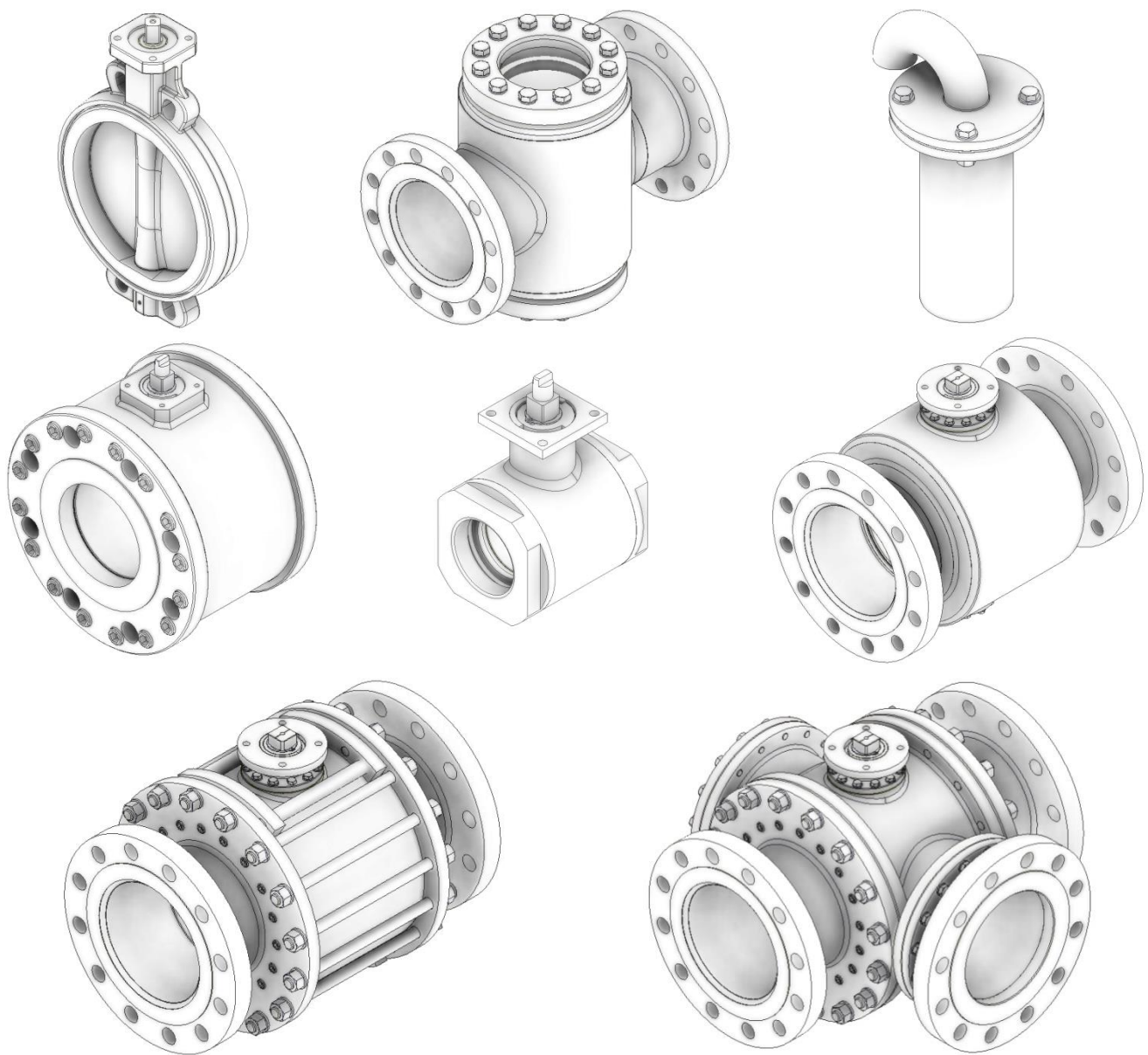




Operation manual for personalized valves DP44



Contents

- 1. General information4
 - 1.1 Applied symbols4
 - 1.2 Manual range.....5
 - 1.3 Control during delivery.....5
 - 1.4 Complaints.....5
 - 1.5 Guarantee.....5
- 2. Safety.....6
 - 2.1 People protection6
 - 2.1.1 Safety guideline regarding assembly6
 - 2.1.2 Safety guideline regarding set-up / start-up.....7
 - 2.1.3 Safety guideline regarding maintenance / repair8
 - 2.2 Device safety9
- 3. Name plate 10
- 4. Ball valves 12
 - 4.1 Application and operation 12
 - 4.2 Storage..... 13
- 5. Assembling 13
 - 5.1 Assembling of flanged ball valves..... 14
 - 5.2 Assembling of welded ball valves 17
 - 5.3 Assembling of threaded ball valves 20
- 6. Gland packing 22
 - 6.1 Building of gland packing..... 22
 - 6.2 Sealing exchange 23
- 7. Exchange of steering devices 26
 - 7.1 Disassembly of steering hand lever 26
 - 7.2 Column assembly 27
 - 7.3 Base of actuator assembly..... 28
 - 7.4 Hand lever with return spring 29

Dear Client

Most of all this manual is dedicated for assemblers and users of valves and fittings. At the same time the presented manual can be helpful for engineers and designers, people making completion of valves and fittings and responsible for supervision of operation.

Our products are designed according to actual state of technical knowledge and according to recognized principals of safety. Nevertheless it can happen during operation hazards for health and life of users and third persons. It can also happen defects of machines and other permanent assets. The ball valves can be only operated by trained personnel in the subjective scope, exclusively according to purpose. Not following of safety guidelines implies loss for any damage claims.



We ask you to get familiar with this manual carefully and especially following guidelines and warnings. Manual should be diligently kept for case of any questions.

In case of any inquiries regarding valves and fittings we are at your disposal



NORTH AREA

Karol Szpankiewicz

Regional Manager for Key Clients

mobile 667 661 498

kszpankiewicz@andrex-vg.com

SOUTH AREA

Patryk Puchala

Regional Manager for Key Clients

mobile 698 609-792

ppuchala@andrex-vg.com

1. General information

The presented documentation includes important information, guidelines and warnings indispensable for faultless service and operation on all stages. Documentation does not take into account local regulations which obligation of observance is up to user.

Before start-up of device you shall get familiar with the contents of the subjective manual and you shall follow its recommendations. User shall determine on own behalf the range of responsibilities, competences and personnel supervision. Especially user is obliged to get assured that personnel responsible for all activities connected with device of valves and fittings has understood the contents of the subjective manual. This document is inseparable part of valves and fittings and shall be kept in place accessible for the operational personnel. In case of damage or loss of the document, the user shall take actions in order to get new copy.

1.1 Applied symbols



Texts marked with this symbol include very important guidelines, among others in order to prevent dangers for health threats. It is necessary to follow the presented text.



Texts marked with this symbol include very important guidelines, among others also in order to prevent for material damage. It is necessary to follow the presented text.



This symbol means danger of electrocution. In case of not keeping proper caution exists danger of body injury and danger to life.



