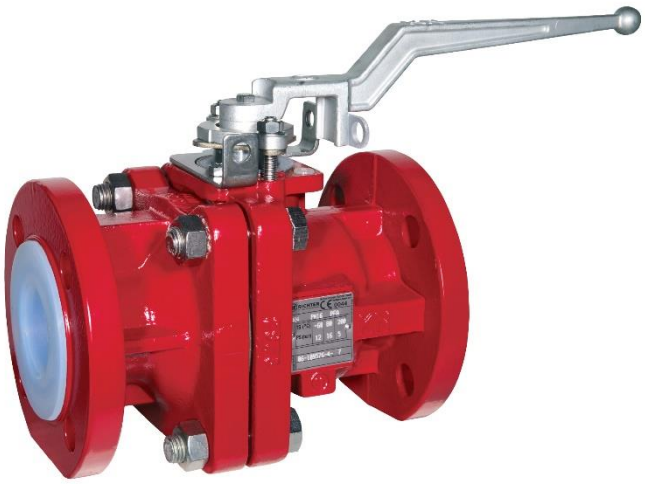
INSTALLATION AND OPERATING MANUAL

Series KN/F, KNP/F
KN-D/F, KNP-D/F
KN-S/F, KNP-S/F

Ball Valve

with ball/stem unit or Al_2O_3 ball / stem and Richter ENVIPACK universal packing



Keep for future use!

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

9520-001-en Revision 22 Edition 04/2025

RICHTER Process Pumps & Valves

List of Contents

Relevant documents

- EG-Declaration of conformity
- Declaration of conformity FDA & 97/48/EG
- Manufacturer Declaration ATEX Directive 2014/34/EU
- Manufacturer Declaration TA-Luft
- Form for Safety Information Concerning the Contamination QM 0912-16-2001_en
- For KNP/F, KNP-D/F, KNP-S/F: Operating manual for actuator
- Depending on option, relevant drawing:

Double packing bonnet	Section	**9520-00-3001**
	Dimen.	**9520-00-4011**
Stem extension	Section	**9520-00-3009**
DN 15-100	Dimen.	**9520-00-4022**
Stem extension	Section	**9520-00-3003**
DN 150-200/150	Dimen.	**9520-00-4013**
Stem extension, round	Section	**9520-00-3010**
	Dimen.	**9520-00-4020**
Lever elevation	Section	**9520-00-3011**
	Dimen.	**9520-00-4021**
Limit switch IFM	Section	**9520-00-3005**
	Dimen.	**9520-00-4015**
Spring return unit	Section	**9520-00-3004**
	Dimen.	**9520-00-4014**
Limit switch VDE/VDI	Section	**9520-00-3006**
	Dimen.	**9520-00-4016**
Turck Initiator	Section	**9520-00-3007**
	Dimen.	**9520-00-4017**
Heating jacket		**9520-00-3012**
Connection dimension for actuator	Dimen.	**9520-00-4018**

1 Technical data

Manufacturer:
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Otto-Schott-Str. 2
D-47906 Kempen
Telephone : +49 (0) 2152 146-0
Fax: +49 (0) 2152 146-190
E-Mail : richter-info@idexcorp.com
Internet: http://www.richter-ct.com

Designation :
Ball valve with ball/stem unit or Al_2O_3-ball / stem and Richter ENVIPACK universal selfadjusting packing, two-piece body.

Series:
KN/F → Design with lever lockable or hand gear
KNP/F → for pneumatic, hydraulic or elecectric actuator to DIN EN ISO 5211
KN-D/F → KN/F with thick-walled (5mm) body lining
KNP-D/F → KNP/F with thick-walled (5mm) body lining
KN-S/F → Design stainless steel with lever lockable or hand gear
KNP-S/F → Design stainless steel prepared for pneumatic, hydraulic or electric actuator to DIN EN ISO 5211
Certified to Clean Air Act (TA Luft)
Strength and tightness (P10, P11) of the pressure-bearing body tested to DIN EN 12266-1.
Gas-tight (P12) in the seat to DIN EN 12266-1, leak rate A
Face to face:
DIN EN 558 basic series 1, ISO 5752 basic series 1
DN 200/150 and 200 basic series 12
DN 200 to ASME B16.10, Class 150 column 3
Flange connecting dimensions: DIN EN 1092-2, type B
(ISO 7005-2 Type B) PN 16 or flanges drilled to ASME B16.5 Class 150

Materials:
Body material:
KN/F, KNP/F, KN-D/F, KNP-D/F:
Ductile cast iron EN-JS 1049 / ASTM A395
KN-S/F, KNP-S/F:
Stainless steel 1.4408, (CF8M, (316))

Lining material:	PFA	.../F
On request:	antistatic	…/F-L

Temperature range :
See pressure-temperature diagram in **Chapter 1.6**.

Operating pressure:
DN 15 - DN 100 from vacuum to 16 bar (PN16)
DN 150 - 200 max. 13 bar (PN 16)
DN 200/150 max. 10 bar (PN 10)
optional: DN 25 – DN 80 to max. 16 bar (PN 25)
See pressure-temperature diagram in **Chapter 1.6**.

Ball vale sizes in mm:
KN/F, KNP/F, KN-D/F, KNP-D/F:
DN 15, 20, 25, 40, 50, 80, 100, 150, 200/150, 200.
DN 200/150 with reduced bore DN150.
KN-S/F, KNP-S/F:
DN 25, 40, 50, 80

Installation position :
Arbitrary, with low-cavity ball/stem units or an additional relief bore in the ball/stem units, Al_2O_3-ball a direction arrow indicates the direction of flow. See also **section 6.2**.

Weight, ball valve manually operated:

DN	**15**	**20**	**25**	**40**	**50**	**80**
ca. kg	5.6	6	6	14	16	35
DN	**100**	**150**	**200/150**		**200**	
ca. kg	55	104	125		170	

For weight of actuator, see actuator manufacturer's manual.

Dimensions and individual parts:
See sectional drawing in **section 10**.

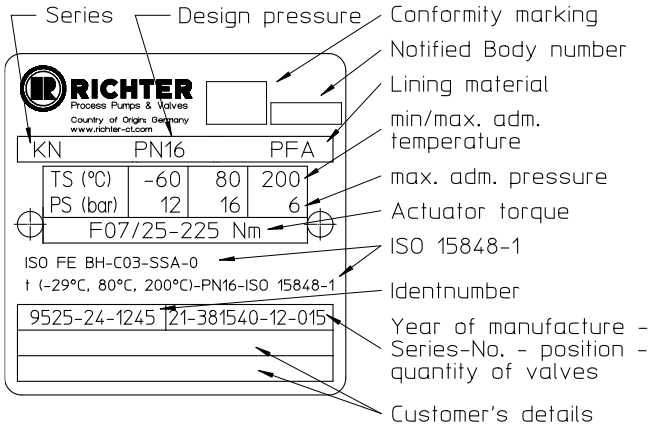
Wear parts: seat rings
Packing components
Ball/stem unit
Al_2O_3-ball
Stem

Options :
- Richter ENVIPACK. double packing bonnet for particularly high safety requirements, selfadjusting.
- monitoring or flushing connection
- stem unit extension
- lever extension
- Limit switches for remote monitoring of hand and remote-activated ball valves
- stainless steel heating jacket can be retrofitted, suitable for all common heat transfer media.

