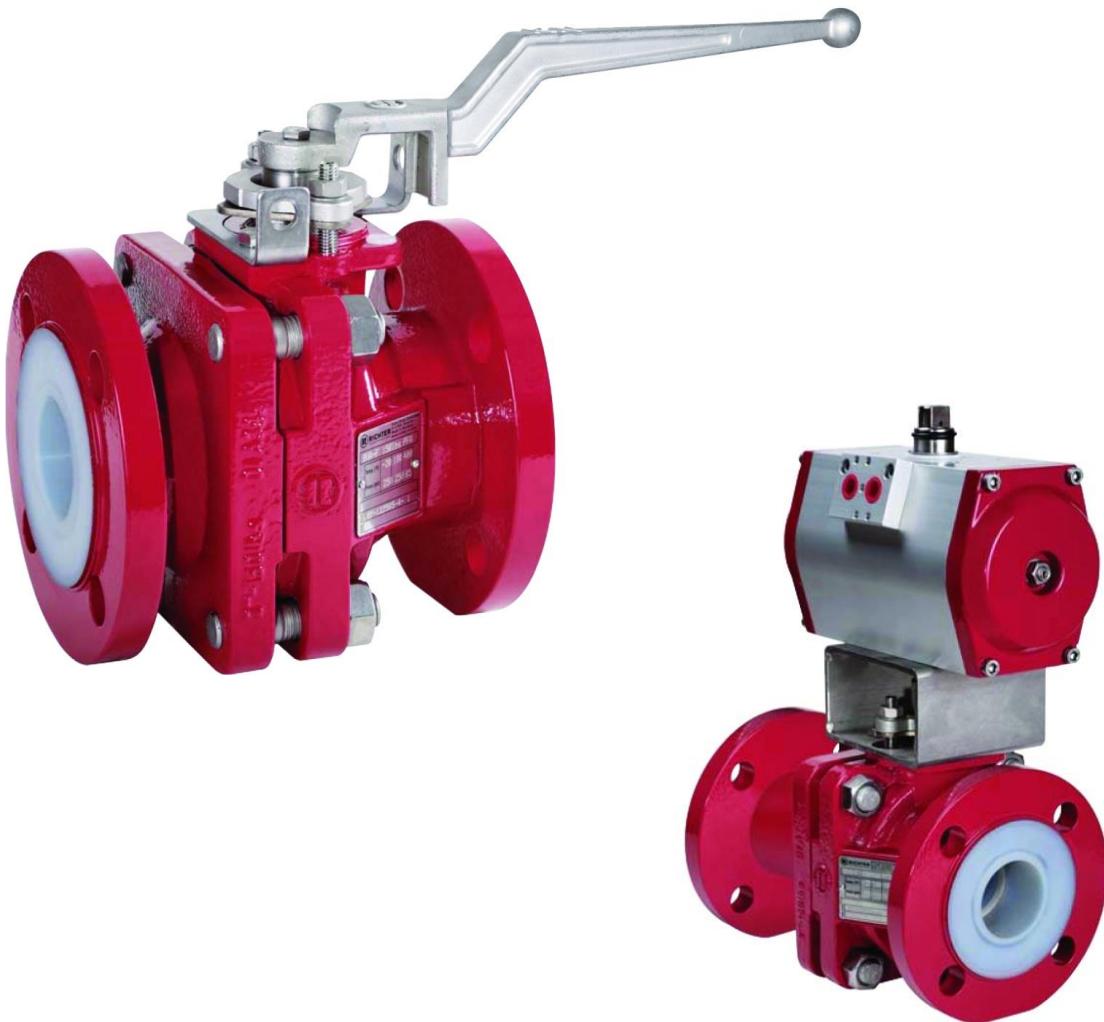


Series BVA/F, BVAP/F

Standard Ball Valve to ASME
with ball/stem unit or ball and stem, cone shape
stem sealing



Keep for future use!

This operating manual must be strictly observed before
transport, installation, operation and maintenance

Subject to change without notice.

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Options :

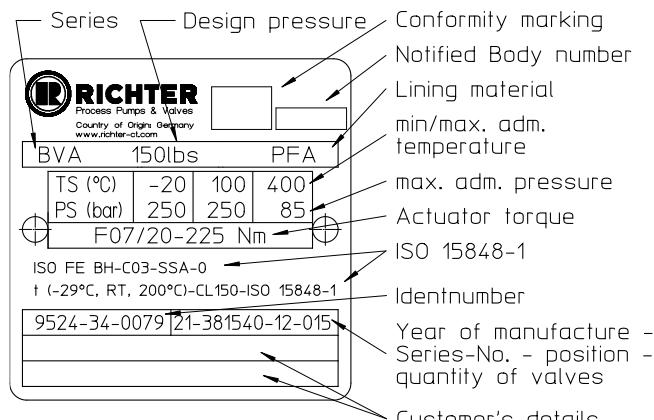
- ♦ Lever elevation depending on requirements
- ♦ Limit switches for remote monitoring of hand and remote-activated ball valves
- ♦ B7M screws
- ♦ Seat rings TFM, TFE carbon
- ♦ Hand gear
- ♦ Al_2O_3 ball or ball/stem unit with additional relief bore

1.1 Type plate, conformity and body markings

The stainless steel name plate is undetachably riveted to the body.

If the operator attaches his identification, it must be ensured that the valve matches the application in question.

Example of name plate with conformity marking:



Body identification :

The following are visible on the body according to DIN EN 19 and AD 2000 A4:

- ♦ Nominal size
- ♦ Rated pressure
- ♦ Body material
- ♦ Manufacturer's identification
- ♦ Melt number/Foundry identification
- ♦ Foundry date

1.2 Tightening torques

All screws greased, tighten in diametrically opposite sequence!

The tightening torques for pipe screws and body screws mentioned must not be exceeded. For an exception, see Section 8, Flange connection valve/pipe is leaking.

The following tightening torques are recommended.

Packing screws

Tighten packing gland follower 503 until spring gland follower 502 is in contact without any gap. With 4" and 6" there are 2 spring gland follower 502.

Caution!

Excessive tightening of the packing nuts can result in a damage of the plastic lining. Tighten only as much as necessary, to obtain stem seal tightness.

Pipe screws

Flange Nominal size [inch]	screws [ASME]	Tightening torque	
		[in-lbs]	[Nm]
1"	4 x 1/2"	70	8
1 1/2"	4 x 1/2"	135	15
2"	4 x 5/8"	220	25
3"	4 x 5/8"	400	45
4"	8 x 5/8"	310	35
6"	8 x 3/4"	710	80

Body screws

Nominal size [inch]	screws [ISO/DIN]	Tightening torque	
		[in-lbs]	[Nm]
1", 1 1/2" red.	4 x M10	310	35
2"	4 x M16	400	45
3" red.	4 x M16	400	40
4" red.	6 x M16	530	60
6" red.	6 x M16	710	80

1.3 Flow rate value

Nominal size [inch]	kv_{100} [m³/h]	Cv [US gpm]
1"	60	70
1 1/2" red.	40	46
2"	280	326
3" red.	280	326
4" red.	587	684
6" red.	1250	1456

1.4 Actuating torques

Test medium: water 68 °F (20 °C)

Higher actuating torques may occur with other media.

PFA lined ball/stem unit

DN [inch]	Δp in psi				
	≤ 45 [in-lbs]	85 [in-lbs]	145 [in-lbs]	250 [in-lbs]	max. adm. [in-lbs]
1", 1½" red.	71	71	71	89	620
2"	221	221	221	266	1990
3" red.	221	221	221	266	1990
4" red.	443	443	549	735	4425
6" red.	708	708	814	1062	4425

Al₂O₃ ceramic ball

DN [inch]	Δp in psi				
	≤ 45 [in-lbs]	85 [in-lbs]	145 [in-lbs]	250 [in-lbs]	max. adm. [in-lbs]
1", 1½" red.	89	89	89	106	283
2"	221	221	221	266	1060
3" red.	221	221	221	266	1060
4" red.	531	531	637	841	2215
6" red.	797	1151	1328	1770	3100

1 in-lb = 0.112 Nm

1.5 Pressure-temperature-diagram

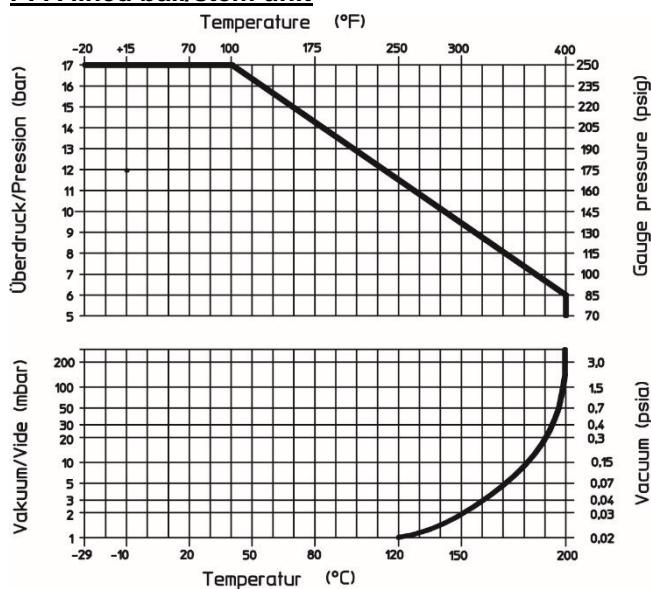
When used in the area of application of ASME, the low temperature of ASTM A395 is limited to -20°F (-29°C).