This symbol means burn danger. In case of not keeping proper caution exists danger of body injury.



This symbol means texts including comments, guidelines and advices.



This symbol means description of activities which need to be done by client.

1.2 Manual range

Manual regards assembly and service of standard version of valves and fittings, its varieties and valves and fittings integrated with automation components.

1.3 Control during delivery

Directly with delivery shall be controlled valves and fittings in terms of possible transportation damages and defects. Quantity and kind of valves and fittings can be easily checked on basis of enclosed delivery document.

1.4 Complaints

Damage claims regarding transportation damages can be claimed only after immediate appeal to forwarder.

For return shipment (transportation damage / repair) shall be prepared protocol of complaint and sent to production facility, to the extent possible in original packing.

For return shipment shall be enclosed following information:

- Name and address of receiver,
- Number of valves and fittings/ number of order /number of part,
- Fault description.

1.5 Guarantee

For valves and fittings we grant guarantee according to purchase / sales agreement. The document which enables to start guarantee procedure is application to the producer describing the faults of valves and fittings. The print application of valves and fittings fault you can easily find in the appendix No 1 of this manual.

2. Safety

Depending on technical conditions and moment of assembly, set-up and start-up of valves and fittings shall have regard to specific aspects of safety.

In case if for example valves and fittings are assembled in ready for operation chemical device, safety aspects by start-up have quite different meaning, than it would be start-up for tests purposes in "dry" part of device in assembly hall.

We cannot know all circumstances of moment of assembly / set-up / start-up, therefore in the below descriptions we put guidelines about safety which cannot regard specific device.

You shall follow (only) to guidelines regarding the specific situation !

2.1 People protection

2.1.1 Safety guidelines regarding assembly



We pay much attention that assembly, pneumatic installation (in case of accessories also electrical) and set-up of valves and fittings can be made only by qualified specialists with thorough mechanical (and electrical) knowledge.



Get assured that after assembly in machine / device valves and fittings follow requirements of machine directive.



Switch off all connected with assembly or repair machines / devices. In case of necessity switch it off from electric power supply.



Check (e.g. in case of mechanical devices), if switching off machine / device will not cause dangers.



If necessary in case of breakdown of valves and fittings in working machine you shall immediately inform about it the shift manager / engineer responsible for safety or manager of plant in order to prevent leakage of chemicals or gas with help of appropriate measures.



Before assembly or repair, drop off pressure from machine / pneumatic / hydraulic devices .



In case of necessity put warning plates in order not to cause accidental start-up of machine / device.



Assembly / repair shall be made with maintenance being in force safety and hygienic and safety work regulations.



Control safety device (e.g. emergency switch off's, safety valves etc.) taking into account its proper working.

2.1.2 Safety guidelines regarding set-up / start-up



As result of (pneumatic, electrical or manual) start-up of valves and fittings can be enabled or disabled flow of gases, vapours, liquids etc. . Get assured that as result of start-up or test set-up will not appear dangers for people or environment.



In case of necessity put warning plates in order not to cause accidental start-up or switch off from operation of machine / device.



After completion of set-up check correct operation and possibly the maintaining of required angle by valves and fittings.



Check operation of limit switches (option).



Check if main operation unit is 100% closed, if steering controller signalizes achieving end position (option).



With help of appropriate measures do not allow to jam of arms by mobile setting sections.



Control safety device (e.g. limit switches, safety valves etc) taking into account proper operation.



Carry out start-up or set-up only according to instructions described in this manual.



During setting of ongoing (ready for work) valves and fittings with options (e.g. turn gear, solenoid valve, limit switches) there is danger of touching elements under voltage. Therefore the set-ups can be carried out only by electrician or person with adequate education / knowledge, aware of potential dangers.

2.1.3 Safety guidelines regarding maintenance / repair



It is forbidden to execute maintenance / repair of valves and fittings under pressure.

Before assembly of valves and fittings shall be explained a few important points

- If disassembled valves and fittings will be immediately replaced by new one ?
- If eventually should be stopped production on installation ?
- If before disassembly shall be informed particular persons? etc.



In case of necessity immediately inform about maintenance / repair the shift manager / engineer responsible for safety or manager of plant in order to prevent leakage of chemicals or gas with help of appropriate measures.



Valves and fittings can contain (e.g. ball valves) medium under pressure. Drop off pressure from pipe installation with assembled valves and fittings in order to remove residual pressure.



Switch off steering pressure, steering voltage and/or current supply.



In case of necessity put warning plates.

* in order to disable accidental start-up of disassembled part of machine/device

* in order to disable to switch on steering pressure, current supply and voltage of steering of optional actuators and accessories.



In case of breakdown of valves and fittings contact with the producer. The phone number is given on the first pages of this manual.



After ascertainment of damage of valves and fittings switch off all machines / devices affected by this damage. Necessarily follow safety guidelines.



Do not assemble, start-up or change set-up of valves and fittings in case of damage of valves and fittings, supply wires or eventually connected on flanges actuators.



After maintenance activities / repair check valves and fittings taking into account the proper operation and connections in regard to the tightness.



Eventually check operation of assembled optional accessories, e.g. turn gears, limit switches etc..

2.2 Device safety

Valves and fittings:

- It is quality product, manufactured according to recognized engineering principals,
- has left the production facility in the perfect safety state.



In order to keep this state the assembler / user shall execute skillfully and with highest precision own tasks according to descriptions in this manual.

We assume that the user is qualified specialist or has thorough mechanical and electrical knowledge in range of valves and fittings.



To assure that valves and fittings are used only in admissible limits (see Technical data).



Valves and fittings can be used only for purposes according to its construction.



Valves and fittings can be used only according to parameters determined in the technical data.



It is forbidden to unscrew, take off bonnets or assembled accessories if valves and fittings are under pressure.



Do not assemble, start-up or change set-up of valves and fittings in case of damage of valves and fittings, supply wires or eventually connected on flanges actuators.



After maintenance activities / repair check valves and fittings taking into account the proper operation and connections in regard to the tightness.



Eventually check operation of assembled optional accessories, e.g. turn gears, limit switches etc..

The usage of valves and fittings beyond admissible temperature range can cause overload and damage of gaskets or bearings. The usage of actuator above maximum working pressure can cause damage of interior components or housing. The given values are based on the experiences and describe the normal quality of product. It serves for evaluation of general availability, but at the same time the company ANDREX cannot assure suitability of the product. The duty of user in area of constructive responsibility is to confirm suitability of product, which faultless quality we guarantee on basis of our delivery and payment conditions, in particular case and determination of its service.

3. Name plate

Unambiguous identification of valves and fittings enables the name plate which gives the most important technical data according to PN-EN 19:2005.



Change / remove of technical data placed on name plate is strictly forbidden.



Drawing 1 – Name plate

On the name plate are stamped main parameters as well as adequate marking of valves and fittings. The description of separate fields has been presented in table below.

DN	Nominal diameter of valves and fittings passage.
TS	Maximum temperature range of valves and fittings in °C.
PN	Maximum admissible working pressure of valves and fittings in bar.
KJ	Confirmation of valves and fittings approval according to standards.
Numer	Identification number of valves and fittings (number / month / year).
Material	Marking of body material of valves and fittings.