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:

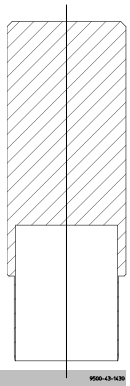


Body identification:
The following are visible on the body according to DIN EN 19 and AD 2000 A4:
- Nominal size
- Rated pressure
- Body material
- Manufacturer's identification
- Melt number/Foundry identification
- Foundry date

1.2 Mounting sleeve for ball/stem unit DN200

Nominal size [mm]	[inch]	Article No.
200	8“	9599-41-8310

Please contact Richter to order the mounting sleeve.



1.3 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. DN 80, 100, 150, 200/150 and 200 contain 2 spring gland followers **502**.

Rohrleitungsschrauben

Flange Nominal size [mm]	screws [ISO/DIN]	Tightening torque [Nm]
15	4 x M12	6
20	4 x M12	8
25	4 x M12	10
40	4 x M16	20
50	4 x M16	26
80	8 x M16	25
100	8 x M16	35
150	8 x M20	65
200	12 x M20	100

Pipe screws, flanges ISO/DIN drilled to ASME Class 150

Flange Nominal size [mm]	[inch]	screws [ASME]	Tightening torque [in-lbs]	[Nm]
15	½"	4 x ½“	45	5
20	¾"	4 x ½“	55	6
25	1"	4 x ½“	70	8
40	1½"	4 x ½“	135	15
50	2"	4 x ⅝“	220	25
80	3"	4 x ⅝“	400	45
100	4"	8 x ⅝“	310	35
150	6"	8 x ¾“	710	80
200	8"	8 x ¾“	1020	115

Body screws

Nominal size [mm]	screws [ISO/DIN]	Tightening torque [Nm]	[in-lbs]
15	4 x M12	35	310
20	4 x M12	35	310
25	4 x M12	35	310
40	4 x M16	45	398
50	4 x M16	45	398
80	8 x M16	50	442
100	8 x M16	60	531
150	8 x M20	150	1330
200/150	8 x M20	150	1330
200	12 x M24	175	1549

1.4 Actuating torques

Test medium: water 20 °C
Higher actuating torques may occur with other media.

Stem unit

DN	Δp in bar				
	≤ 3	6	10	16	max. adm.
[mm]	[Nm]	[Nm]	[Nm]	[Nm]	[Nm]
15	8	8	8	10	80
20	8	8	8	10	80
25	12	12	12	12	80
40	20	20	20	25	250
50	25	25	25	30	250
80	60	60	65	80	500
100	80	80	90	170	500
150	200	250	350	---	2200
200/150	200	250	350	---	2250
200	600	600	700	---	2200

Al_2O_3-ball

DN	Δp in bar				
	≤ 3	6	10	16	max. adm.
[mm]	[Nm]	[Nm]	[Nm]	[Nm]	[Nm]
15	10	10	10	12	34
20	10	10	10	12	34
25	12	12	12	12	34
40	20	25	30	45	80
50	25	30	35	50	120
80	60	100	160	220	250
100	80	130	200	280	350
150	350	450	600	---	1200
200/150	350	450	600	---	1200

1.5 Flow ratevalue

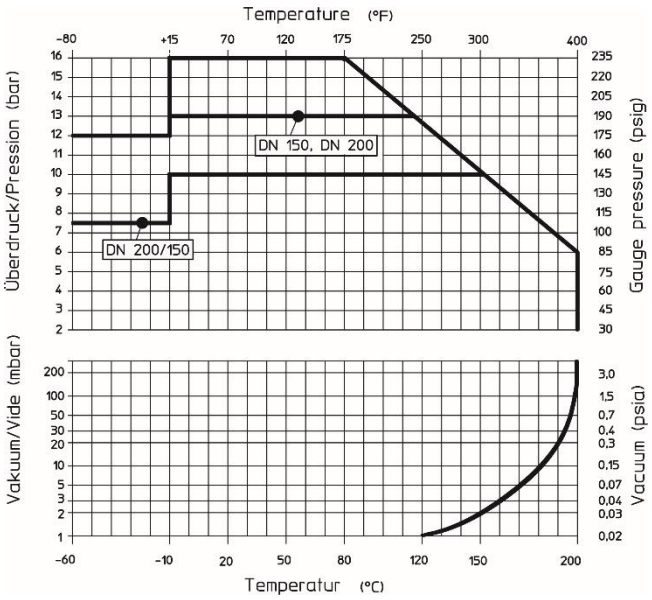
Nominal size [mm]	Kv100 [m^3/h]	Cv [US gpm]
15	17.5	20
20	31	36
25	75	87
40	200	233
50	310	361
80	800	932
100	1250	1456
150	2800	3262
200/150	3200	3728
200	6000	6990

1.6 Pressure-temperature diagram

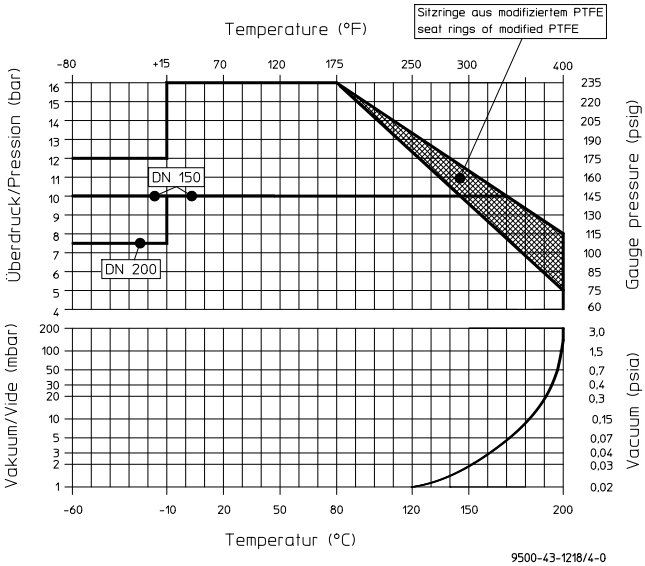
When used in the minus temperature range, the regulations applicable in the country in question must be observed.

