal-seated ball valves:

To avoid damages of the ball seats, make sure the pipeline is very carefully cleaned from all hard and abrasive foreign material.

- The installation of other mounted parts (actuator, solenoids, position switch etc.) refer to the instructions of the respective manufacturers.

Function test

After completing installation, carry out a function check. The valve must properly operate the open and closed position.

Warning



Valves with actuator: carry out a function check using the signals issued by the control equipment and check safety positions if necessary.

Control commands that are not carried out correctly may result in personal injury and can damage equipment.

Pressure test

To check the pressure of a section of pipeline, the following points must be observed:

- Carefully flush newly installed pipes to remove any foreign material.
- Shell test: ball valve in half-open position (45°).

- The test pressure must not exceed the value 1.5 x PN.
- Leakage test: ball valve closed.
- The test pressure must not exceed the value 1.1 x PN.
- If a valve leaks, see section 8 <Troubleshooting>

6. Operation

Observe all instructions of sections 2 <Intended use> and 3 <Safety instructions and warnings>

Before the initial operation all instructions must be read and taken into consideration and all conditions of operation and installation have to be checked and approved. The initial operation of an installation should be effected by qualified personnel only.

After a long time of storage or non-use, the operating torque for the first operation is noticeably higher compared to the real breakaway torque.

Warning



The piping system must be bled before the initial operation. Air bubbles in the piping system might lead to explosions when pressurized abruptly („diesel effect“). Therefore the pressure must be increased slowly in steps.

Warning



Tools (e.g. gripper, hammer, wrench, extensions, etc.) are inapplicable for ball valve operations. The use of such tools might cause damage to the stem, sealing elements and on the body.

Warning



The operating distance of ball valves is strictly from stop-pin to stop-pin. They must be operated in either fully open or completely closed position only.

Intermediate positions cause damage of the ball seats. Ball valves are not approved for controlling or throttling flow. This leads to leaking ball valves or to non-turnable spindles. Furthermore flow reduction leads to a considerable rise of temperature on the surface of the ball valve.

Danger



It is strictly forbidden to unscrew or loosen any screws or bolts connecting the body parts (i.e. covers, adapters).

Ignoring this information may cause physical or material damages and could cause personal injury or death.

Warning



Ball valves must be used for indicated media only. Do not operate a ball valve when its permissible pressure/temperature rating is not sized for the operating conditions specified.

In case of malfunction, the ball valve must be replaced by qualified personnel after depressurising and draining the pipe system. If necessary, the system must be put out of operation.

Warning



Risk of injury: the power supply of actuators must be disconnected (risk of squeezing).

Start-up by third party must be avoided.

If necessary cool down the valve.

Maintenance, inspection

- The ball valve is maintenance-free when operated at intended use.
- Maintenance of actuators, solenoids etc. according instructions of the respective manufacturer.
- Ball valves must be inspected at regular intervals for tightness, function, operation, corrosion and damage. In case of a heavy duty application, the inspection interval has to be abbreviated. The definition of the intervals is in the responsibility of the user.
- Ball valves that are installed for long-term periods without being operated, must be turned at least every six months in order to preserve their function.

Warning



When surveying of ball valves results in defective ball valves, e.g. leakage, immovable or corroded, they must be replaced without delay.

Ball valves must not be disassembled. All types of provisional sealants are forbidden.

Note



When draining the depressurised pipe system, in order to prevent it from frost damage or for a cleaning process, the cavity of the ball valve has to be drained by opening the valve to the mid-position (45°).

Dismantling, service

The removal of ball valves must be done by qualified personnel and only, when the ball valve and the pipe system are depressurized.

Warning



Risk of injury: the power supply of actuators must be disconnected (risk of squeezing).

Start-up by third party must be avoided.

If necessary cool down the valve.

Warning



The pipe system has to be depressurized and drained completely.

Take care when dealing with noxious, combustible and explosive media. Take care of appropriate ventilation. Possibly dropping residues must be taken into account. Appropriate protective clothing is necessary.

Also drain the cavity of the ball valve by opening the valve to the mid-position (45°).

Warning



A repair is realisable by the manufacturer only.

When ball valves are dismantled improperly by unqualified personnel, any claim of guarantee and damage against the manufacturer are null and void.

7. Maintenance, inspection, dismantling, service

Before any work is performed, the following points have to be observed:

8. Troubleshooting

Fault	Action
Leakage at connection to the pipeline	Tighten bolts, fitting. Note max. allowable torque values! If leakage cannot be eliminated: Remove valve and send it for repair to the manufacturer <section 7>
Leakage at the connection between valve body parts	Remove valve and send it for repair to the manufacturer <section 7>
Leak at the stem	Remove valve and send it for repair to the manufacturer <section 7>
No tight shut-off in closed position	Check if valve is in complete closed position. At valves with actuator adjust the end position limiter of actuator, if necessary. Check complete actuator unit and control signals. No tight shut-off after inspection: Remove valve <section 7> and check for visible damage If valve is damaged: Send valve for repair to the manufacturer

9. Contact

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