Moreover, it is also placed on name plate the commercial name of valves and fittings. In case of loss / damage of name plate you shall immediately contact with manufacturer in order to prepare duplicate. The lack of name plate deprives the user from complaint right as well as purchase order for spare parts for valves and fittings.

4. Ball valves

4.1 Application and operation

Ball valve is applied for shut off flow of working medium in heating systems, industrial installations, gas installations, tanks and wagons. In order to secure faultless work of ball valve, flowing medium shall be clean without any impurities and fulfill working parameters according to the marking on the name plate. Not following of above mentioned conditions can cause damage of interior parts in valve, especially sealings of ball.

Water quality used in closed heating systems and central heating networks needs to fulfill requirements of standard PN-85/C-04601 „Water for energetic purposes. Requirements and testing of water quality”.



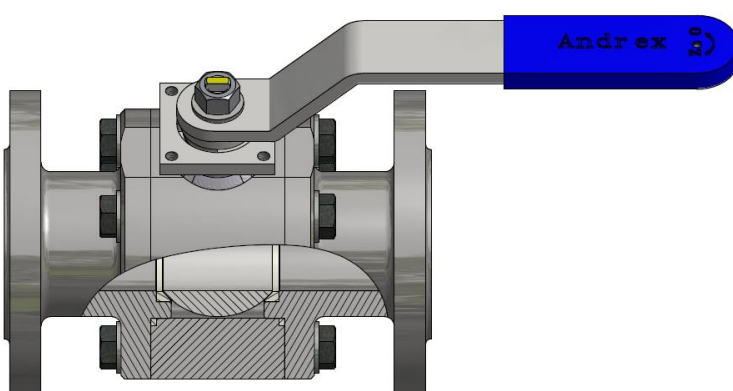
Do not put into ball valve hands and other things. Result of not following this remark can be permanent personal injury and in some cases even death. Absolutely follow safety guidelines.

In most cases responsible element for appropriate steering of ball valve is hand lever placed on valve or optionally correctly selected actuator. Steering is executed by help of hand lever turn on stem, which works directly with ball. Stem is sealed with sealings with appropriate selected materials according to determined working conditions of valve and medium parameters. The turn limiter guarantees proper set of ball in the appropriate positions.

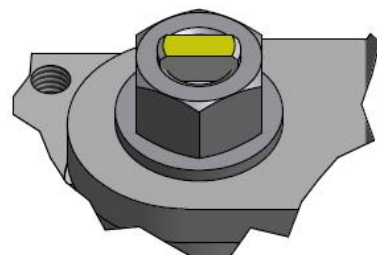


Ball valve shall work only in position „fully closed” or „fully open”.

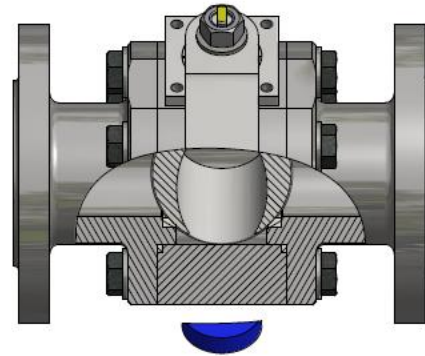
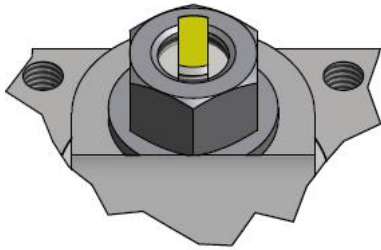
Actually the position of ball set in the ball valve is determined by the cutter on the end of stem. Below is the initial setting for the ball valve in the "fully open" position and after turning 90° clockwise to the "fully closed" position.



Drawing 2 position „fully open”



Drawing 3 position „fully closed”



When assembling the actuator device , it has to be first always angled in accordance with the mark on the stem. It is allowed to disassemble the actuator device on the working valve, provided that the valve is in the "fully open" or "fully closed" position and extreme caution should be kept.



This manual is not the manual for making repairs which execution requires possession of special knowledge and tools. In case of bigger repairs and maintenance at your disposal is the manufacturer of valve.



It is strictly forbidden to unscrew the screws connecting the body with connections.

4.2 Storage

Ball valves should be stored in dry rooms, protected against atmospheric influences and corrosive factors. Ball valves connections should be blind plugged. Unpainted surfaces should be preserved with anti-corrosive grease. Ball valves should be stored in a stable position. The ball position is always in „fully open" position.

5. Assembling



Before starting assembly, maintenance, set-up, operation or start-up of valve you should become acquainted thoroughly with section "Safety".



Before assembling of valve check its name plate in respect of accordance with documentation.

In order that valve would be accordingly assembled and together with gaskets would achieve correct tightness there is necessary proper assembling. The process of assembling depends on many factors, but the most important thing is to keep action consistency.

When installing ball valves with actuators or gears, ball valves have to be installed in a horizontal position. The actuator has to be positioned vertically to the ball valve and pipe.

When installing the ball valve in different position, it is absolutely necessary to make sure that there are no contraindications to its operation in that position. This information can be obtained directly from the actuator or gear manufacturer and the complete assembly set supplier.

5.1 Assembling of flanged ball valves

Preparation of ball valve for assembly involves:



The ball valve has to be installed only in the "fully open" position.



Disassemble all transport protections and remaining packing. Check cleanliness of interior part of ball valve and assure that inside of valve there are no things.



Before assembly of valve clean precisely the interior of pipeline. Undesirable contamination can negatively influence for safety of operation and lifetime of ball valve.



Remove the preservation grease from sealing surfaces of flanges on ball valve and clean flanges of pipeline.

For possible cleaning of flanges and screwing of bolts there are necessary proper tools. In special cases it can be dirty operation. Therefore you need to prepare appropriate clothing (protective clothing in case of need), helmet, protective glasses, gloves and what is the most important safe attitude for assembling.

In order to assure appropriate quality of connection of valve with flange you should clean all loaded surfaces. Bolts and nuts shall be cleaned with wire brush (optimally brass), in order to remove dirt off threads. You should clean in flanges surfaces of sealing seat with help of appropriate tool (the best will be bristle wire brush made from stainless steel on basis of alloys), to brush always in the direction of grooves.

After cleaning of separate parts you shall visually check each one in order to eliminate bigger defect. Do not assemble sealing with observed defects.