2014/68/EU (PED), AD2000, DIN EN 16668

Stem unit

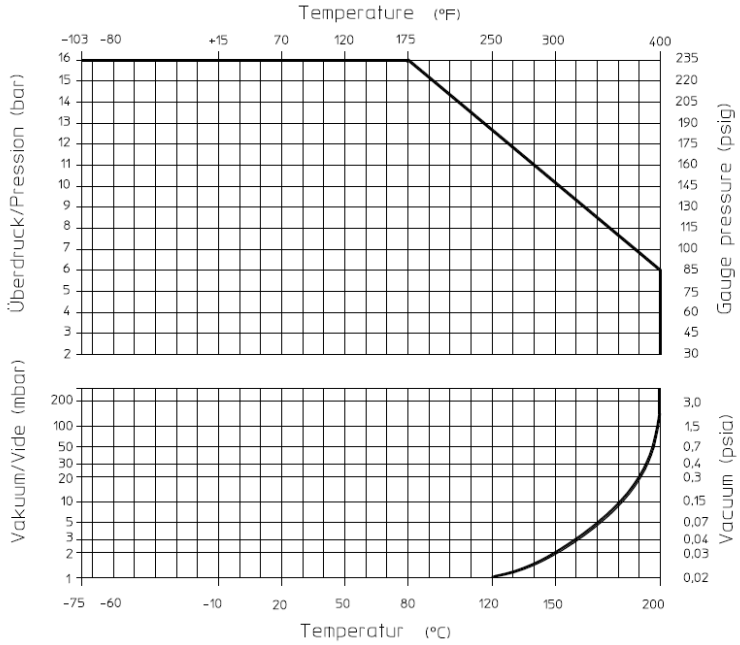


Al_2O_3-ball



DIN EN ISO 15848-1 certificate valid from -29°C to 200°C

KN-S/F, KNP-S/F, KNR-S/F, KNRP-/F
DN 25, 40, 50, 80
with stem unit made of material 1.4571



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!

This operating manual must always be available at the place of use of the valve.

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

Installation, operation and maintenance 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 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 operating conditions stipulated in the data sheet are not exceeded in continuous operating mode.

This is not the manufacturer's responsibility.

Loads caused by earthquakes were 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 identification 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

Improper operation, even for brief periods, may result in serious damage to the valve.
In connection with explosion protection, potential sources of ignition (overheating, electrostatic and induced charges, mechanical and electric sparks) may result from these 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.
- To achieve safe and reliable operation, it must be ensured in inspections at regular intervals that the valve is properly serviced and kept in technically perfect order.
- Increased wear to the valve can be expected with the conveyance of liquids containing abrasive constituents. The inspection intervals are to be reduced compared with the usual times.
- Actuators and electric peripherals, such as temperature, pressure and flow sensors 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.

- Carry out regular maintenance intervals and check the tightness of the screw connections and tighten as necessary.

5 Transport, storage and disposal

For all transport work, 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 protect the valve against impacts and collisions.

Directly after receipt of the goods, check the consignment for completeness and any in-transit damage.

Do not damage paint protection.

5.1 Storage

If the valve is not installed immediately after delivery, store them properly.

The valves be stored in a dry, vibration-free and well-ventilated room at as constant a temperature as possible.

Protect elastomers 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 rinse and clean 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 measures 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 valves do not install.
- 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

- Contamination of or damage to the sealing surfaces is best avoided if the protective caps remain on the flanges until just before installation.

If plastic sealing surfaces, e.g. on mating flanges made of metal or enamel, can be damaged, use PTFE-lined seals with a metal inlay.
These gaskets are available as special accessories in the Richter range.

6.2 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 cavity-free ball/stem units ore ball/stem units and Al_2O_3-balls with an additional relief bore.

Fig. 1 ball/stem unit in closed position

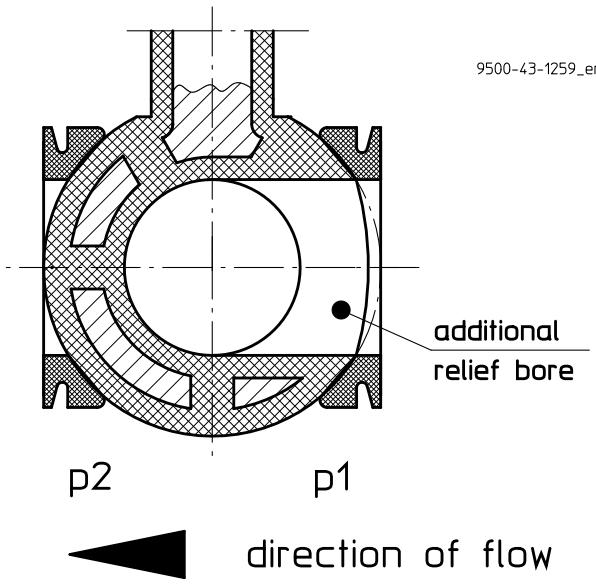
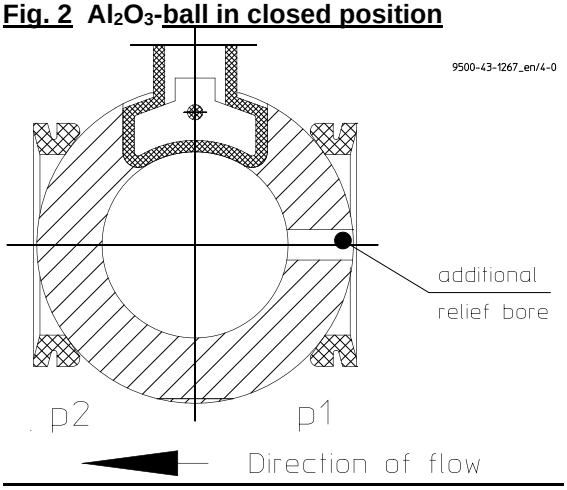


Fig. 2 Al_2O_3-ball in closed position



6.3 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.

In other cases earthing is to be secured through other measures, e.g. cable bridges.

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

6.4 Test pressure

The test pressure PT of a valve must not exceed the value of 1.5 x 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 torques see **Chapter 1.3**.

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 external leaks, it is possible to retighten all connecting screws after the valve has been subjected to the initial operating pressure and 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 Al_2O_3-ball and stem could occur.
- Avoid crystallization. Crystallization can cause damage to the seat ring and the ball/stem unit or Al_2O_3-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.
- 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 the start of maintenance work, clean the valve thoroughly. 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.

8 Malfunctions

- Flange connection ball valve/pipe is leaking
  Retighten the flange screws to a tightening torque according to **section 1.3**. 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 ball valve/pipe is leaking".
- Packing is leaking
  Retighten packing nuts according to the details in **section 1.3**.
- Ball valve does not operate
  Is the actuator supplied with power?

  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 1.4**, dismantle ball valve and inspect individual components.

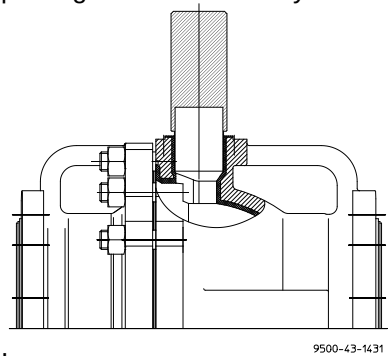
9 Maintenance

- 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 10**.
- Order spare parts with all the details in acc. with the valve identification.
- Only original spare parts may be installed.
- To prevent leaks, a regular check of the connection screws make in line with the operating requirements.
  For tightening torques, see **section 1.3**.

9.1 Dismantling ball valve with ball/stem unit

9.1.1 Ball valve with lever

- Remove lever **203**.
- Take out grounding spring washer **557**.
- Dismantle packing gland follower **503** and spring gland follower **502**.
- The thrust ring **405/1**, packing bellows **403** and retaining washer **526** (not in DN 150, 200/150 and 200) are one unit and it is levered out using 2 screwdrivers.
- Undo screw connection body end piece **102** / main body **101**.
- Remove body end piece **102**.
- **(Only DN200)** Carefully slide the mounting sleeve (see **section 1.2**) up to the stop into the shaft passage of the main body.