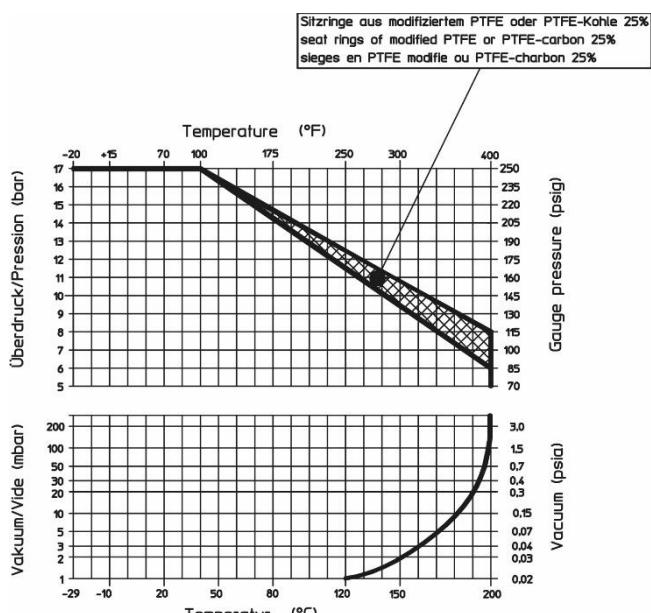
When used in the minus temperature range, the regulations applicable in the country in question must be observed.

According to ASME B 16.42

PFA lined ball/stem unit



Al₂O₃ ceramic ball



2 Notes on safety

This operating manual contains fundamental information which is to be observed during installation, operation and maintenance.

It must be read before installation and commissioning!

For valves which are used in potentially explosive areas, see **Section 3**.

Installation and operation are to be performed by qualified staff.

The area of responsibility, authority and supervision of the staff must be regulated by the customer.



General hazard symbol!

People may be put at risk.



Safety symbol! The ball 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 the ball 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.

2.1 Intended use

Ball valves are on/off valves.

Richter ball valves of the series BVA/F and BVAP/F are pressure containing components in accordance with the Pressure Equipment Directive (PED) for the passage and shut-off of fluids. The valves are suitable for vapours, gases and non-boiling liquids of group 1 according to the PED and have a corrosion-resistant plastic lining.

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

The operator must carefully examine in the event of operating data other than those provided whether the designs of the valve, accessories and materials are suitable for the new application (consult the manufacturer).

2.2 For the customer / operator

If a valve is used, 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 usual flow rates are not exceeded in continuous operation.

This is not the manufacturer's responsibility.

Loads caused by earthquakes were not allowed for in the design.

Ball valves at the end of a pipe (end valve) must be sealed with a blind flange at the free connection end and appropriately secured against unauthorised activation.

Fire protection to DIN EN ISO 10497 is not possible (plastic lining and plastic components).

2.3 Improper operation

The operational safety of the valve supplied is only guaranteed if it is used properly in accordance with **Section 2.1** of this operating manual.

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

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

The valves are intended for use in a potentially explosive area and are therefore subject to the conformity assessment procedure of the directive 2014/34/EC (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 result:

- ◆ The valves do not have any ignition source of their own and can be operated both manually as well as mechanically/electrically.
- ◆ The valves are not covered by the scope of application of the ATEX directive and therefore do not need to be identified accordingly.
- ◆ The valves may be used in a potentially explosive area.

Supplementary notes:

- ◆ Electric/mechanical actuators must be subjected 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.

3.1 Intended use

Inadmissible modes of operation, even for brief periods, may result in serious damage to the unit. In connection with explosion protection, potential sources of ignition (overheating, electrostatic and induced charges, mechanical and electric sparks) may result from these improper operation; 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 (conductivity $< 10^{-8}$ S/m):

1. Chargeable liquid and non-conductive lining

Charges can occur on the lining surface. As a result, this can produce discharges inside and outside the valve.

a) Discharges inside the valve

However, these discharges inside the valve cannot cause ignitions if the valve is completely filled with medium.

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

This means that, to safely prevent ignitions, the valve must be completely filled with medium at all times or else a potentially explosive atmosphere must be excluded by superimposing a layer of inert gas.

b) Discharges outside the valve

At the points where the non-conductive lining e.g. protrudes on the sealing surfaces to the outside or gets contact with the atmosphere on the outside, it may lead to discharges from the lining to nearby valves or attachments.

To safely avoid explosion hazards and accidents, therefore, the atmosphere surrounding the valve must not be explosive.

2. Chargeable liquid and conductive lining

No hazardous charges can occur as charges are discharged direct via the lining and shell (surface resistance $< 10^9$ Ohm, leakage resistance $< 10^6$ Ohm).

If non-conductive versions of individual components are installed in the valve, it may restrict the permitted ATEX zone and explosion subgroup when operating the valve despite the conductive lining of the armor plating (see "Technical rules for hazardous substances: Avoidance of ignition hazards due to electrostatic charges" (TRGS 727)).

In these cases, consult the manufacturer.

Static discharges of non-conductive linings are only produced through the interaction with a non-conductive medium and are therefore the responsibility of the plant operator.

Static discharges are not sources of ignition which stem from the valves themselves!

- ◆ 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.
- ◆ If the valve is heated (e.g. heating jacket), it must be ensured that the temperature classes prescribed in the Annex are observed.
- ◆ For safe and reliable operation, it must be ensured with regular inspection intervals that the unit is properly serviced and kept in a perfect technical condition.
- ◆ 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 etc., 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 different measures e.g. a cable link.
- ◆ Attachments such as actuators, position controllers, limit switches etc. must satisfy the relevant safety regulations as regards explosion protection

and, if required, be designed in compliance with ATEX.

- ◆ Special attention must be paid to the appropriate safety and explosion protection notes in the respective operating manuals.
- ◆ Plastic-lined valves must not be operated with carbon disulphide.

4 Safety note for valves, certified to Clean Air Act (TA-Luft)

Certificate / Manufacturer Declaration Validity is dependent on the operating instructions being read and observed.

5 Transport, storage and disposal



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



The valve is supplied with flange caps. Do not remove them until just before installation. They protect the plastic surfaces against dirt and mechanical damage.

Handle the goods 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 paint protection.

5.1 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.

Elastomers are to be protected against UV light. In general, a storage period of 10 years should not be exceeded.

5.2 Return consignments

Valves 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.

Pre-printed forms are enclosed with the installation and operating manual.

Safety precautions and decontamination methods are to be mentioned.

5.3 Disposal

Parts of the valve may be contaminated with medium which is detrimental to health and the environment and therefore cleaning is not sufficient.



Risk of personal injury or damage to the environment due to the medium!

- ◆ Wear protective clothing when work is performed on the valve.
- ◆ Prior to the disposal of the valve:
 - Collect any medium, etc. which has escaped and dispose of it in accordance with the local regulations.
 - Neutralise any medium residues in the valve.
- ◆ Separate valve materials (plastics, metals, etc.) and dispose of them in accordance with the local regulations.

6 Installation

- ♦ Examine valve for in-transit damage, damaged ball valves must not be installed.
- ♦ Before installation the valve and the connecting pipe must be carefully cleaned to remove any dirt, especially hard foreign matter.
- ♦ During installation, pay attention to the correct tightening torque, aligned pipes and tension-free assembly.



Ensure that a remotely actuated actuator cannot be accidentally switched on.

6.1 Flange caps and gaskets

- ♦ Leave protective caps on the flanges until just prior to installation.

Where there is a particularly high risk of damage to the plastic sealing surfaces, e.g. if the mating flanges are made of metal or enamel, PTFE-lined gaskets with a metal inlay should be used. These gaskets are available as special accessories in the Richter range.

6.2 Grounding

The valve must be grounded. This can be achieved in the simplest way via the pipe screws using tooth lock washers. One pipe screw per flange is underlaid with toothed disks.

At the customer's request a setscrew M6 with a hex. nut and washer will be provided at each flange as an additional grounding connection.

Otherwise grounding must be ensured by different measures e.g. a cable link.

The ball/stem unit **201** and stem **202** are grounded using a grounding spring washer **557**.

6.3 Direction of flow and installation position

Installation is independent of the direction of flow.

Any fitting position can be chosen.

Otherwise, it is marked by a direction arrow on the ball valve, in the case of an additional relief bore in the ball/stem unit or the ceramic ball.

Fig. 1 Al_2O_3 -ball in closed position

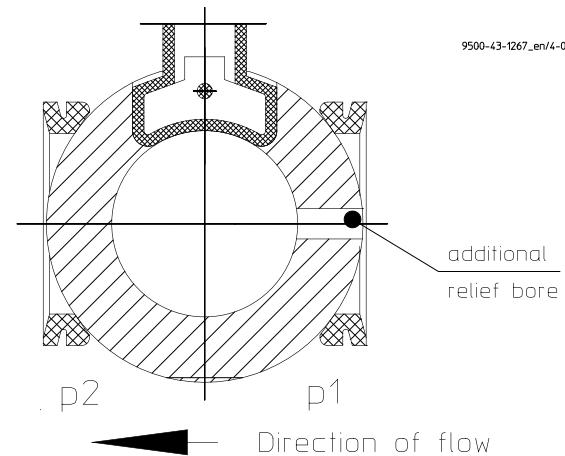
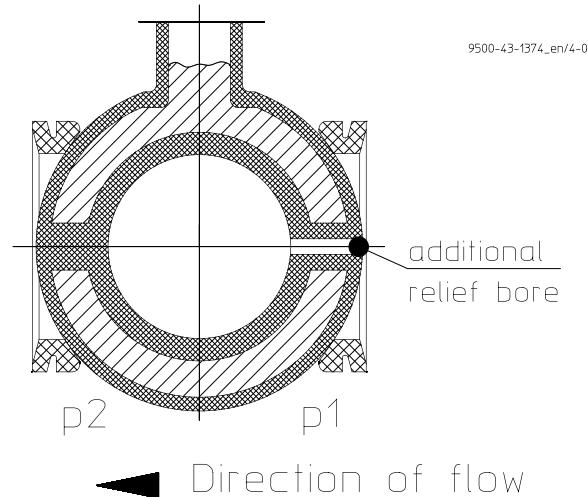


Fig. 2 ball/stem unit in closed position



6.4 Test pressure

The test pressure PT of a valve must not exceed the value of $1.5 \times PS(PN)$ as per the identification of the valve.

7 Operation

7.1 Initial commissioning

Normally, the valves have been tested for leaks with air or water. Prior to initial operation check cover screws. For tightening torques, see [Section 1.2](#).



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.

For tightening torques, see [Section 1.2](#).

7.2 Improper operation and their consequences

- ◆ The ball valve is an on/off valve and shall not be operated in an intermediate position.
Damage to the seat rings or the ball/stem unit or ball and stem could occur.
- ◆ Crystallisation may result in damage to the seat rings or the ball/stem unit or ball and stem. 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 may break if the max. adm. torque is exceeded.