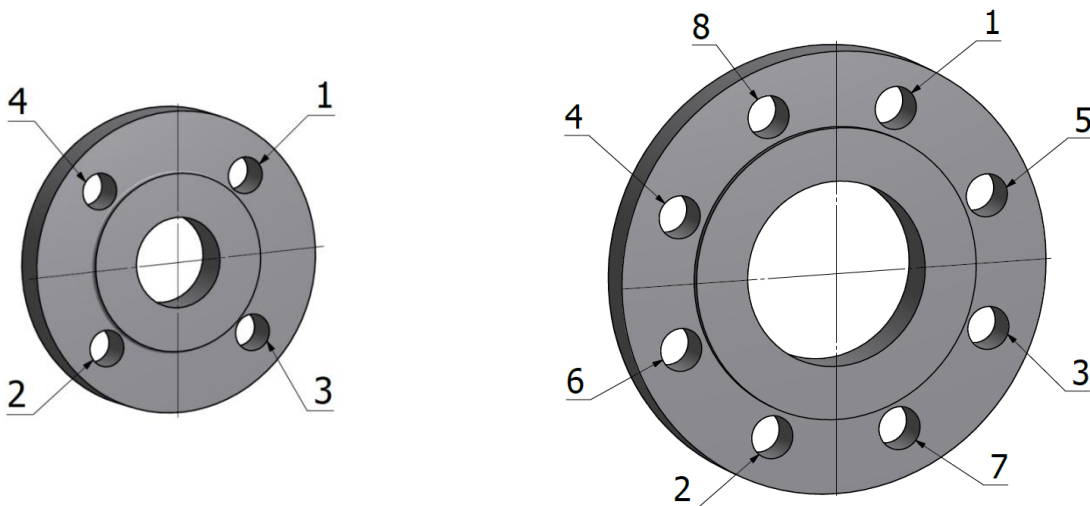
Screwed connections shall be smeared with appropriate lubricants in order to decrease friction in connection. During selection of lubricant you shall get assured that working temperature of lubricant is in limits of working temperatures of process. You shall lubricate bolt threads and bearing areas e.g. under bolt heads, nuts and washers. You shall get assured that lubricant has no lumps and does not contaminate surfaces.

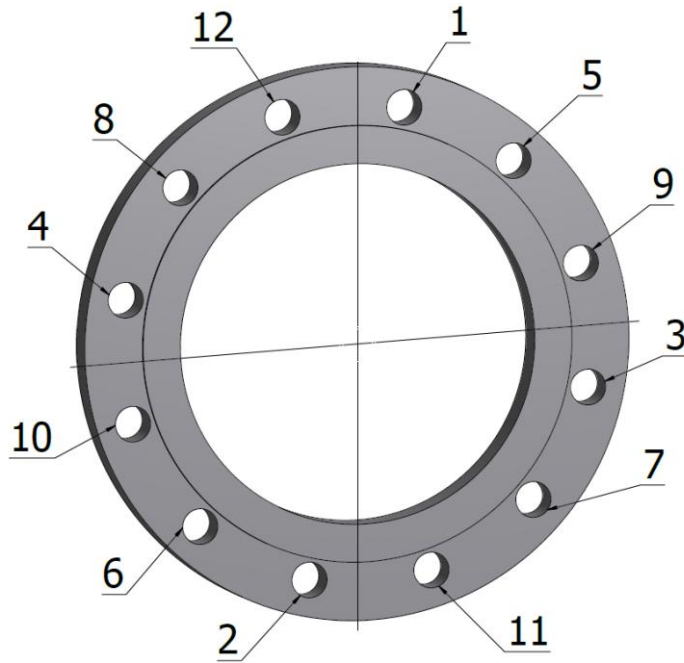


Always use torque wrench or other tools which guarantee control of tension.

The basic influence on tension pattern on gasket has the order of screwing threaded bolts. The improper screwing can cause dislocation of flange from the parallel setting.

The nuts and bolts shall be placed together with washers on its place manually. The connection shall be screwed in accordance with screwing pattern of opposite bolts for the detailed type of flange.





Drawing 4 The order of tightening the bolts in the flanges



There are not allowed any damage to the ball valve connection or pipeline misalignment errors that may significantly affect the assembly process by increasing the tension.



Initially screw manually loose nuts on circuit of flange.



Tighten up nuts with torque wrench with torsional moment not bigger than 30 % of maximum value. Check state and placement of gasket between flanges.



Tighten up nuts with torque wrench with torsional moment not bigger than 60% of maximum value. Check state and placement of gasket between flanges.

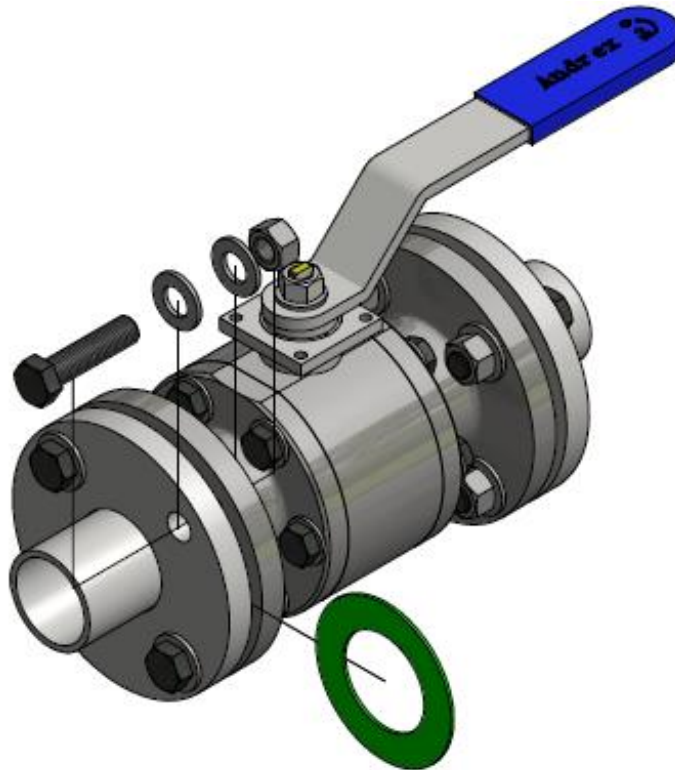


Tighten up nuts with full torsional moment according to pattern of opposite bolts.



Preventively try to tighten up neighbor nuts till the moment of observation that it is not possible further turn of no one of nuts.

Ball valves can be assembled on horizontal and vertical pipelines in any position. Flow of direction of medium is discretionary.



Drawing 5 The flanged ball valve assembly with hexagon bolts

2. Assembling of welded ball valves

When installing ball valves for welding, adapt to the appropriate technology developed by the installation contractor while maintaining the conditions specified in the PN-EN13480-1: 2005 standard. When welding the ball valve to installation, pay special attention to the overheating zone occurring in the area of ball seals - in this case, during welding periodically cool the ball valve body. The lever can only be turned when the ball valve has been cooled completely.

To perform welding works on gas pipelines and gas equipment are allowed only welders who have the appropriate permissions to weld pipes confirmed by valid welder's exam. All welds in welded joints should be made as butt welds.

If it is not possible to make the butt weld, it is allowed to perform a different type of weld after each arrangement of its performance technology with the appropriate organizational unit of the department.

Proper preparation of elements and their proper joining is of fundamental importance for the quality of the welded joint. When preparing the material for welding, special attention should be paid to thorough cleaning of the welded parts. Contaminated elements in the place of welds, rust, scale, fats, paints, etc. contribute to the formation of defects in the weld, such as pores, blisters and sticking of welds.