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- Remove ball/stem unit **201** in closed position. Make sure that you do not damage the body lining.
- **(Only DN200)** Carefully slide out the mounting sleeve.
- Remove seat rings **401**.

9.1.2 Packing bellows

- Remove retaining washer **526**.
- Separate thrust ring **405/1** and packing bellows **403** by pushing them apart.

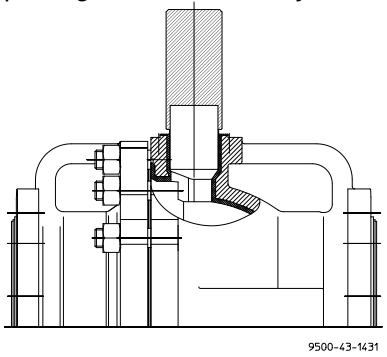
9.1.3 Ball valve with actuator

- Remove actuator **850** and coupling **804**.
- Dismantle packing gland follower **503** and spring gland follower **502**.
- Remove bracket **510**.

Further dismantling is performed as described in **Section 9.1.1** and **9.1.2**.

9.2 Assembly

- 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**.
- **(Only DN200)** Carefully slide the mounting sleeve (see **section 1.2**) up to the stop into the shaft passage of the main body.



- Mount ball/stem unit **201** in closed position. Make sure that you do not damage the body lining.
  NOTE: An additional bore in the ball/stem unit, e.g. to ensure it is cavity-free, must lie on the p1 side in the closed position.
- **(Only DN200)** Carefully slide out the mounting sleeve.
- Mount body end piece **102**. Tighten the greased housing screws cross over with a tightening torque according to **section 1.3**.

9.2.1 Packing bellows

- Press thrust ring **405/1** into packing bellows **403**.
- Install retaining washer **526** (not in DN 150, 200/150 and 200).
- Press unit into main body **101**.
- Press in grounding spring washer **557**.

9.2.2 Ball valve with lever

- Mount lever stop **577**, spring gland follower **502** (in DN 80, 100, 150, 200/150 and 200 are 2 spring gland followers **502**) and packing gland follower **503**. Tighten packing nuts until there is no gap between packing gland follower **503** and spring gland follower **502**. See **Chapter 1.3** and **10.2**.
- Seal any tapped bores still open with plugs.
- Mount lever **203**.

9.2.3 Ball valve with actuator

- Mount spring gland follower **502** (in DN 80, 100, 150, 200/150 and 200 are 2 spring gland followers **502**) and packing gland follower **503**. Tighten packing nuts until there is no gap between packing gland follower **503** and spring gland follower **502**. See **Chapter 1.3** and **10.3**.
- Mount bracket **510** with the opening at right angles to the direction of flow. See sectional drawing in **Section 10**.
- 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 ball valve with ball and stem

It is possible with a ball valve 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 10**.

9.3.1 Ball and seat rings

- Move ball **200** into the 'closed' position.
- 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 bellows

- Remove lever **203**.
- Dismantle packing gland follower **503** and spring gland follower **502**.
- Take out grounding spring washer **557**.
- The thrust ring **405/1**, packing bellows **403** and retaining washer **526** (not in DN 150 and 200/150) are one unit and it is levered out using 2 screw-drivers.
- Remove retaining washer **526**.
- Separate thrust ring **405/1** and packing bellows **403** by pushing them apart.

9.3.3 Ball valve with actuator

- Remove actuator **850** and coupling **804**.
- Dismantle packing gland follower **503** and spring gland follower **502**.
- Remove bracket **510**.

Further dismantling is performed as described in **Chapter 9.1.3**.

9.3.4 Stem

- Dismantling as described in **section 9.3.1**.
- Undo screw connection body end piece **102** / main body **101**.
- Remove body end piece **102**.
- Remove ball **200** and stem **202** in closed position. Make sure that you do not damage the body lining.
- Swivel ball **200** from stem **202**.

9.4 Assembly

- 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**. In the case of DN 150 and 200/150 with an additional disc **550/1**.
- 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 6.2**.
- Mount body end piece **102**. Tighten the greased housing screws cross over with a tightening torque according to **section 1.3**.

9.4.1 Packing bellows

- Press thrust ring **405/1** into packing bellows **403**.
- Install retaining washer **526**. (not in DN 150 and 200/150)
- Press unit into main body **101**.
- Press in grounding spring washer **557**.

9.4.2 Ball valve with lever

- Mount lever stop **577**, spring gland follower **502** (in DN 80, 100, 150 and 200/150 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 **Section 1.3** and **10.4**.
- Seal any tapped bores still open with plugs.
- Mount lever **203**.

9.4.3 Ball valve with actuator

- Mount spring gland follower **502** (in DN 80, 100, 150 and 200/150 are 2 spring gland followers **502**) and packing gland follower **503**. Tighten packing nuts until there is no gap between packing gland follower **503** and spring gland follower **502**. See **Section 1.3** and **10.5**.
- 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.
- Make sure that the position of the ball valve with ball and stem, and the position of the actuator are aligned.

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 the 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.
- Connecting dimensions see drawing 9520-00-4018.

10 Drawings

10.1 Legend

101 main body
102 body end piece
200 ball
201 ball/stem unit
202 stem
203 lever
401 seat ring
403 packing bellows
405/1 Thrust ring
502 spring gland follower
503 Spring gland follower
510 bracket
526 retaining washer
(DN 15,20,25,40,50,80,100)
550/1 disc
(DN 150, 200/150)
554/1 Washer
554/4 Washer
(DN 25)
554/5 Washer
(DN 80)
557 grounding spring washer
577 lever stop
804 Coupling

includes:
500 Ring (Option)
952 pressure spring
980/1 round head grooved pin

850 actuator
857 gear
901/1 Hex. screw
(DN 25, 40, 50)
901/x hex. screw
902/1 Stud screw
904/1 Setscrew
914/2 hex socket screw (F07)
(DN 50)
918/1 threaded rod
(DN 150, 200/150, 200)
920/x Hex. nut
936/x Tooth lock washer
967/1 * padlock
984/x ** wedge lock washer