8 Malfunctions

◆ Flange connection ball valve/pipe is leaking

Retighten the flange screws to a tightening torque according to [Section 1.2](#). If this does not remedy the leak, the recommended torques may be exceeded by 10%.

If this also fails to stop the leak, dismantle and inspect the valve.

◆ Flange connection main body/body end piece is leaking

Retighten body screws. See paragraph "Flange connection valve/pipe is leaking".

◆ Packing is leaking

Retighten packing nuts according to the details in [section 1.2](#).

◆ Ball valve does not operate

Is the actuator supplied with power?

- ◆ Increased wear occurs in operation with solids contents.
- ◆ Operation during cavitation leads to increased wear.
- ◆ Non-observance of the pressure-temperature diagram can lead to damage.
- ◆ Do not subject the lever to heavy loads; the lever or ball valve may be damaged.
- ◆ Do not use a lever extension as otherwise there is a risk of damage.

7.3 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. Medium residue may be in the valve even if it has been properly drained and flushed.

After dismantling, immediately protect the valve flanges against mechanical damage by using flange caps. See also [Section 6.1](#).

 Make sure that a remote-controlled actuator cannot be switched on by accident.

Is any directional control valve correctly connected?

Is there foreign matter in the valve?

◆ The ball no longer closes completely

Is the stem deformed?

Is the coupling worn?

With a worm gear or actuator, check whether the end stops can be re-adjusted. The operating manuals of the gear and actuator manufacturers contain accurate instructions.



Never apply force to the lever or use an extension.

1. Try to get the ball valve working again by moving the lever to and from.
2. Remove the lever stop and try to switch against the normal direction of rotation.
3. If actuation is not possible with the max. admissible actuating torque as per [section 1.3](#), dismantle ball valve and inspect individual components.

9 Maintenance

- ◆ All repair work is to be performed by qualified personnel using the appropriate tools.
- ◆ For the arrangement, designation and item numbers of all parts of the valve, see [Section 9](#).
- ◆ Spare parts are to be ordered with all the details in acc. with the valve identification.
- ◆ Only use original spare parts.
- ◆ To prevent leaks, a regular check of the connection screws should be made in line with the operating requirements.
- ◆ For tightening torques, see [Section 1.2](#).

9.1 Dismantling

9.1.1 BVA/F with lever

- ◆ Move the ball/stem unit 201 into the closed position.
- ◆ Remove lever 203.
- ◆ Take out grounding spring washer 557.
- ◆ Dismantle packing gland follower 503 and spring gland follower 502.
- ◆ The thrust ring 405/1 and packing insert 423 are one unit and it is levered out using 2 screwdrivers.
- ◆ Undo screw connection body end piece 102 / main body 101.
- ◆ Pull the ball/stem unit 201 partially out, the base ring 422 is pressed upwards. The ball/stem unit must be in the closed position.
- ◆ The base ring 422 can now be pushed further up using an angled Allen key. Make sure that the packing chamber is not damaged.
- ◆ Remove base ring 422 from the ball/stem unit 201 and pull the unit out.
- ◆ Remove seat rings 401.

9.1.2 Ball valve with actuator

- ◆ Mount actuator 850 with coupling 804.
- ◆ Dismantle packing gland follower 503 and spring gland follower 502.
- ◆ Remove lantern 510.
- ◆ Further dismantling is performed as described in [Section 8.1.1](#).

9.2 Assembly BVA/F, BVAP/F with ball/stem unit

- ◆ Prior to assembly all parts are to be cleaned and the plastic-lined parts checked for damage.
- ◆ Insert seat rings 401 in the main body 101 and body end piece 102.
- ◆ Mount ball/stem unit 201 in closed position. Make sure that the packing chamber is not damaged.
- ◆ A relief bore in the ball/stem unit must lie on the p1 side in the closed position.
- ◆ Mount body end piece 102. Tighten the greased housing screws cross over with a tightening torque according to [section 1.2](#).

9.2.1 Packing insert

- ◆ Push the base ring 422 onto the stem into the packing chamber.
- ◆ Push the packing insert 423 with the thrust ring 405/1 into the packing chamber.
- ◆ Press in grounding spring washer 557.

9.2.2 BVA/F with lever

- ◆ Mount lever stop 577, spring gland follower 502 (at 4" and 6" are 2 spring gland followers) and packing gland follower 503. Tighten packing nuts until there is no gap between packing gland follower and spring gland follower. See [Sections 1.2, 9.4 and 9.5](#).
- ◆ Seal any tapped bores still open with plugs.
- ◆ Mount lever 203.

9.2.3 BVAP/F with actuator

- ◆ Mount spring gland follower 502 (at 4" and 6" are 2 spring gland followers) and packing gland follower 503. Tighten packing nuts until there is no gap between packing gland follower and spring gland follower. See [Sections 1.2, 9.6 and 9.8](#).
- ◆ Mount bracket 510 with the opening at right angles to the direction of flow.
- ◆ Mount coupling 804 and actuator 850. Observe the actuator position in accordance with the actuator operating manual.
- ◆ Observe the ball/stem position in accordance with the position of the actuator.

9.3 Dismantling BVA/F, BVAP/F with ball and stem

It is possible with a BVA/F, BVAP/F with ball and stem to replace the seat rings and ball without dismantling the entire ball valve.

It is equally possible to remove the packing gland follower, spring gland follower and packing insert without dismantling the body.

The entire ball valve must merely be taken apart to remove the stem.

For sectional drawings, see [Section 9](#).

9.3.1 Partial assembly ball and seat rings

- ◆ Move ball **200** into the 'closed' position.
- ◆ Relieve the packing gland follower **503** by undoing the hex. nuts **920/2**.
- ◆ Undo body nuts and bolts.
- ◆ Remove body end piece **102**.
- ◆ Remove ball **200** from the main body **101** by swivelling it.
- ◆ Remove seat rings **401** from the main body **101** and body end piece **102** and replace.

9.3.2 Packing insert and stem

- ◆ Move ball **200** into the 'closed' position.
- ◆ Remove lever **203**.
- ◆ Dismantle packing gland follower **503** and spring gland follower **502**.
- ◆ Take out grounding spring washer **557**.
- ◆ Undo body nuts and bolts.
- ◆ Remove body end piece **102**.
- ◆ The thrust ring **405/1** and packing insert **423** are one unit and it is levered out using 2 screwdrivers.
- ◆ Undo body nuts and bolts. Remove ball **200** from the main body **101** by swivelling it.
- ◆ Press the stem **202** downwards into the body and remove base ring **422**.

9.3.3 BVAP/F with actuator

- ◆ Mount actuator **850** with coupling **804**.
- ◆ Dismantle packing gland follower **503** and spring gland follower **502**.
- ◆ Remove lantern **510**.

Further dismantling is performed as described in [Section 8.1.3](#).

9.4 Assembly BVA/F, BVAP/F with ball and stem

- ◆ Prior to assembly all parts are to be cleaned and the plastic-lined parts checked for damage.
- ◆ Insert seat rings **401** in the main body **101** and body end piece **102**.
- ◆ Insert stem **202** from inside into the main body **101**.
- ◆ Move stem **202** into the 'closed' position.
- ◆ Swivel ball **200** into the stem **202**.
- ◆ Any pressure relief or drain bore must lie on the p1 side in the "off" position. See also [Section 5.2](#).
- ◆ Mount body end piece **102**. Tighten the greased housing screws cross over with a tightening torque according to [section 1.2](#).

9.4.1 Packing insert

- ◆ Put base ring **422** onto the stem.
- ◆ Push the packing insert **423** with the thrust ring **405/1** into the packing chamber.
- ◆ Press in grounding spring washer **557**.

9.4.2 BVAF with lever

- ◆ Mount lever stop **577**, spring gland follower **502** (at 4" and 6" are 2 spring gland followers **502**) and packing gland follower **503**. Tighten packing nuts until there is no gap between packing gland follower and spring gland follower. See [Sections 1.2, 9.4 and 9.5](#).
- ◆ Seal any tapped bores still open with plugs.
- ◆ Mount lever **203**.

9.4.3 BVAP/F with actuator

- ◆ Mount spring gland follower **502** (at 4" and 6" are 2 spring gland followers **502**) and packing gland follower **503**. Tighten packing nuts until there is no gap between packing gland follower and spring gland follower. See Sections 1.2, 9.6 and 9.8.
- ◆ Mount bracket **510** with the opening at right angles to the direction of flow.
- ◆ Mount coupling **804** and actuator **850**. Observe the actuator position in accordance with the actuator operating manual.

9.5 Conversion from lever to actuator

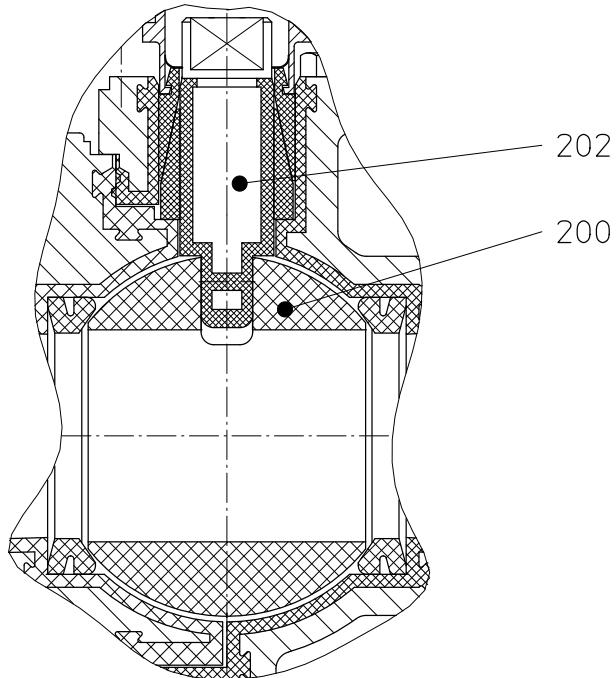
- ◆ Select the actuator in accordance with the instructions of the actuator manufacturer.
- ◆ Remove lever **203**.
- ◆ Remove lever stop **577** and plug.
- ◆ Check the fits of the coupling **804**, bracket **510** and actuator **850**.
- ◆ Mount bracket **510** with the opening at right angles to the direction of flow.
- ◆ Mount coupling **804** and actuator **850**. Observe the actuator position in accordance with the actuator operating manual.