Those impurities react in the welding process with molten metal, which may lead to its oxidation or hydrogenation. The edges of the joined elements must be thoroughly cleaned of those impurities.

In order to prepare a suitable surface for welding, surfaces over a width of approx. 10-25 mm should be cleaned manually or mechanically, e.g. with a wire brush, sandpaper or angle grinder, or chemically, e.g. by degreasing with acetone or extraction naphtha.



All material impurities should be removed, because during welding it results the release of large amounts of gases and oxides and causes the formation of bubbles or inclusions of oxides in the weld.



There is not allowed any damage to the ball valve connection or pipeline misalignment errors that may significantly affect the assembly process by increasing the tension.



The valves with welding connections should be installed according to the technology developed by the installation contractor, following the specified conditions according to PN-EN 13480-4: 2012.



The mounting method should not cause bending moments on the ball valve body. Before installation, make sure that the operating parameters and nominal dimensions of the pipeline and valve are correct.



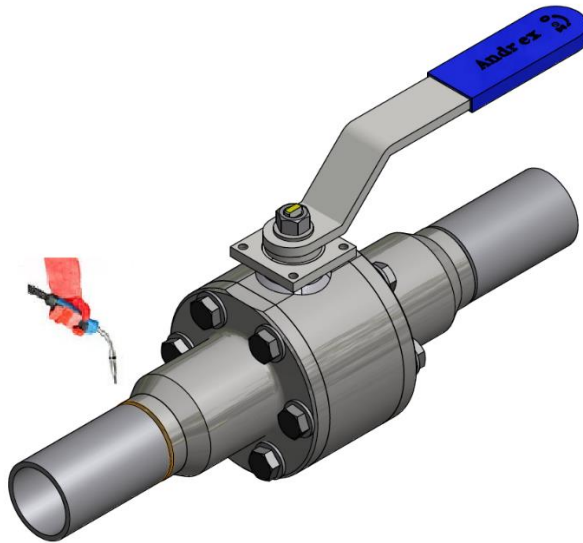
Safety requirements for welding apply to the place and environment of the welded joint. There is a possibility of burns. You should be particularly careful.



When welding the ball valve to the installation, pay special attention to the overheating zone occurring in the area of ball seals - in this case, during the welding periodically cool the ball valve body.



The lever can only be turned when the ball valve has been cooled completely.



Drawing 6 Assembling of ball valve for welding

5.3 Assembling of threaded ball valves

The incorrect installation increases the risk of uncontrolled leakage, reducing the pressure resistance of the valve and reducing the service life of the connection. In extreme cases, a bad connection may be damaged. After each disassembly of the threaded connection, the assembly should be carried out using the same force as the first assembly. Changing the tightening force may result in leakage and reduce the vibration resistance of the connection using less force when tightening, or reduce the possibility of reassembly by applying too much force to tighten the connection.

If you need to remove the threaded ball valve for transport and reassembly, make sure that no dirt gets into the valve, the threads and sealing surfaces are not damaged. The protective caps are recommended.



When assembling the threaded ball valve, it is absolutely necessary to check if the ball valve can be screwed loosely to the pipeline, which means no initial tension in the pipeline and check the thread for correctness.



Install suitable seals at the ends of the pipeline or in the case of sealing tape (hemp) pay attention to the screwing direction. Use only the recommended seals for this type of connection.



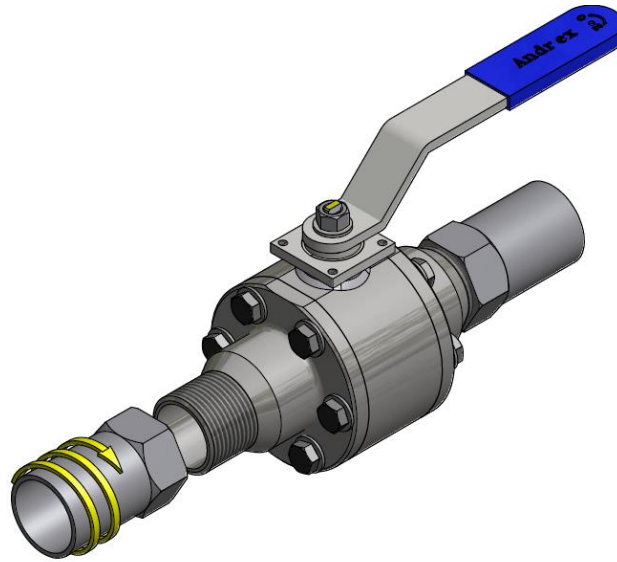
Assemble the pipes into the threaded ends of the ball valve. Under no circumstances you should use the steering element of ball valve as lever.



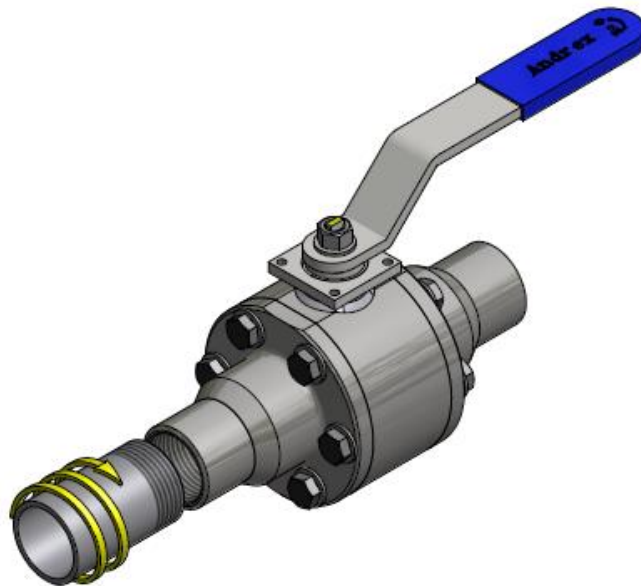
Check connections in regards to tightness only after the used sealing material has sufficiently hardened.

When installing ball valves with actuators or gears, ball valves must be installed in a horizontal position. The actuator must be positioned vertically to the ball valve and pipe.

When installing the ball valve in a different position, make sure that there are no contraindications to its work in that position. This information can be obtained directly from the actuator or gear manufacturer and the complete set supplier.