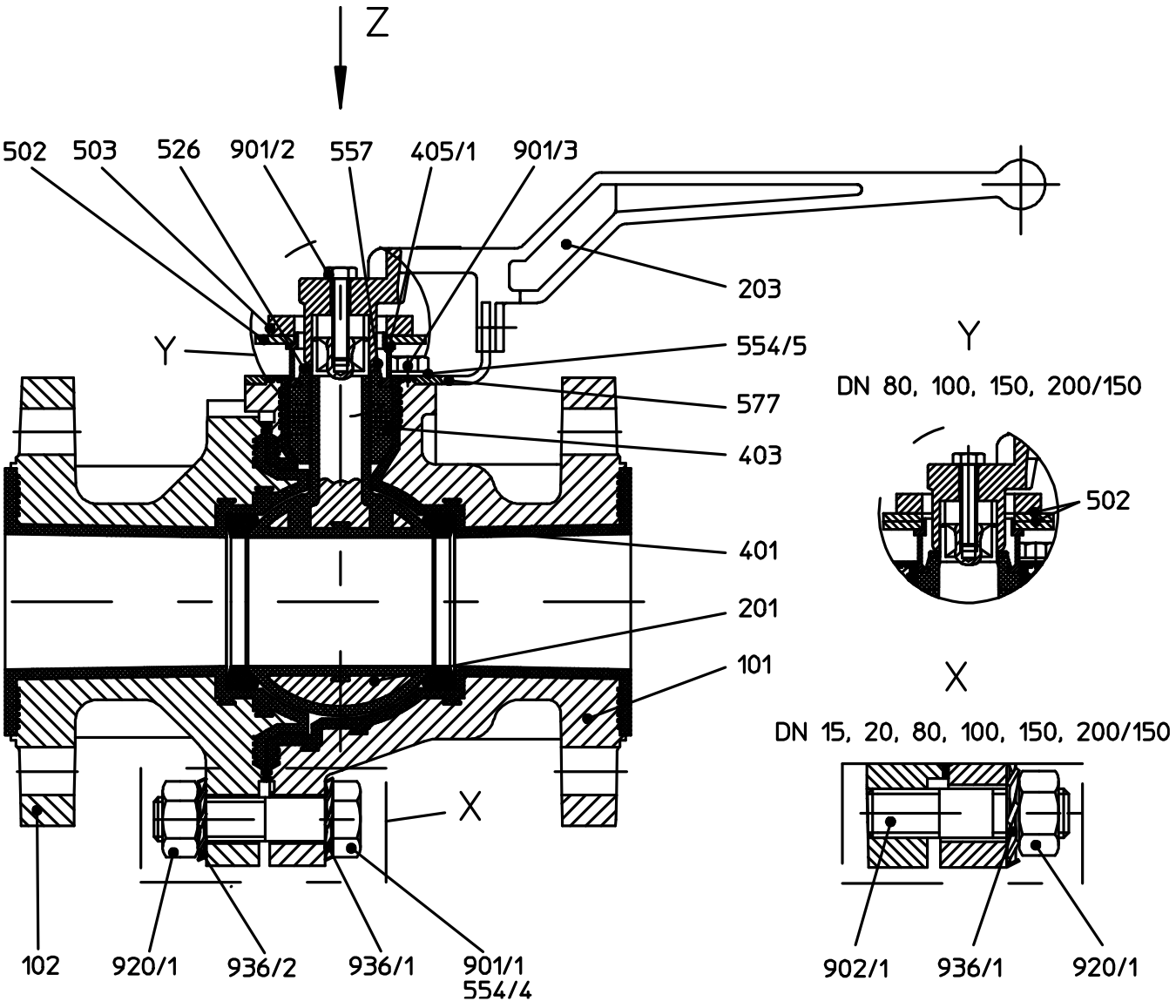
***** not included in the delivery

** wedge lock washer made of HC-276 for valves with screws/nuts made of HC

10.2 Sectional drawings ball valve

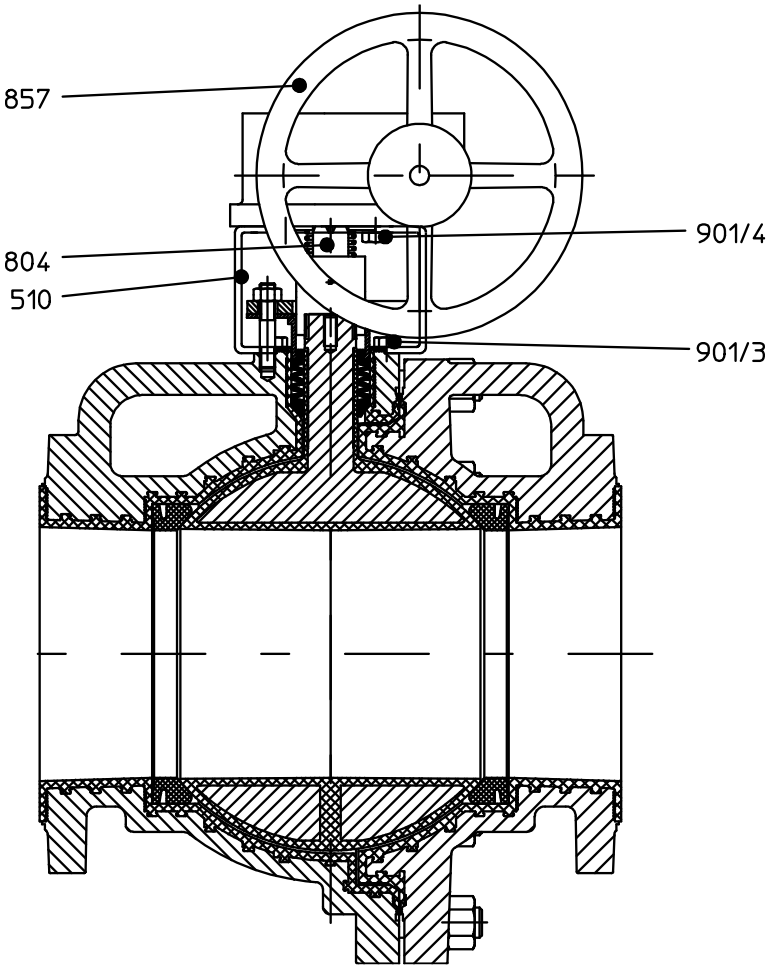
Ball valve with ball/stem unit and lever