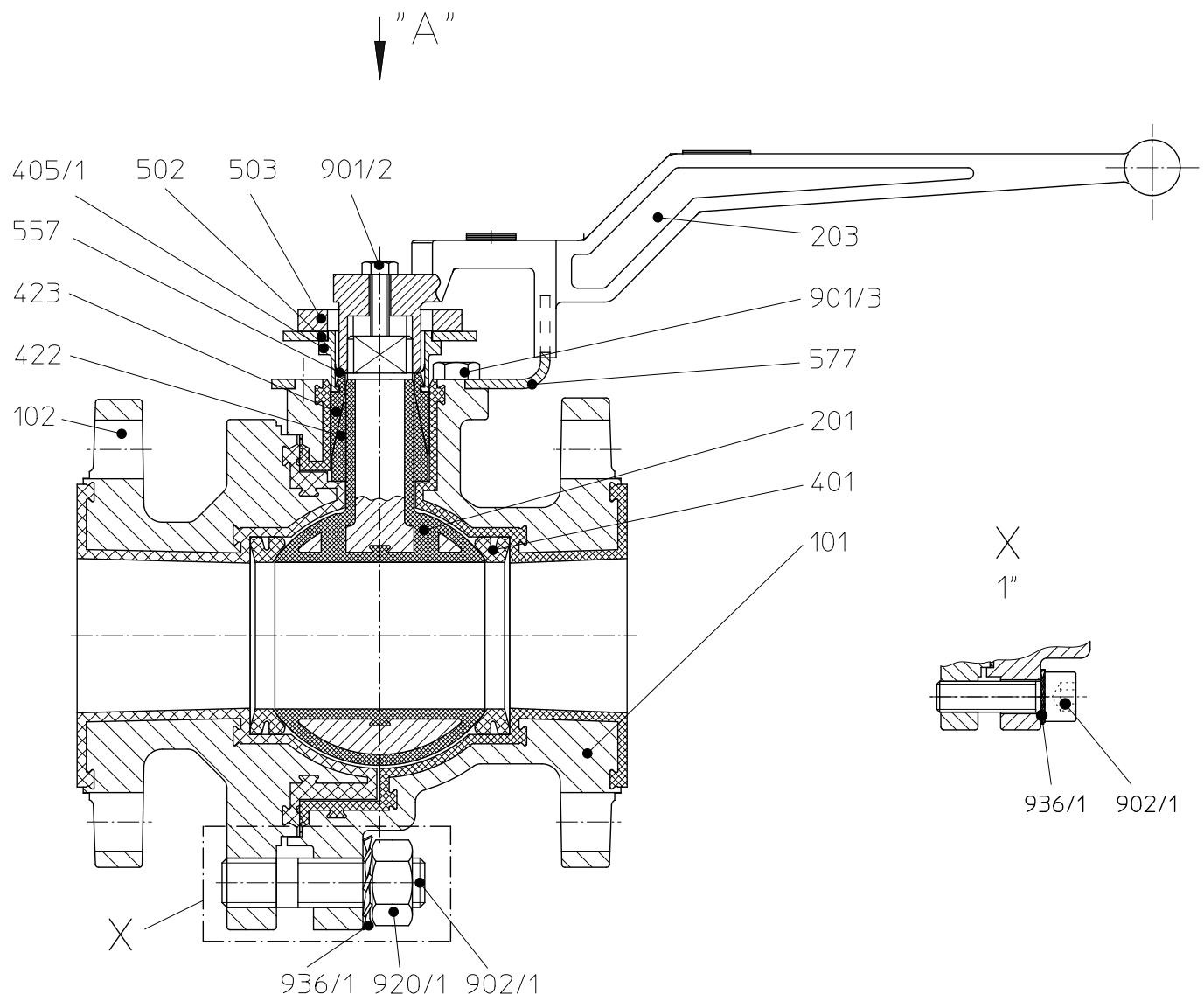
10 Drawings

10.1 Legend

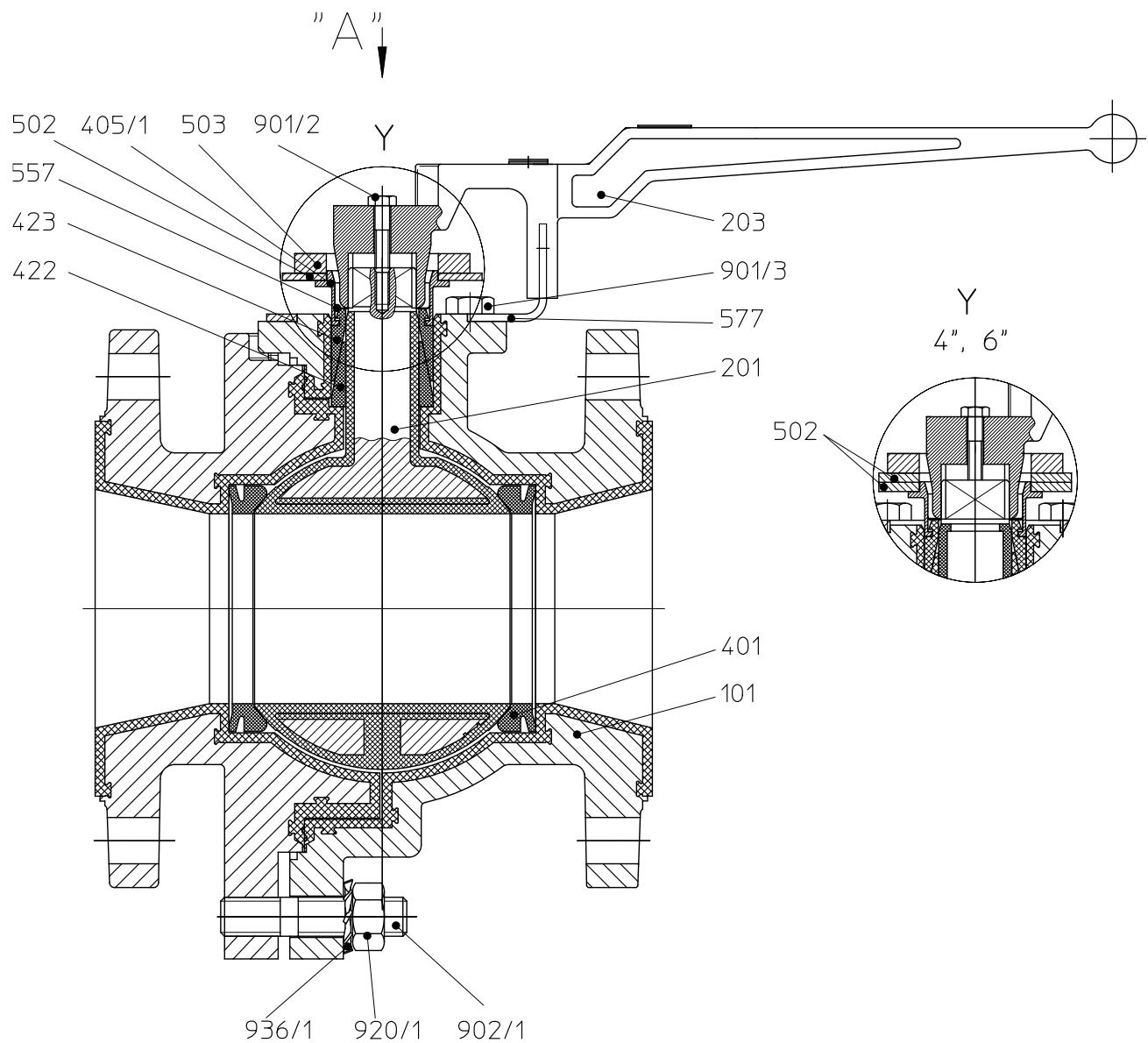
101	main body	554/1	washer
102	body end piece	557	grounding spring washer
200	ball	577	lever stop
201	ball/stem unit	804	coupling
202	stem	includes:	
203	lever	500	ring (option)
401	seat ring	952	pressure spring
stem seal		980/1	round head grooved pin
includes:		850	actuator
405/1	thrust ring	901/x	hex. screw
422	base ring	902/1	stud screw
423	packing insert	904/1	setscrew
502	spring gland follower	918/1	threaded rod (6")
503	spring gland follower	920/x	hex. nut
510	bracket	936/1	toothed lock washer

10.2 Detail BVA/F, BVAP/F with ball and stem



10.3 Sectional drawing BVA/F 1" to 2" with leverDrawing indicates ball valve with ball/stem unit

Holes of the flange- and housing screws view displaced by 45°.

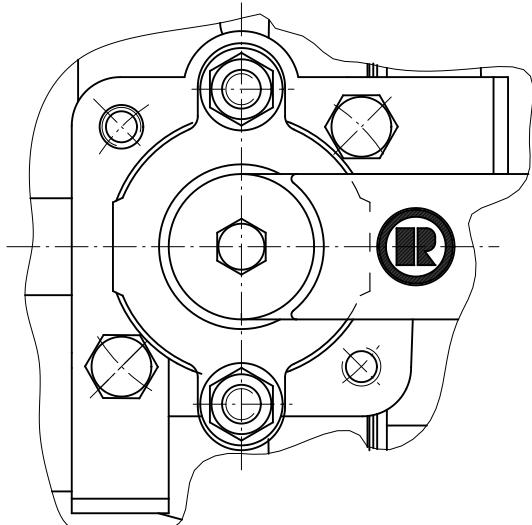
10.4 Sectional drawing BVA/F 3" to 6" with leverDrawing indicates ball valve with ball/stem unit and reduced bore

Holes of the flange- and housing screws view displaced by 45°.