Drawing 7 Assembling of external threaded ball valve



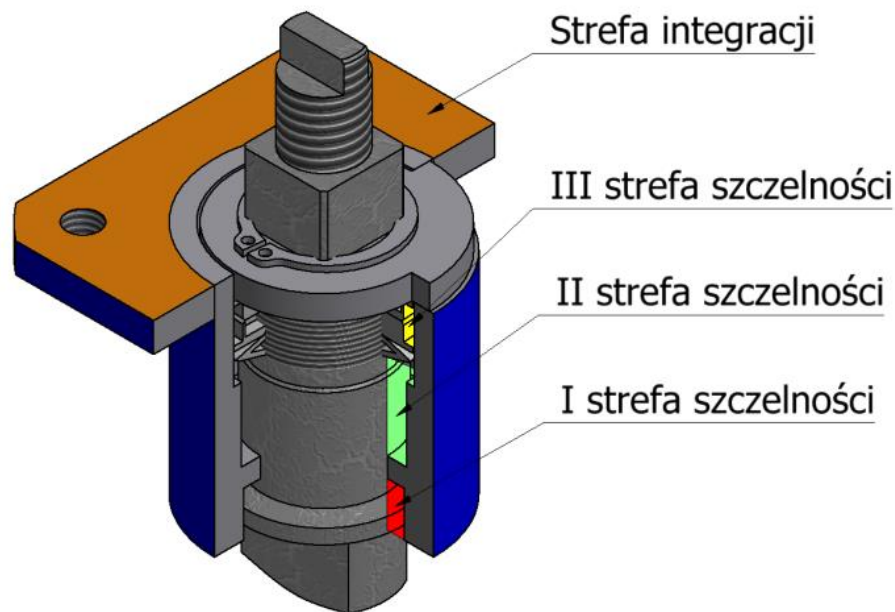
Drawing 8 Assembling of internal threaded ball valve

6. Gland packing

6.1 Building of gland packing

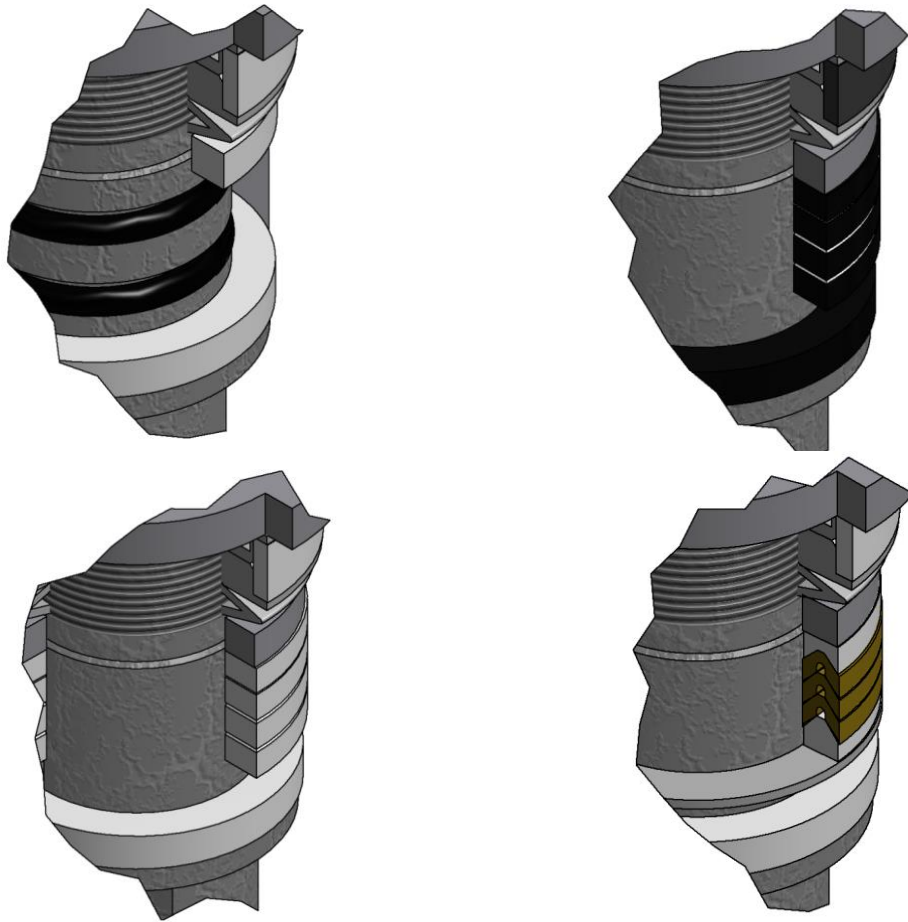
All ball valves manufactured by us have, among other things, the possibility of tightening up. The installed handle slightly complicates this operation, but after removing it, tightening up takes up to 5 minutes. The new design of gland packing is doing great, therefore it has received a maintenance-free name and has been introduced as the standard for all DN50-DN250 valves.

Between the tightness zones II and III according to drawing 9 there are placed disc springs which improve the resilience of the seal package in the zone II and the stabilization system located in the zone III. This improves the resistance to temperature and pressure leaps and compensates for the sealing wear. The packing box in this execution gives the possibility of mounting many types of sealing packages with the different operating characteristics. The examples are shown in drawing 10.



Drawing 9 building of gland packing.

The gland packings have the option of tightening up, but this is a rather unused option. The tightening up of gland packing is basically dedicated only in extreme operating conditions or there is need to change the sealing characteristics.



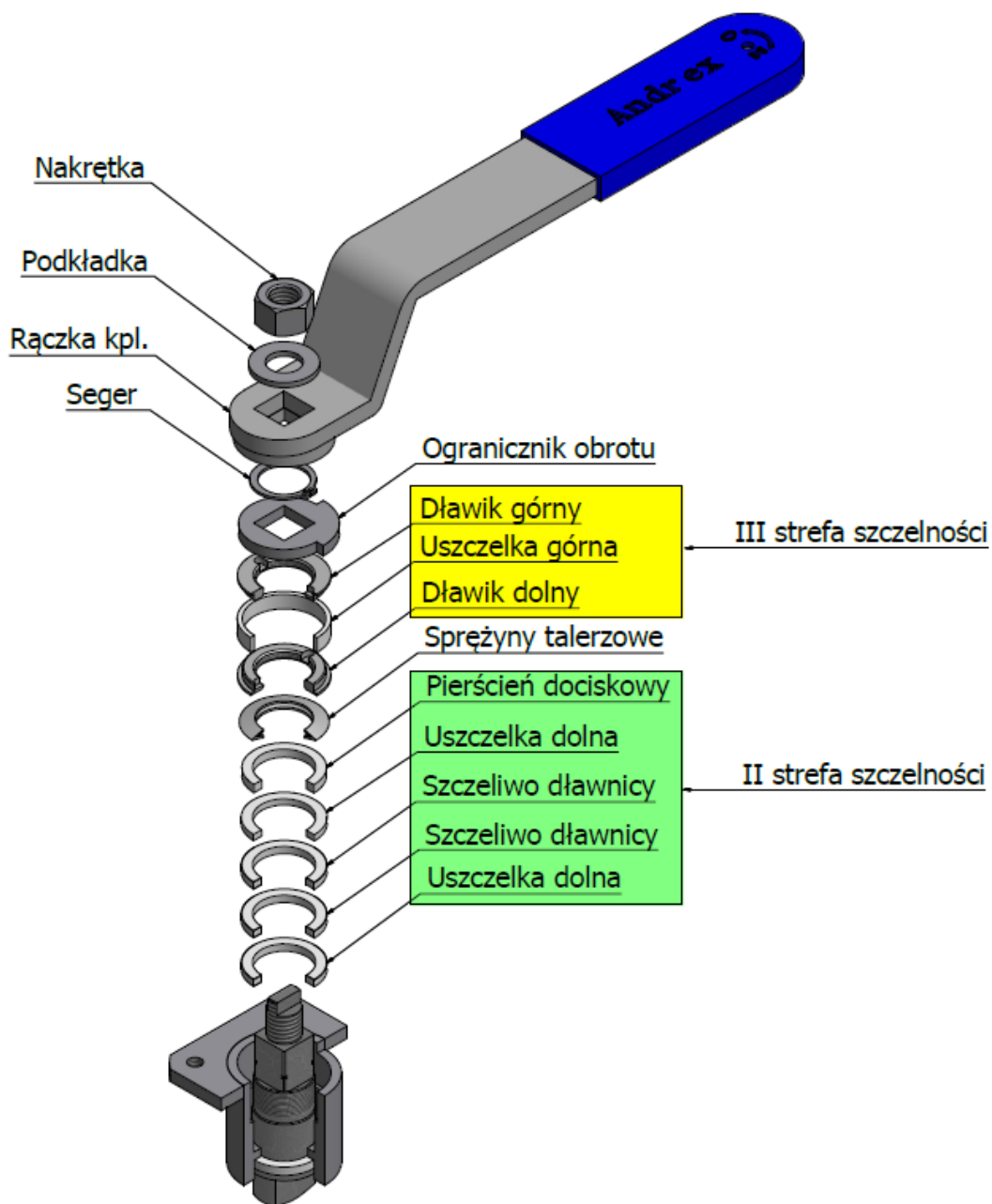
Drawing 10 Examples of replaceable sealings in gland packing.