DN 15 – DN 200/150



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

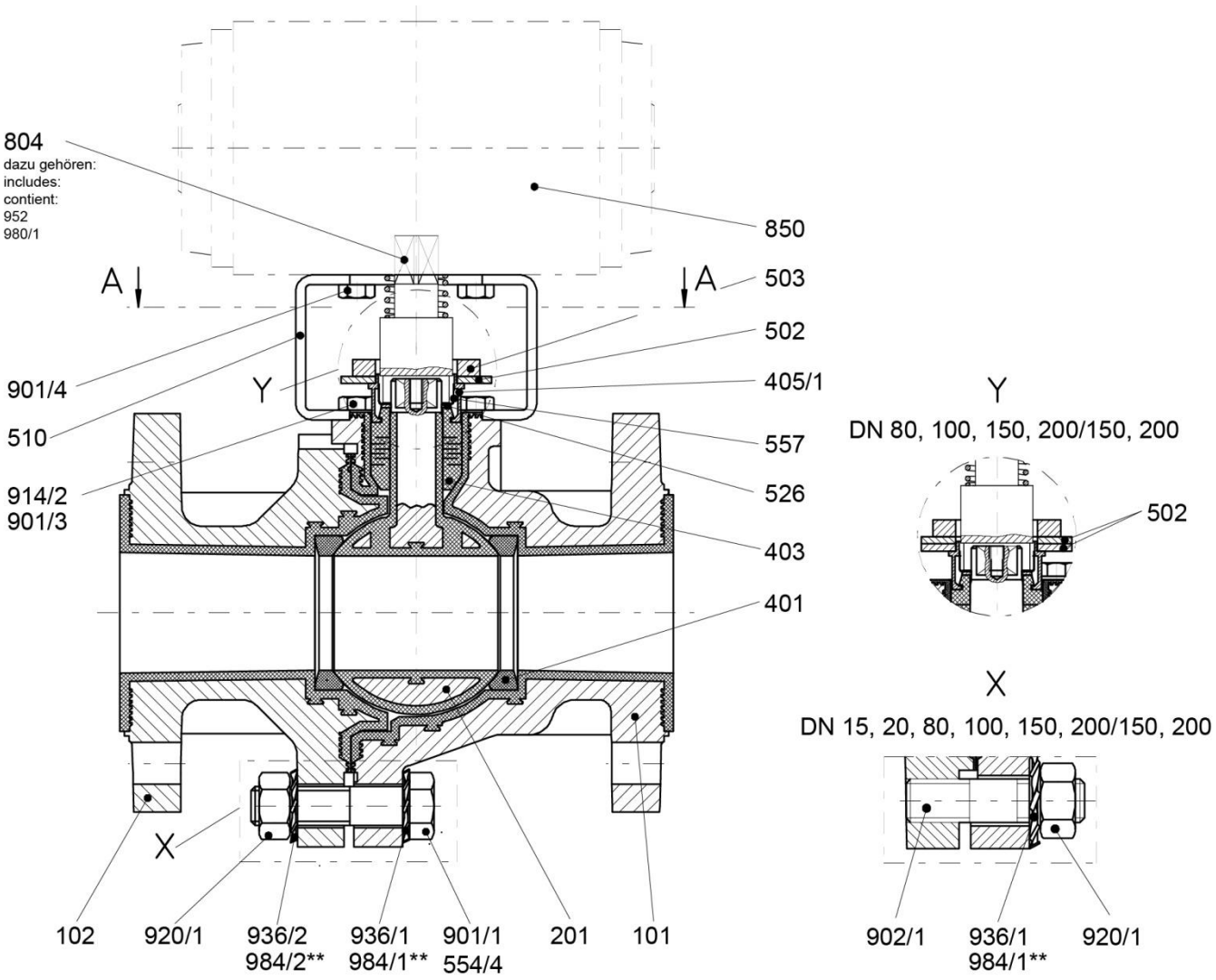
Ball valve with ball/stem unit and worm gear
DN 200