10.5 View and section Ball valve with lever

View "A"

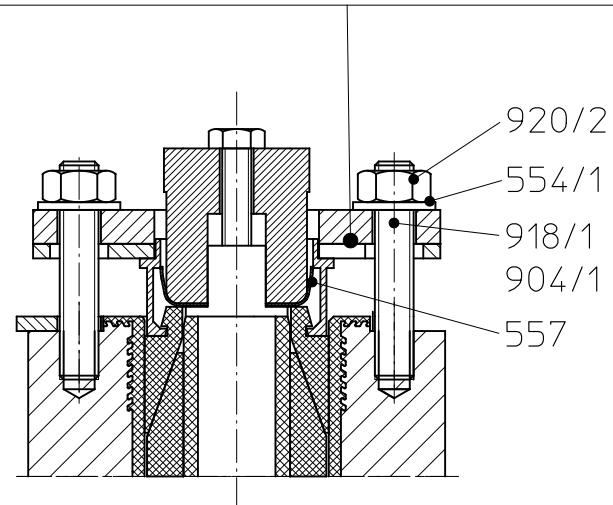
B →



B →

Section B-B

Tighten packing gland follower 503 until spring gland follower 502 is in contact without any gap

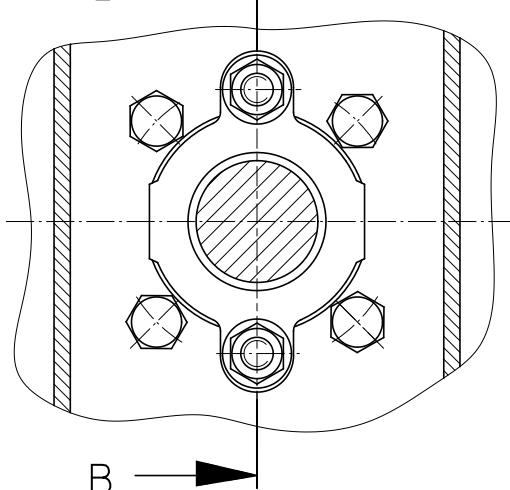


9500-43-1327_enV4-0

10.6 Section ball valve with actuator

Section A-A

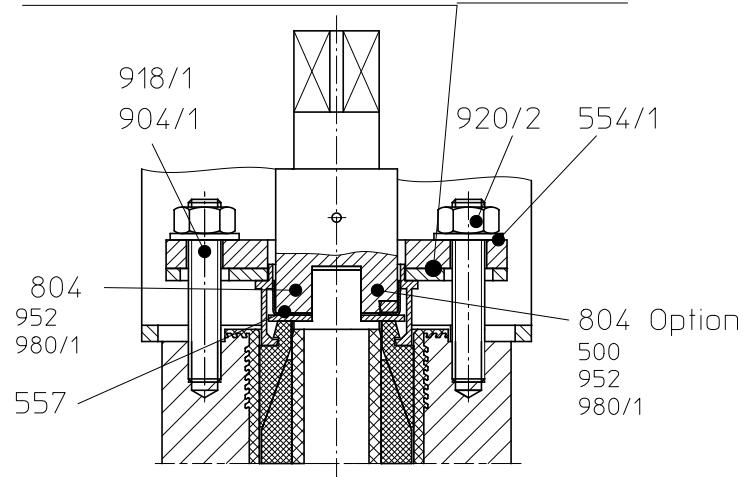
B →



B →

Section B-B

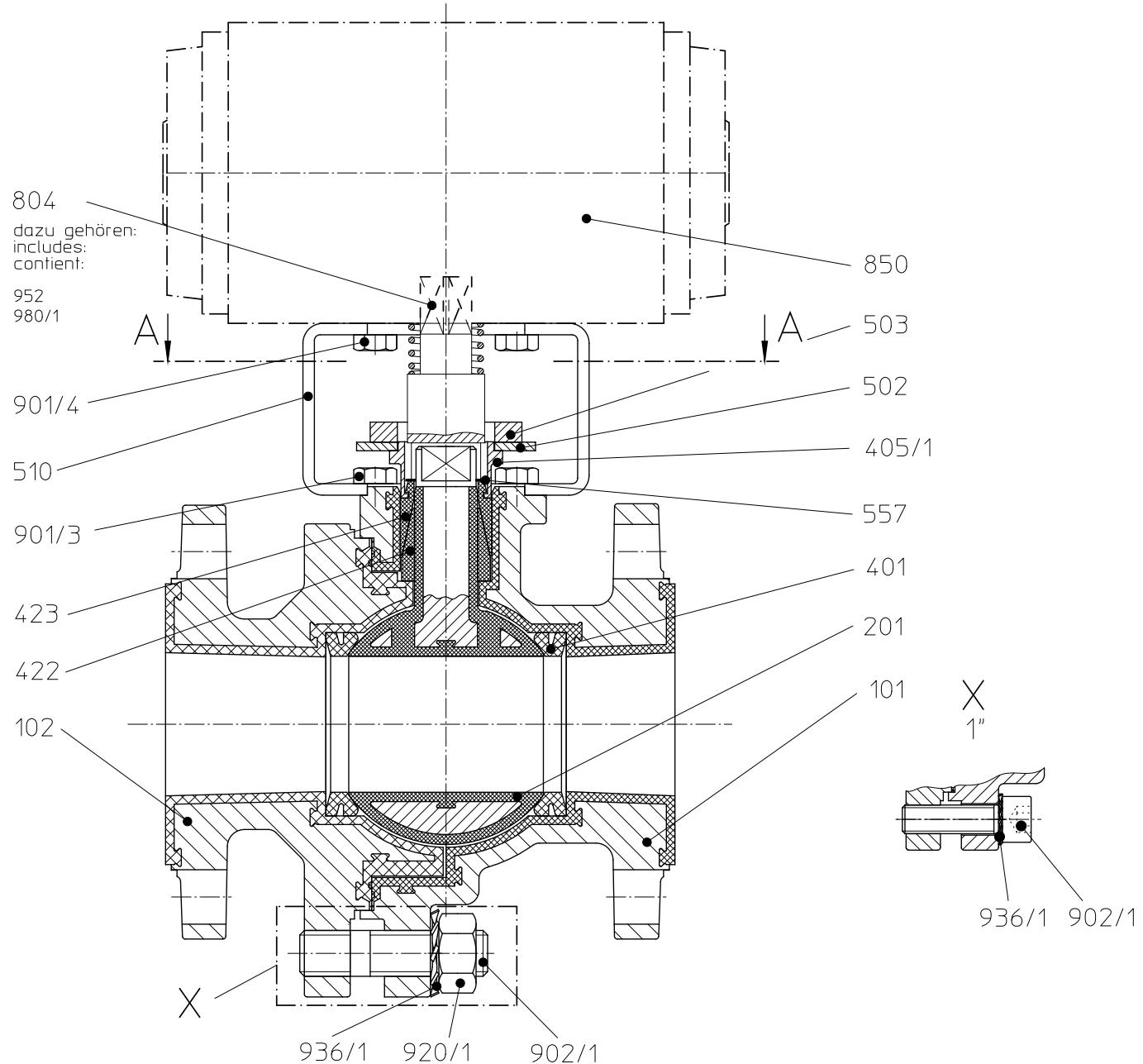
Tighten packing gland follower 503 until spring gland follower 502 is in contact without any gap



9500-43-1328_enV4-0

10.7 Sectional drawing BVAP/F 1" to 2" with actuator

Drawing indicates ball valve with ball/stem unit

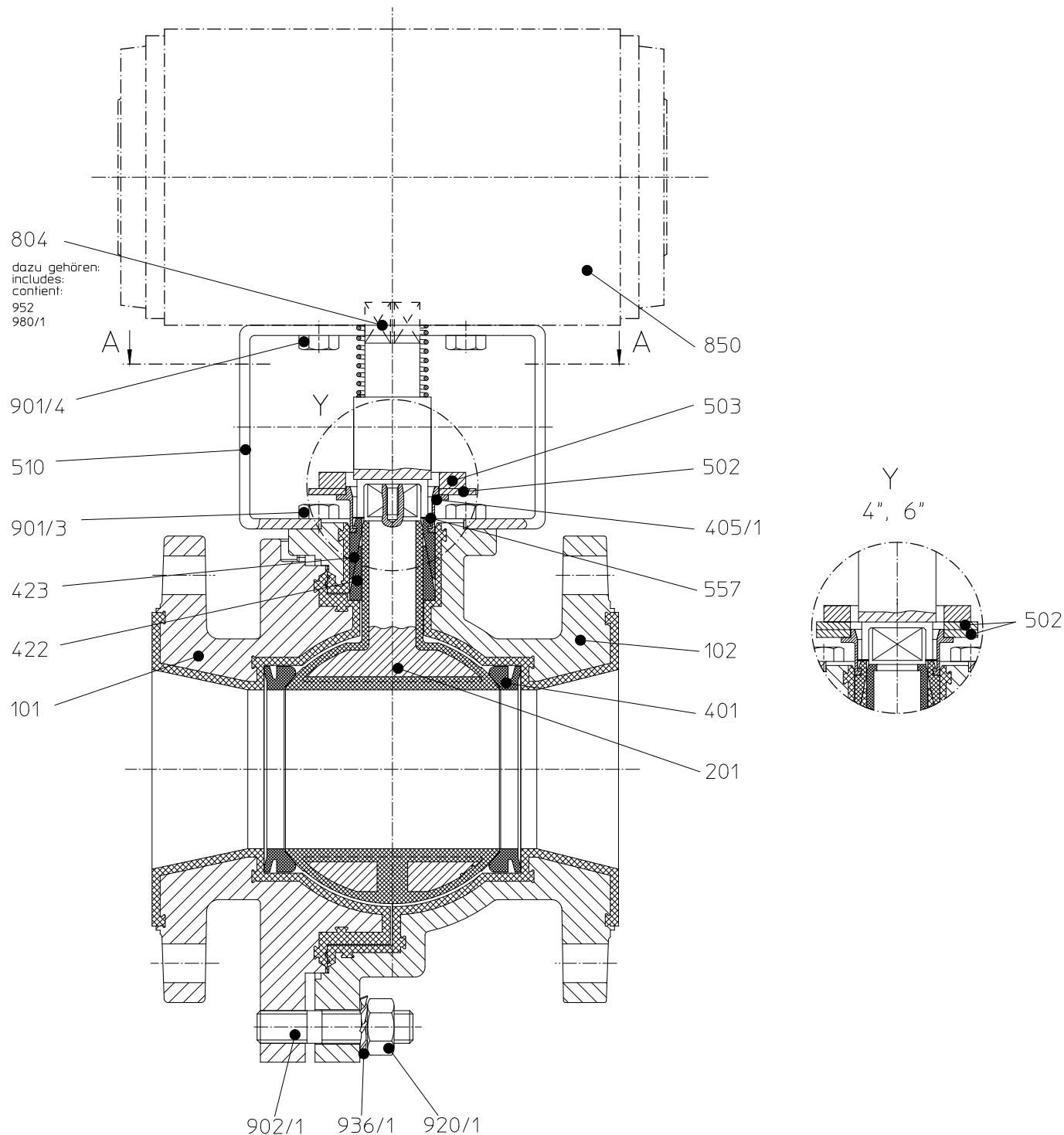


9520-00-3195/4-0

Holes of the flange- and housing screws view displaced by 45°.