6.2 Sealing exchange

In order to exchange the sealing , if necessary, to another sealing package, particular care should be taken and health and safety regulations applied. The diagram in drawing 11 shows in details the individual operations for the exchange of sealing.



The sealing replacement can be only executed by the authorized service center.



Drawing 11 Disassembly of sealing in gland packing.



Before the disassembly of ball valve hand lever you should close the valve.



Pay attention to the ball position. The milling on the stem indicates the correct setting.



Unscrew the nut using the spanner depending on the diameter of lever and remove the washer under it.



Take off the outer securing ring placed on the valve stem.



Remember the setting of rotation limiter for the correct installation during reassembly.



Remove the rotation limiter. You can use two screwdrivers to pry it up.



Using special wrench, unscrew the top gland counterclockwise, which results in getting to the top gasket (tightness zone III).



In the next stage, the bottom gland should also be unscrewed counterclockwise, which results in relaxation of the disc springs supporting the main seal.



Replace the sealing package in the II tightness zone for another one, depending on the needs according to the manufacturer's recommendations.



Assemble all parts in the reverse order.

7. Exchange of steering devices

The steering accessories are not integral part of the ball valve, which increases the possibilities of equipping the valve with additional elements. The versatility of mounting additional elements allows the attachment of column or extension adapted for mounting all actuators or drives manufactured according to PN-EN ISO 5211: 2005. In order to disassemble the standard complete lever and install another steering element, follow the instruction provided below.

7.1 Disassembly of steering hand lever



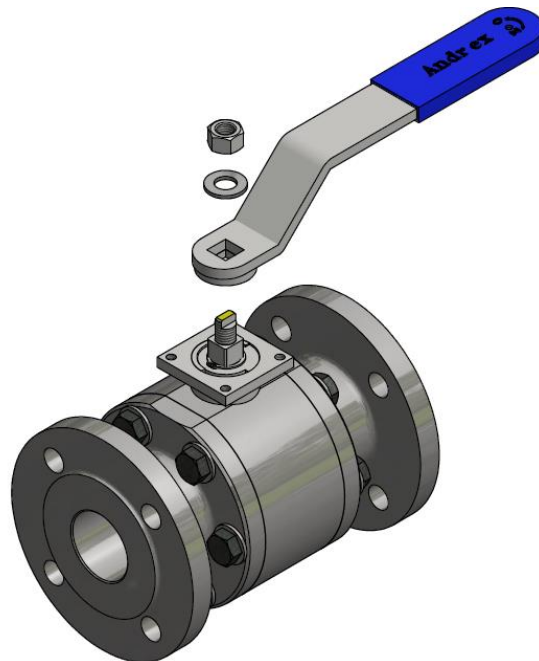
Before the disassembly of ball valve hand lever you should close the valve.



Unscrew the nut using the spanner depending on the diameter of lever and remove the washer under it.



Take off the complete lever from the ball valve stem with a firm motion in perpendicular direction to the valve.



Drawing 12 Disassembly of hand lever.

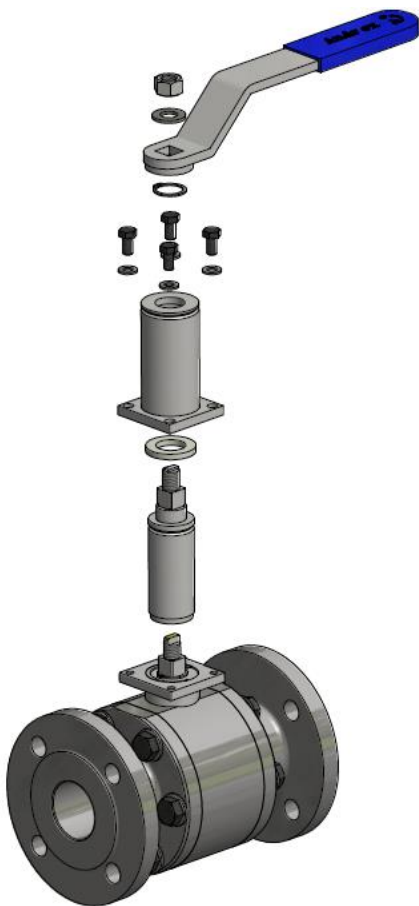
7.2 Column assembly



In order to mount the column efficiently, we suggest preparing and checking all parts included in the new system before disassembling the previous steering system.



Unscrew the nut using the spanner depending on the diameter of lever and remove the washer under it.



Place the column stem on the ball valve stem paying particular attention to the ball position indicator.



Put the spacer sleeve together with the column housing on the column stem. Align the mounting holes with the holes on the gland packing flange.



Install the column housing with gland packing flange using bolts and washers supplied by the manufacturer.



Put the outer securing ring on the column stem.



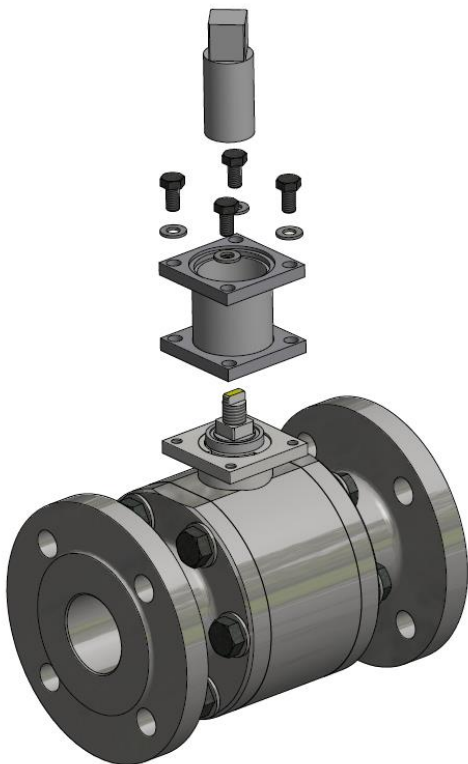
Put the complete lever on the stem of the ball valve and screw with the nut together with the washer.