10.3 Sectional drawing ball valve and actuator

Ball valve with ball/stem unit and actuator

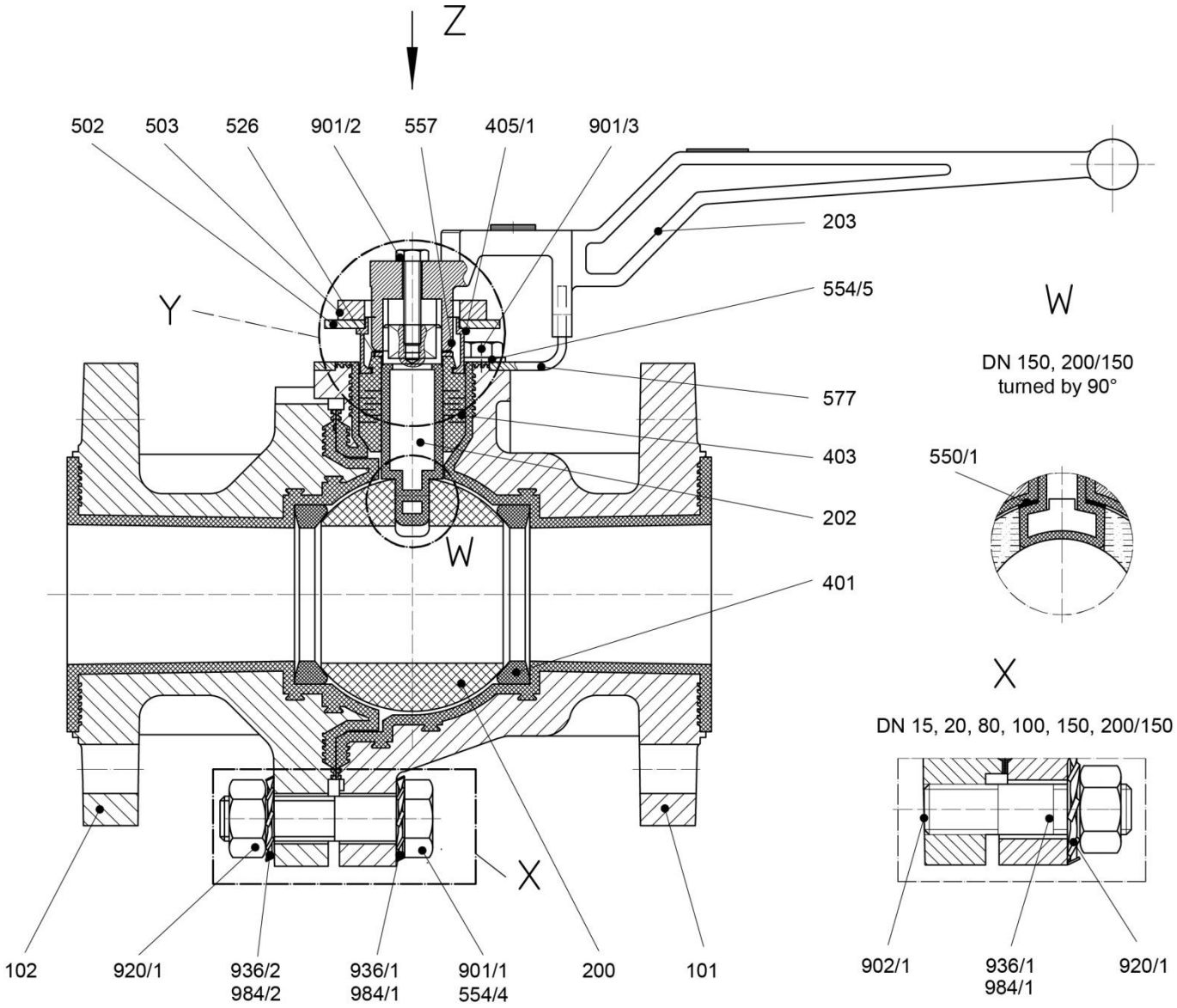
DN 15 – DN 200



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

10.4 Sectional drawing ball valve with ball, stem and lever

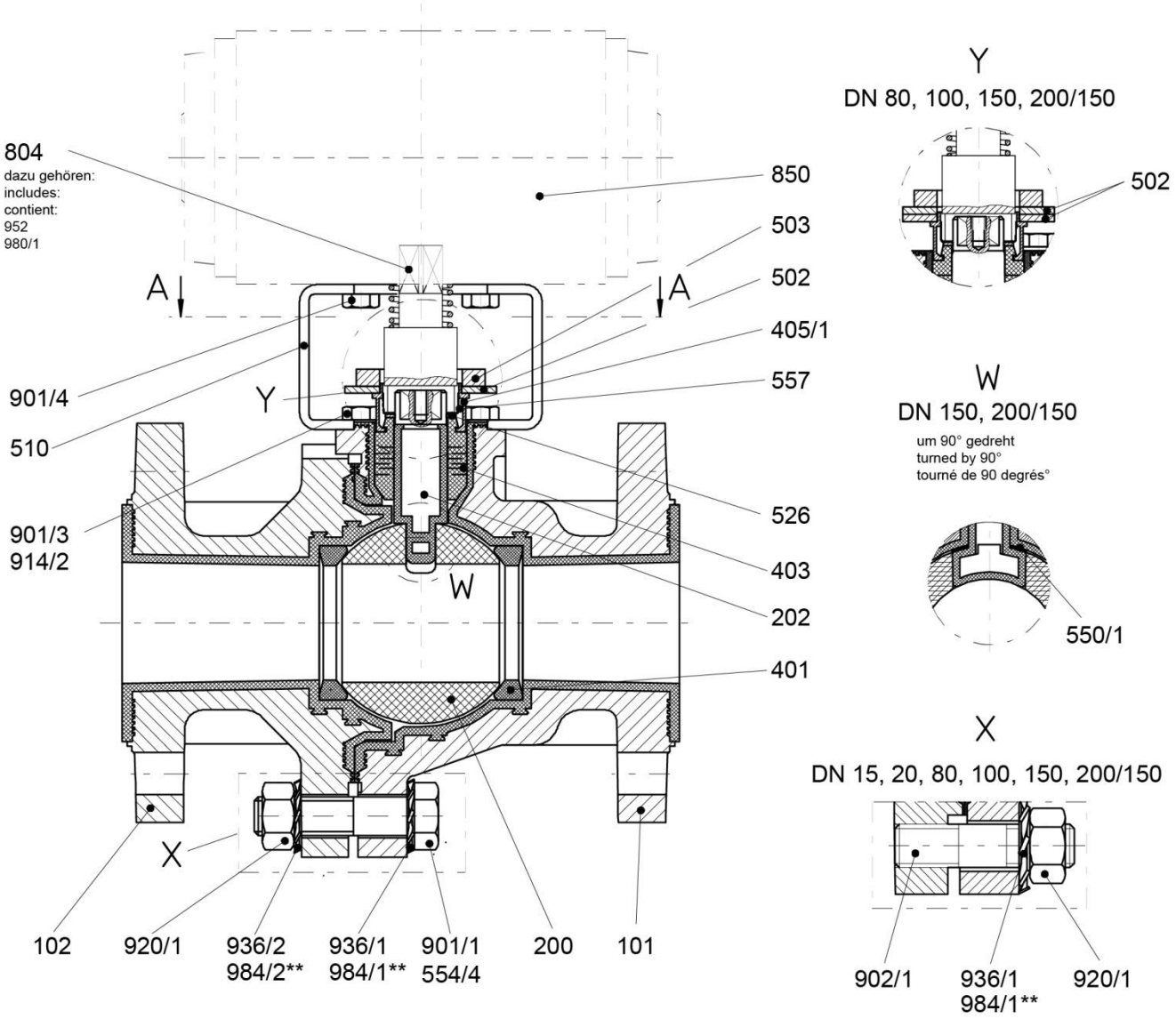
DN 15 – DN 200/150



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

10.5 Sectional drawing ball valve with ball, stem and actuator

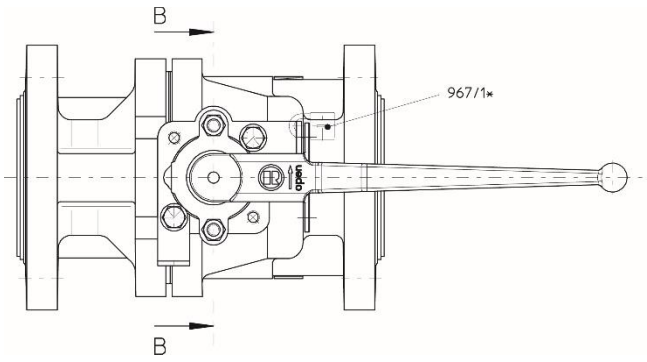
DN 15 – DN 200/150



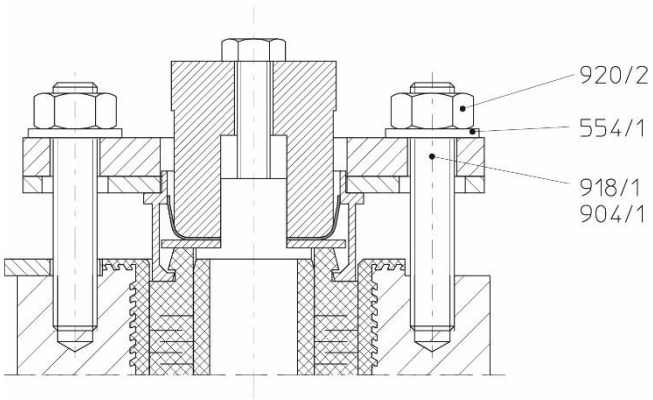
Holes of the flange- and housing screws view displaced by 45°.