10.8 Sectional drawing BVAP/F 3" to 6" with actuator

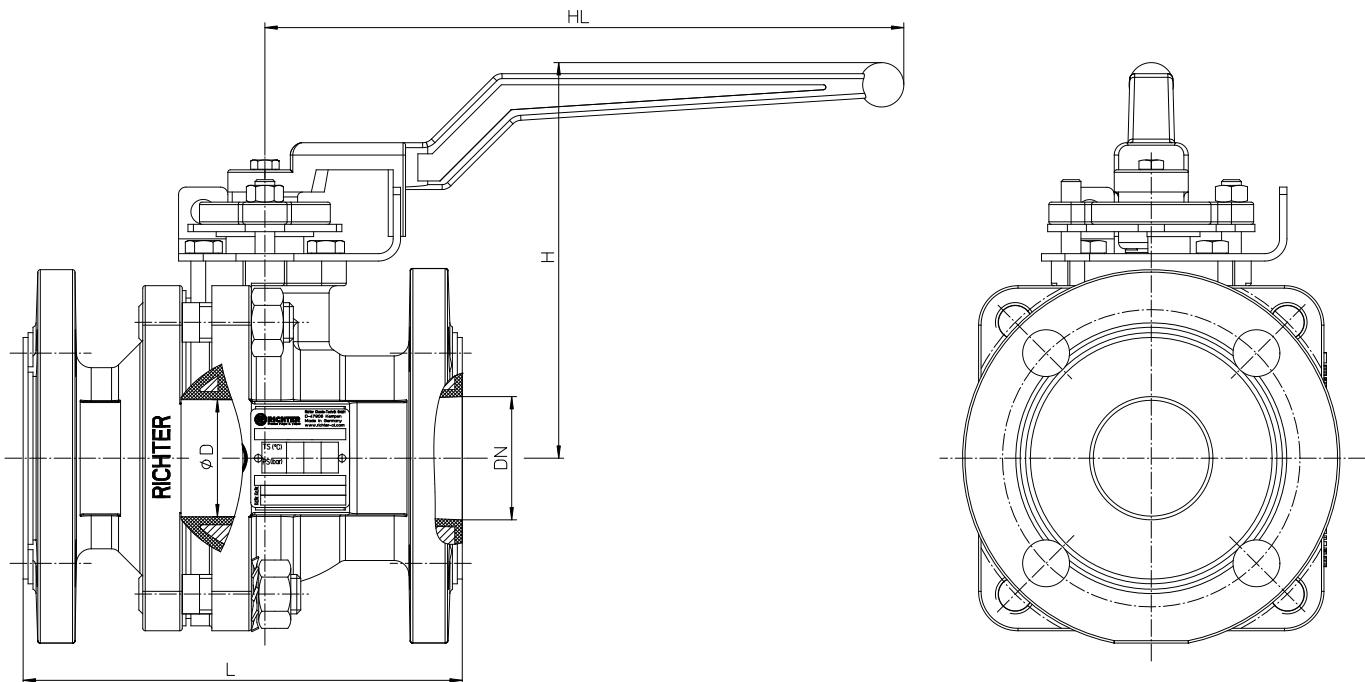
Drawing indicates ball valve with ball/stem unit and reduced bore



Holes of the flange- and housing screws view displaced by 45°.

9520-00-3195/4-0

10.9 Dimensional drawing BVA/F with lever

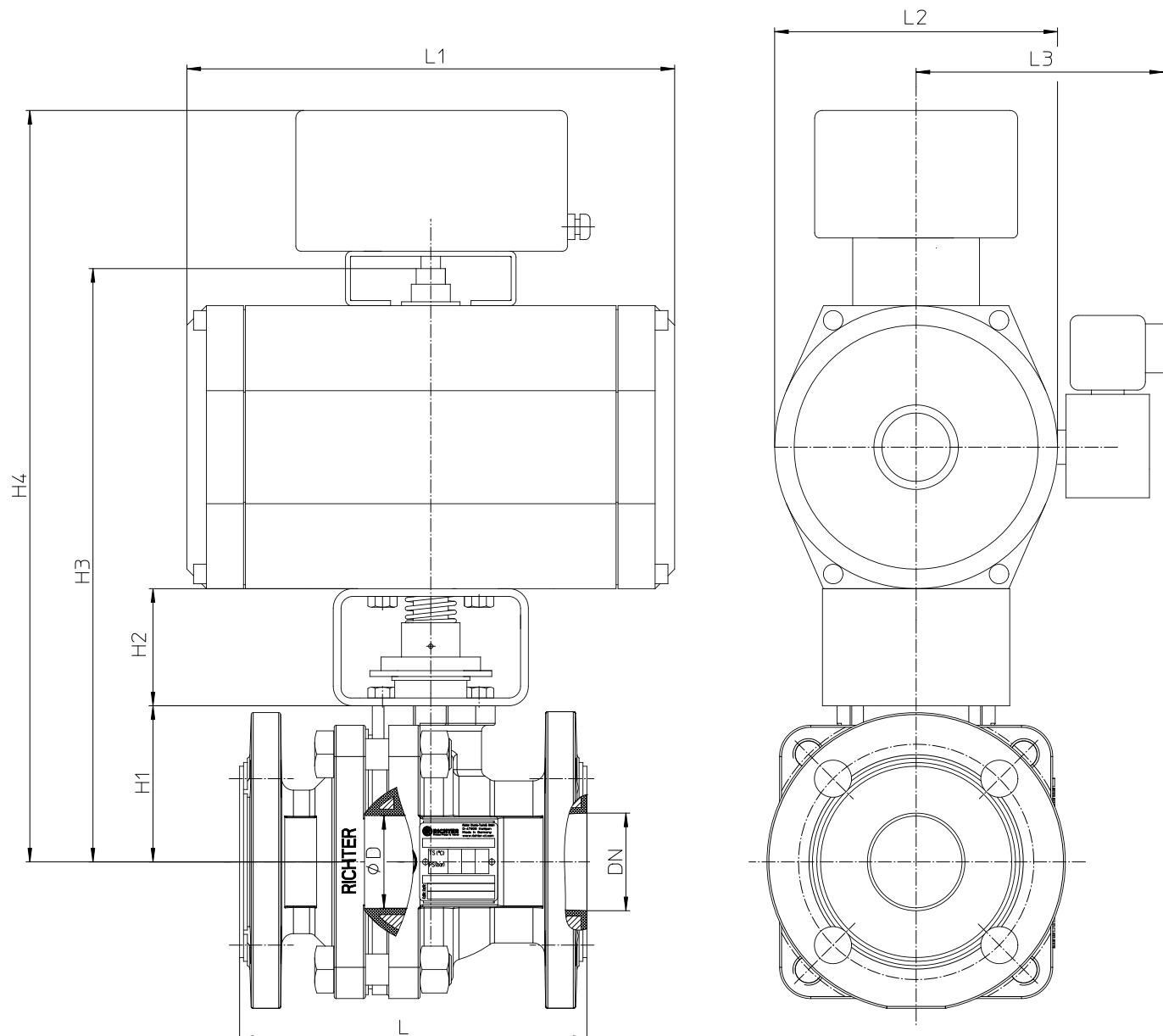


9520-00-4180/4-0

DN		1"	1½" red.	2"	3" red.	4" red.	6" red.
D	inch [mm]	0.96 [24.5]		1.87 [47.5]		3.07 [78]	3.78 [96]
L	inch [mm]	5.0 [127]	6.5 [165]	7.0 [178]	7.99 [203]	9.01 [229]	10.51 [267]
HL	inch [mm]	7.05 [179]		10.24 [260]	16.14 [410]		20.27 [515]
	inch [mm]	5.12 [130]			6.1 [155]	7.09 [180]	7.68 [195]
H		10.43 [265]					

Flange connecting dimensions:
ASME B16.5 Class 150, raised face

10.10 Dimensional drawing BVAP/F with actuator



10.10.1 Table to dimensional drawing BVAP/F

DN		1"	1½" red.	2"	3" red.	4" red.	6" red.
D	inch [mm]	0.96 [24.5]		1.87 [47.5]]		3.07 [78]	3.78 [96]
L	inch [mm]	5.0 [127]	6.5 [165]	7.0 [178]	7.99 [203]	9.01 [229]	10.51 [267]
L ₁	inch [mm]						
L ₂	inch [mm]						
L ₃	inch [mm]						
H1	inch [mm]	1.97 [50]		3.15 [80]		4.65 [118]	5.43 [138]
H2	inch [mm]	2.32 [60]		2.32 * [60 *]	3.15 [80]		3.94 [100]
H3	inch [mm]						
H4	inch [mm]						

* H2 = 3.15" (80mm) if F10 or F12 on the actuator side

Dimensions L1, L2, L3, H3 and H4 vary depending on the actuator manufacturer.