Drawing 13 Assembly of column with lever.

7.3 Base of actuator assembly



In order to mount the actuator base efficiently, we suggest preparing and checking all parts included in the new system before disassembling the previous steering system.



Place the actuator base housing paying attention to the location of the mounting holes.



Fasten the actuator base housing to the gland packing flange using the bolts and washers supplied by the manufacturer.



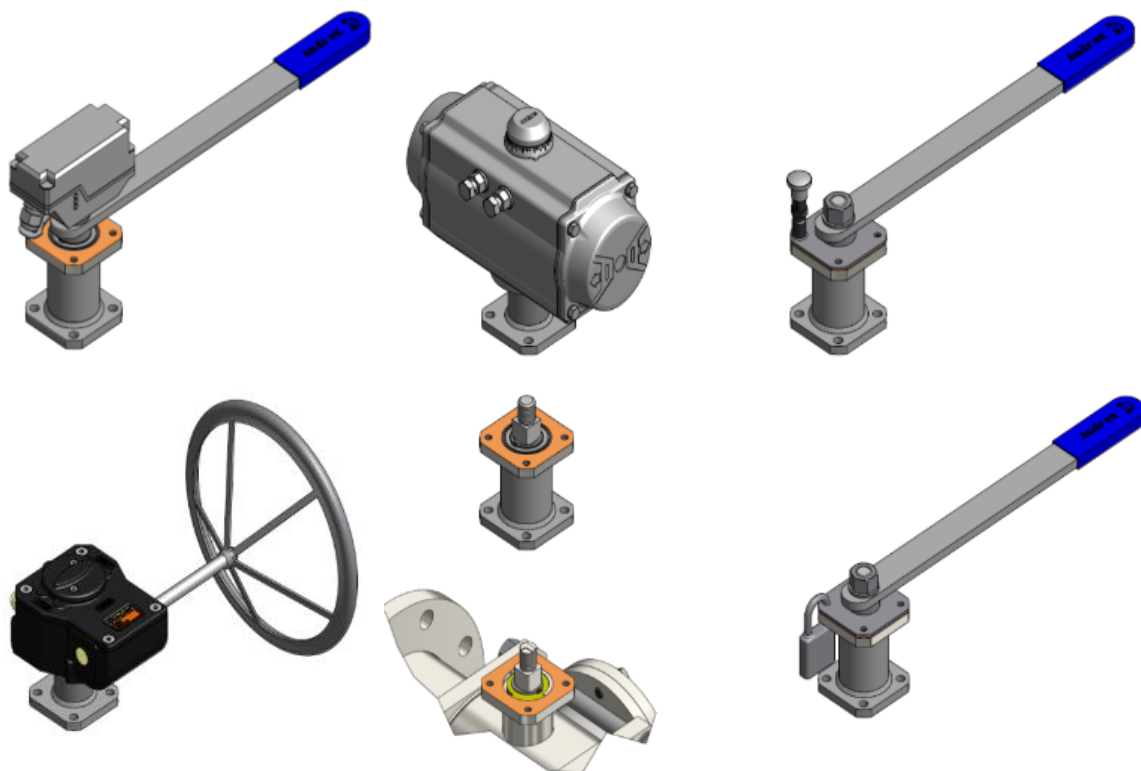
Install steering equipment according to manufacturer's assembly instructions and calibrate its proper operation.



Pay particular attention to the position of the rotation limiter and the position in which it operates.

Drawing 14 Base of actuator assembly.

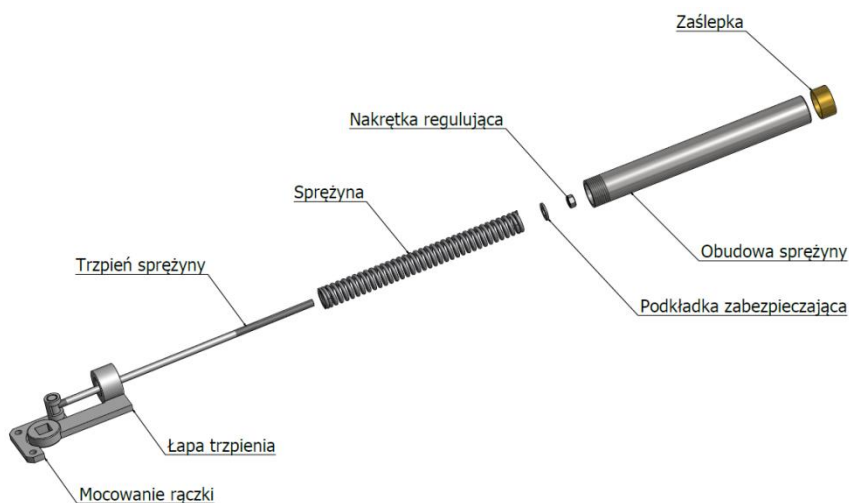
The actuator base is adapted according to PN-EN ISO 5211 – Industrial valves and fittings - Connections for part-turn valve actuators. Various steering solutions can be attached to the correctly mounted actuator base. Examples are given in the drawing below.



Drawing 15 Examples of steering solutions for valves and fittings.

7.4 Hand lever with return spring

After a quite long period of use of the hand lever with spring return, the periodic functional check must be carried out. To do this, remove the plug and spring housing to get to nut adjusting the tension. After tightening the adjusting nut clockwise and receiving the appropriate pre-tension, install the spring housing with the plug.



Drawing 16 Building of hand lever with return spring.

You should follow below in order to mount other steering device instead of hand lever with return spring :



Before the disassembly of ball valve hand lever you should close the valve.



Pay attention to the ball position. The milling on the stem indicates the correct setting.



Take off plug of spring housing and then unscrew anticlockwise spring housing.



Unscrew adjusting nut and take off spring of stem.



Note the position of the adjusting nut for possible re-assembly.



Take off the nut securing the stem paw to the spindle of the ball valve and unscrew the bolts securing the handle mounting to the gland packing flange.



Take off the entire steering system by pulling vertically upwards.

APPENDIX NO 1

INCORRECTNESS APPLICATION FOR VALVES AND FITTINGS

I . APPLICANT

- 1. Full name:
- 2. Company name:
- 3. Address:
- 4. Phone number:

II. DATA REGARDING LOCALISATION OF VALVES AND FITTINGS

- 1. User name:
- 2. Assembly address:
- 3. Assembly date:
- 4. Contact person:

III. INFORMATION ABOUT VALVES AND FITTINGS

- 1. Type:
- 2. Quantity:
- 3. Serial number:
- 4. Purchase date:
- 5. Order number:
- 5. Invoice number:
- 6. Medium and conditions of valves and fittings installation:

IV. DESCRIPTION OF INCORRECTNESS

.....
.....
.....
.....

Application date

Applicant signature