Flange connecting dimensions:
ASME B16.5 Class 150, raised face



Konformitätserklärung nach EN ISO//IEC 17050
Declaration of Conformity according to EN ISO//IEC 17050

Produkt <i>Product</i>	Kunststoffausgekleidete Dreharmaturen <i>Plastic lined quarter turn valves</i>		
Bauart <i>Design</i>	Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn, Absperr- und Regelklappe <i>Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve</i>		
Baureihe <i>Series</i>	KN..., KNA..., BVA..., KNR..., KNAR..., KH..., KK..., KA-N..., NKL..., NKS..., KNP..., KNAP..., BVAP..., KNRP..., KNARP..., KHP..., KKP..., KAP-N..., NKLP..., NKSP...		
Nennweite <i>Size</i>	DN 15 bis DN 400, $\frac{1}{2}$ " bis 16" <i>DN 15 to DN 400, $\frac{1}{2}$" to 16"</i>		
Seriennummer <i>Series number</i>	ab/from 01.02.2023		
EU-Richtlinie <i>EU-Directive</i>	2014/68/EU Druckgeräterichtlinie 2006/42/EG ²⁾ Maschinenrichtlinie Anhang II, Nr. 1A 2014/68/EU Pressure Equipment 2006/42/EC ²⁾ Directive Machinery Annex II, No. 1A		
Angewandte techn. Spezifikation <i>Applied Technical Specification</i>	DIN EN 16668, AD2000 DIN EN ISO 12100		
Überwachungsverfahren <i>Surveillance Procedure</i>	2014/68/EU Zertifizierungsstelle für Druckgeräte der TÜV Nord Systems GmbH & Co. KG Große Bahnstraße 31 D-22525 Hamburg Notified Body 0045		
Konformitätsbewertungs- verfahren 2014/68/EU <i>Conformity assessment procedure 2014/68/EU</i>	Modul H Zertifikats Nr. 0045/202/1411/P/00470/22/D/001(00)		
Kennzeichnung <i>Marking</i>	2014/68/EU ¹⁾ \geq DN 32, \geq 1"	CE 0045	CE
	2006/42/EG 2006/42/EC		

Das Unternehmen Richter Chemie-Technik GmbH bescheinigt hiermit, dass die o.a. Baureihen die grundsätzlichen Anforderungen der aufgeführten Richtlinien und Normen erfüllen.

Richter Chemie-Technik GmbH confirms that the basic requirements of the above specified directives and standards have been fulfilled.

¹⁾ Für nicht aufgeführte Nennweiten ist eine Kennzeichnung nicht zulässig.

For sizes not listed a marking is not permitted.

²⁾ Armaturen mit freiem Wellenende, vorbereitet für Antrieb oder mit Antrieb und Zubehör. Ausgenommen sind handbetätigtes Armaturen.

Valves with a bare shaft, prepared for actuator or with actuator and accessories. Excluded are manually actuated valves.

Kempen, 01.02.2023

Barbara Wladarz
Managing Director

Gregor Kleining
Director Global Engineering



Konformitätserklärung
Declaration of Conformity

In Übereinstimmung mit den Leitlinien der britischen Regierung
in accordance with UK government guidance

Produkt <i>Product</i>	Kunststoffausgekleidete Dreharmaturen <i>Plastic lined quarter turn valves</i>
Bauart <i>Design</i>	Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn, Absperr- und Regelklappe <i>Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve</i>
Baureihe <i>Serie</i>	KN..., KNA..., BVA..., KNR..., KNAR..., KH..., KK..., KK-FU..., KA-N..., NKL..., NKS...
Nennweite <i>Size</i>	DN 15 bis DN 400, 1/2" bis 16" <i>DN 15 to DN 400, 1/2" to 16"</i>
Seriennummer <i>Series number</i>	ab/from 01.01.2023
UK Gesetzliche Vorschriften <i>UK Statutory instruments</i>	2016 No. 1105 Druckgeräteverordnung 2016 2008 No. 1597 Maschinenverordnung 2008 <i>2016 No. 1105 The Pressure Equipment Regulations 2016 2008 No. 1597 The Supply of Machinery Regulations 2008</i>
Angewandte Technische Spezifikation <i>Applied Technical Specification</i>	DIN EN ISO 12100 DIN EN 16668, EN 13445
Überwachungsverfahren <i>Surveillance Procedure</i>	2016 No. 1105, 2008 No. 1597 Conformity Assessment Durchgeführt gemäß dem bestehenden PED-Modul H-Zertifikat im Rahmen der Erleichterungen der britischen Regierung vom Juni 2022. Applied according to existing PED Module H certificate under the UK government June 2022 easements.
Konformitätsbewertungs- verfahren 2014/68/EU <i>Conformity assessment procedure 2014/68/EU</i>	Modul H Zertifikat Nr. 0045/202/1411/Z/00470/22/D/001(00), TÜV Nord CE 0045 <i>Module H Certificate no. 0045/202/1411/Z/00470/22/D/001(00), TÜV Nord CE 0045</i>
Kennzeichnung <i>Marking</i>	2016 No. 1105, 2008 No. 1597 ¹⁾ <i>2016 No. 1105, 2008 No. 1597¹⁾</i>

Das Unternehmen Richter Chemie-Technik GmbH bescheinigt hiermit, dass die o.a. Baureihen die grundsätzlichen Anforderungen der aufgeführten Richtlinien und Normen erfüllen. Diese Erklärung wird unter der alleinigen Verantwortung des Herstellers abgegeben.

Richter Chemie-Technik GmbH confirms that the basic requirements of the above specified directives and standards have been fulfilled. This declaration is issued under the sole responsibility of the manufacturer.

¹⁾ Alle Armaturen, mit Ausnahme der Armaturen mit Handbetätigung.
For all valves, with exceptions to manually operated valves

Kempen, 20.12.2022

Barbara Wladarz
 Managing Director

i.V. Kleining
 Gregor Kleining
 Director Global Engineering

Konformitätserklärung **FDA & 2014/68/EU**
Declaration of Conformity

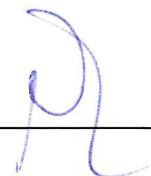
Produkt Product	PFA ausgekleidete Dreharmaturen <i>PFA lined quarter turn valves</i>
Bauarten	Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn Absperr- und Regelklappe
Design	<i>Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve</i>
Baureihen Series	KN, KNP, KN-D, KNP-D, KN-S, KNP-S, KNR, KNRP, KNR-D, KNRP-D, KH, KHP, KNA, KNAP, KNA-D, KNAP-D, KNA-S, KNAP-S, KNAR, KNARP, KNAR-D, KNARP-D, KNAR-S, KNARP-S, BVA, BVAP, KK, KKP, KA-N, KAP-N, NKS, NKSP, NKL, NKLP, NKS-N, NKSP-N, TE, NKS-T
Richtlinie Directive	FDA Regulation 21 CFR §177.15 50 2014/68/EU, EU Nr. 10/2011, EU Nr. 1935/2004, 84/500/EWG, 2005/31/EG
Mediumberührte Werkstoffe Materials of media-wetted parts	PFA PTFE Mod. PTFE Al ₂ O ₃

Das Unternehmen Richter Chemie-Technik GmbH bescheinigt hiermit, dass in medium berührten Teilen der o.a. Baureihen Materialien verwendet wurden, welche die Vorschriften der FDA Regulation 21 CFR §177.15 50, die Verordnungen 2014/68/EU, EU Nr. 10/2011, EU Nr. 1935/2004, 84/500/EWG und 2005/31/EG erfüllen bzw. dafür die allgemeinen Unbedenklichkeitsbescheinigungen des Herstellers/Lieferanten oder Prüflabors vorliegen. Entsprechende Einelnachweise sind vorhanden.

The company, Richter Chemie-Technik GmbH, herewith certifies that in medium-wetted parts of the above-mentioned series materials were used which satisfy the provisions of the FDA Regulation 21 CFR §177.15 50 and Directives 2014/68/EU, EU no. 10/2011, EU Nr. 1935/2004, 84/500/EWG and 2005/31/EG or for which general compliance certificates of the manufacturer/supplier/test laboratory are available. Relevant *individual proof can be provided*.

Kempen, 15.09.2023

Barbara Wladarz
Managing Director




Gregor Kleinring
Director Global Engineering

Richter Chemie-Technik GmbH
Qualitätsmanagement
Otto-Schott-Str. 2
D-47906 Kempen
Germany
Tel.: +49 / (0) 21 52 / 146-0
Fax: +49 / (0) 21 52 / 146-190
richter-info@idexcorp.com

Herstellererklärung ATEX Richtlinie 2014/34/EU

Manufacturer's Declaration ATEX Directive 2014/34/EU

Alle Richter Armaturen inkl. Absperr-, Regel- und Sicherheitsventile All Richter Valves incl. Shut-off, Control and Safety Valves

Die oben bezeichneten Armaturen wurden einer Risikoanalyse nach der Richtlinie 2014/34/EU mit folgendem Ergebnis unterzogen:

The valves specified above underwent a risk analysis according to Directive 2014/34/EU with the following result:

- Richter Armaturen besitzen keine eigenen potentiellen Zündquellen. Die Armaturen können sowohl manuell als auch mechanisch/elektrisch angetrieben werden.
Die Armaturen fallen nicht in den Anwendungsbereich der ATEX-Richtlinie 2014/34/EU und dürfen deshalb auch nicht danach gekennzeichnet werden.
Richter valves do not have their own potential sources of ignition. The valves can be actuated manually as well as mechanically/electrically.
ATEX Directive 2014/34/EU is not applicable to these valves. Therefore, it is not allowed to mark the valves according to that Directive.
- Die Armaturen dürfen in explosionsgefährdeten Bereichen eingesetzt werden.
The valves can be used in potentially explosive atmospheres.
- Dennoch müssen für den Armatureneinsatz in explosionsgefährdeten Bereichen Sicherheitshinweise bzgl. des Explosionsschutzes beachtet werden. Richter hat hierzu die Betriebsanleitungen um den Zusatz „Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen in Anlehnung an die Richtlinie 2014/34/EU“ erweitert.
However, when using the valves in potentially explosive atmospheres, specific safety notes on explosion protection must be observed. Here, Richter has extended their operating manuals to include the supplement „Safety notes for applications in potentially explosive atmospheres based on Directive 2014/34/EU“.

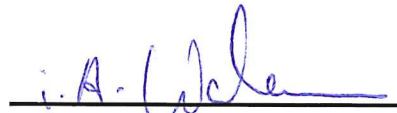
Ergänzender Hinweis: *Supplementary note:*

- Elektrische/mechanische Antriebe müssen einer eigenen Konformitätsbewertung nach ATEX unterzogen werden.
Electrical/mechanical actuators must undergo a separate conformity assessment.

Kempen, 01.09.2021



Gregor Kleining
Director Global Engineering



Ivo Watermann
ATEX Beauftragter

Herstellererklärung / Manufacturer's Declaration

TA-Luft / German Clean Air Act

Richter Kugelhähne / Richter Ball Valves

Hiermit erklären wir, dass die Kugelhähne der Baureihen
Hereby we declare, that the ball valves of the series

KN, KNR, KNA, KNAR, KNB, KNBR, KNA-S, BVA, KK, KH; KA-N, TE

die Anforderung der Leckagerate L_B ($\leq 10^{-4}$ mg/s·m) gemäß Ziffer 5.2.6.4 der Technischen Anleitung-zur Reinhaltung der Luft (TA-Luft) von 2021 erfüllen.

Grundlage sind die Prüfungen sowie deren Bewertung und Qualifikation nach DIN EN ISO 15848-1 vom TÜV Süd Industrie Service GmbH.

Voraussetzung für die Gültigkeit der Herstellererklärung ist das Beachten und Einhalten der Betriebsanleitung.

meet the requirement of the leakage rate L_B ($\leq 10^{-4}$ mg/s·m) according to clause 5.2.6.4 of German Clean Air Act (TA-Luft) of 2021.

This is based on the tests as well as their evaluation and qualification according to DIN EN ISO 15848-1 by TÜV Süd Industrie Service GmbH.

A prerequisite for the validity of the manufacturer's declaration is that the operating instruction manuals are observed and complied with.

Kempen, 01.02.2023

Barbara Wladarz
Managing Director

Gregor Kleining
Director Global Engineering

Richter Chemie-Technik GmbH · Postfach 10 06 09 · D-47883 Kempen

08.01.2015

Declaration of no objection

Dear Sirs,

The compliance with laws for the industrial safety obligates all commercial enterprises to protect their employees and/or humans and environment against harmful effects while handling dangerous materials.

The laws are such as: the Health and Safety at Work Act (ArbStättV), the Ordinance on Hazardous Substances (GefStoffV, BIOSTOFFV), the procedures for the prevention of accidents as well as regulations to environmental protection, e.g. the Waste Management Law (AbfG) and the Water Resources Act (WHG)

An inspection/repair of Richter products and parts will only take place, if the attached explanation is filled out correctly and completely by authorized and qualified technical personnel and is available.

In principle, radioactively loaded devices sent in, are not accepted.

Despite careful draining and cleaning of the devices, safety precautions should be necessary however, the essential information must be given.

The enclosed declaration of no objection is part of the inspection/repair order. Even if this certificate is available, we reserve the right to reject the acceptance of this order for other reasons.

Best regards
RICHTER CHEMIE-TECHNIK GMBH

Safety Information / Declaration of No Objection Concerning the Contamination of Richter-Pumps, -Valves and Components

1 SCOPE AND PURPOSE

Each entrepreneur (operator) carries the responsibility for the health and safety of his employees. This extends also to the personnel, who implements repairs with the operator or with the contractor.

Enclosed declaration is for the information of the contractor concerning the possible contamination of the pumps, valves and component sent in for repair. On the basis of this information for the contractor is it possible to meet the necessary preventive action during the execution of the repair.

Note: The same regulations apply to repairs **on-site**.

2 PREPARATION OF DISPATCH

Before the dispatch of the aggregates the operator must fill in the following declaration completely and attach it to the shipping documents. The shipping instructions indicated in the respective manual are to be considered, for example:

- Discharge of operational liquids
- remove filter inserts
- lock all openings hermetically
- proper packing
- Dispatch in suitable transport container
- Declaration of the contamination fixed **outside!!** on the packing

Declaration about the Contamination of Richter Pumps, -Valves and Components

The repair and/or maintenance of pumps, valves and components can only be implemented if a completely filled out declaration is available. If this is not the case, delay of the work will occur. If this declaration is not attached to the devices, which have to be repaired, the transmission can be rejected.

Every aggregate has to have its own declaration.

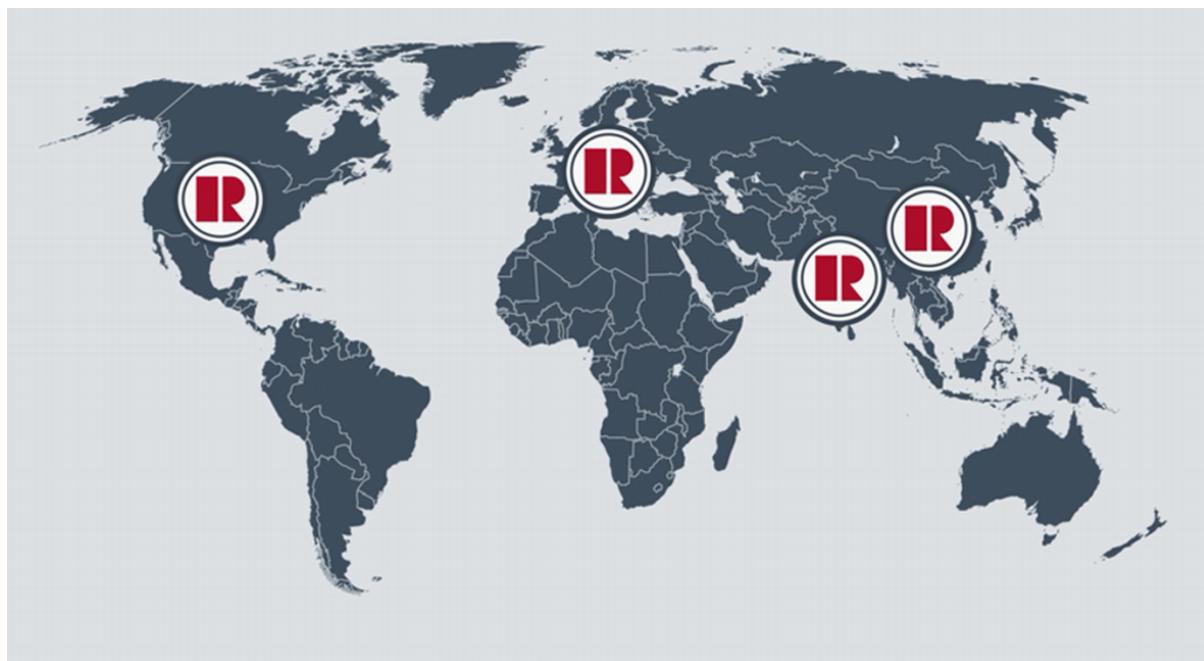
This declaration may be filled out and signed only by authorized technical personnel of the operator.

Contractor/dep./institute :	Reason for transmitting * Please mark the applicable					
Street :	Repair:	<input type="radio"/> subject to fee	<input type="radio"/> Warranty			
Postcode, city :	Austausch:	<input type="radio"/> subject to fee	<input type="radio"/> Warranty			
Contact person :	● Exchange/ Replacement already initiated/received					
Phone :	Return:	<input type="radio"/> Leasing	<input type="radio"/> Loan			
Fax :	<input type="radio"/> for credit note					
End user:						
A. Details of Richter-product:	Failure description:					
Classification:						
Article number:						
Serial number:						
B. Condition of the Richter-product:	no¹⁾	yes	no	Contamination :	no¹⁾	yes
Was it in operation ?	<input type="radio"/>	<input type="radio"/>		toxic	<input type="radio"/>	<input type="radio"/>
Drained (product/operating supply item) ?	<input type="radio"/>	<input type="radio"/>		caustic	<input type="radio"/>	<input type="radio"/>
All openings hermetically locked!	<input type="radio"/>	<input type="radio"/>		inflammable	<input type="radio"/>	<input type="radio"/>
Cleaned ?	<input type="radio"/>	<input type="radio"/>		explosive ²⁾	<input type="radio"/>	<input type="radio"/>
If yes, with which cleaning agent:				mikrobiological ²⁾	<input type="radio"/>	<input type="radio"/>
and with which cleaning method:				radioactive ³⁾	<input type="radio"/>	<input type="radio"/>
1) if "no", then forward to D.				other pollutant	<input type="radio"/>	<input type="radio"/>
2) Aggregates, which are contaminated with microbiological or explosive substances, are only accepted with documented evidence of an approved cleaning.						
3) Aggregates, which are contaminated with radioactive substances, are not accepted in principle.						
C. Details of the discharged materials (must be filled out imperatively)						
1. With which materials did the aggregate come into contact ? Trade name and/or chemical designation of operational funds and discharged materials, material properties, e.g. as per safety data sheet (e.g. toxic, inflammable, caustic)						
X Trade name:		Chemical designation:				
a)						
b)						
c)						
d)						
2. Are the materials specified above harmful to health ?						
3. Dangerous decomposition products during thermal load ?						
If yes, which ones?						
no	yes					

D. Mandatory declaration: We assure that the data in this explanation are truthful and complete and as a signatory I am able to form an opinion about this. We are aware that we are responsible towards the contractor for damages, which results from incomplete and incorrect data. We commit ourselves to exempt the contractor from claims for damages of thirds resulting from incomplete or incorrect data. We are aware that we are directly responsible towards thirds, irrespective of this declaration, which belongs in particularly to the employees of the contractor consigned with the handling repair of the product.

Name of the authorized person
(in block letters):

Date	Signature	Company stamp
------	-----------	---------------



Richter Chemie-Technik GmbH
Otto-Schott-Str. 2
D-47906 Kempen / Germany
Tel: +49 (0) 2152 146-0
Email: Richter-Info@idexcorp.com
Internet: www.richter-ct.com

Richter Pumps and Valves
6041 Industrial Drive
Geismar, 70734, USA
Tel.: +1 225-673-9990
Email: RichterIncSales@idexcorp.com
Internet: www.richter-ct.com

Richter (EP), Nanjing, Shanghai Office
Room 3502 - 3504, Zhaofeng Plaza
No. 1027, Changning Road, Shanghai 200050 / China
Tel: +86 / 21 / 6150 - 9812
Email: RichterShanghai-Info@idexcorp.com
Internet: www.richter-ct.com

Richter Pumps & Valves Pvt. Ltd.
Survey No. 256, near Bombardier Circle, GIDC
Manjusar, Savli, Dist. Vadodara 391770, Gujarat / India
Tel: +91 2667-662-001
Email: info.fmt@idex
Internet: www.richter-ct.com