10.6 View and section ball valve with lever

View Z

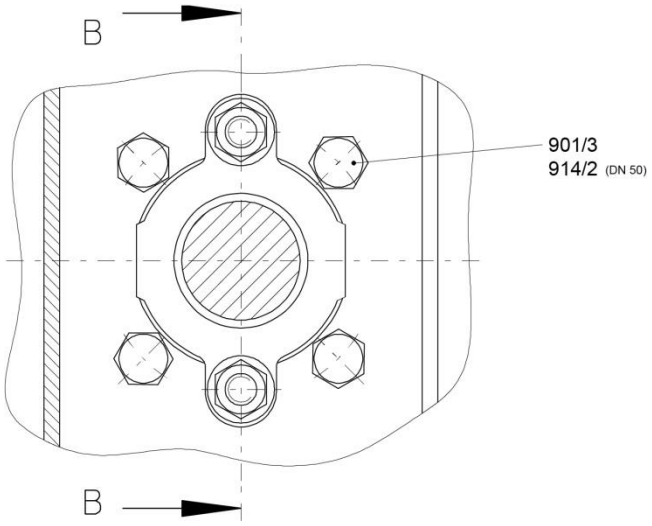


Section B – B

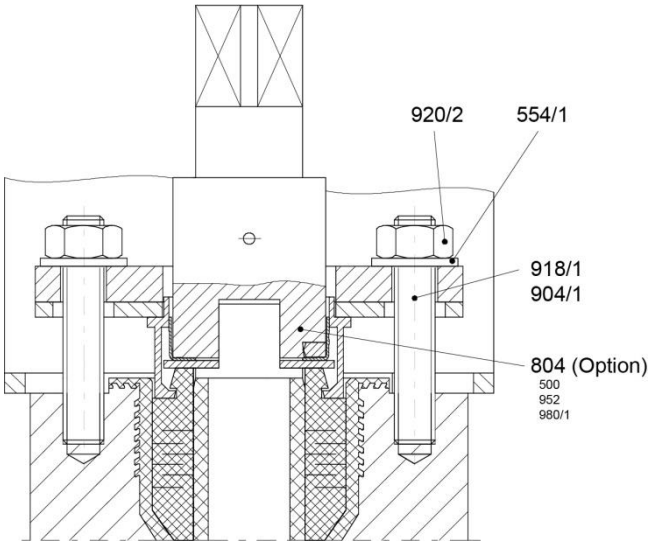


10.7 Sections ball valve with actuator

Section A – A

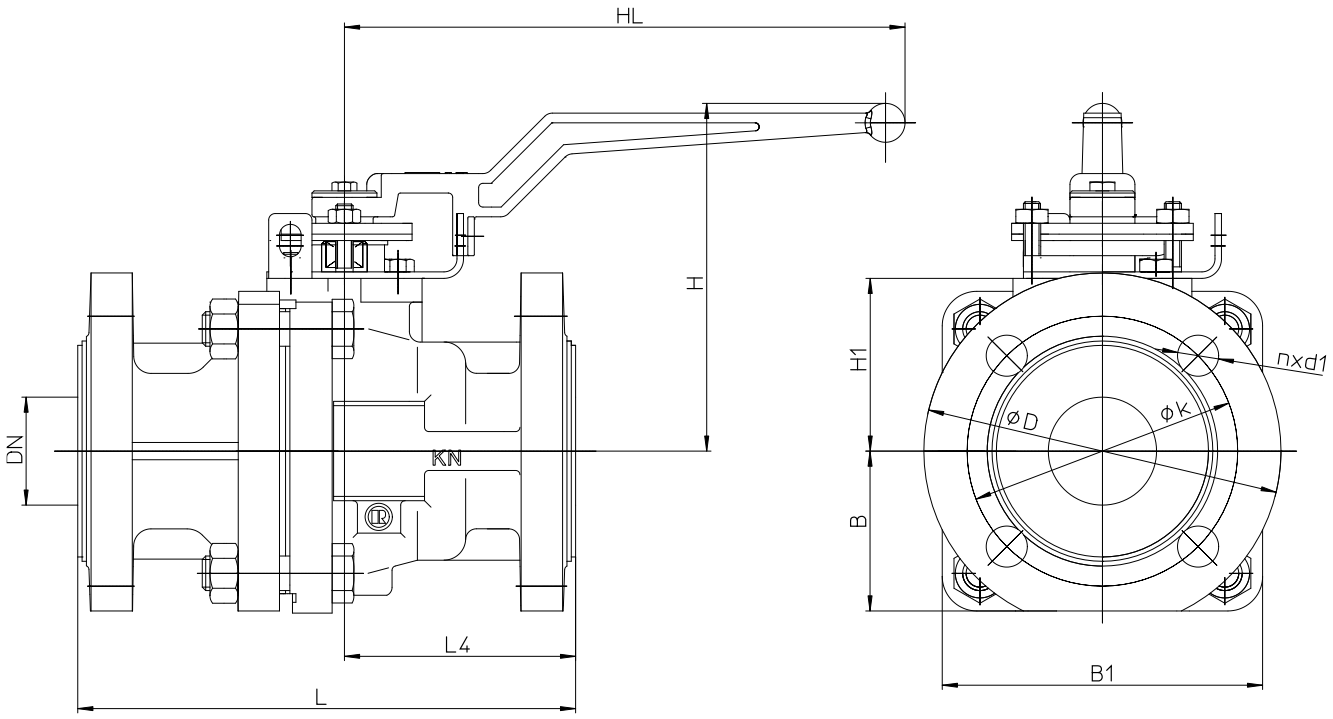


Section B – B



10.8 Dimensional drawing ball valve

Ball valve with ball/stem unit and lever
DN 15 – DN 200/150

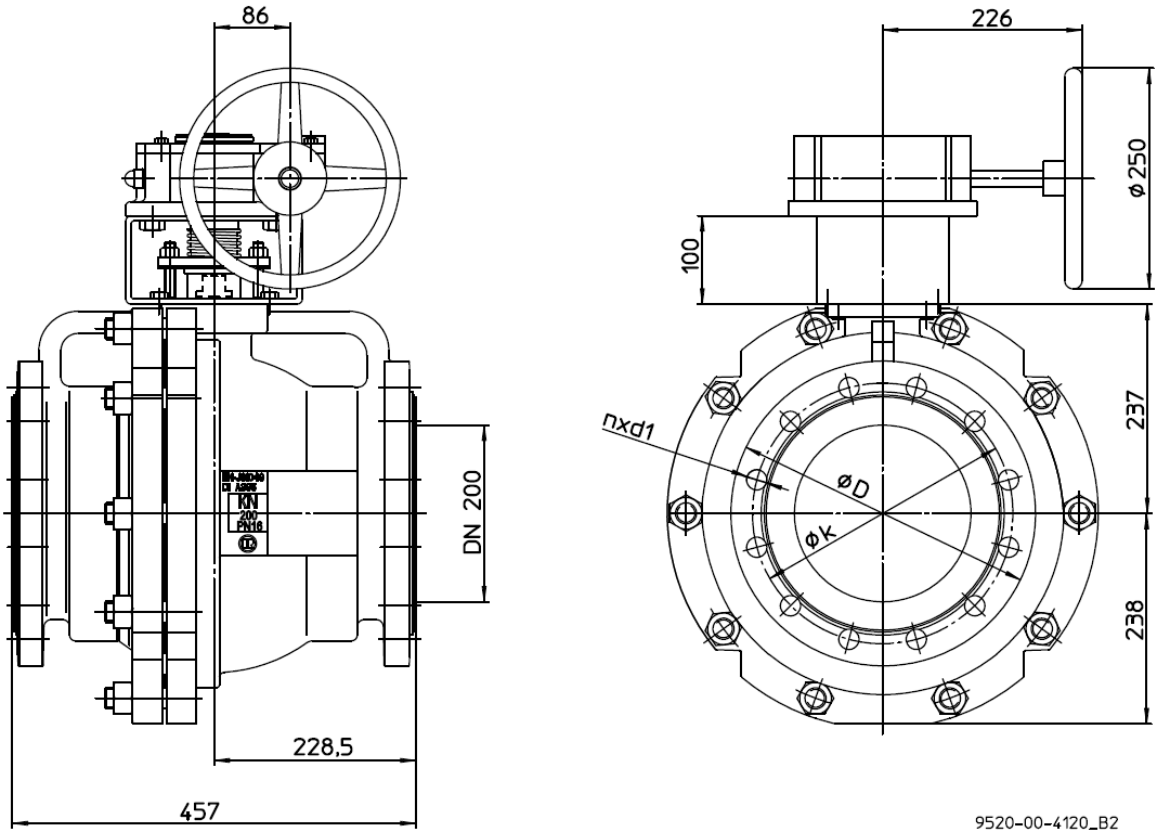


DN	15	20	25	40	50	80	100	150	200/150[1)]
L	130	150	160	200	230	310	350	480	457
L_4	59		70	88	107	140	175	240	223.5
H	125			158	161	204	222	284	
HL	179			259		410		512.5	
H1	50			77	80	118	134	184	
B	52			69	74	112	130	180	
B1	109			138	148	240	290	380	

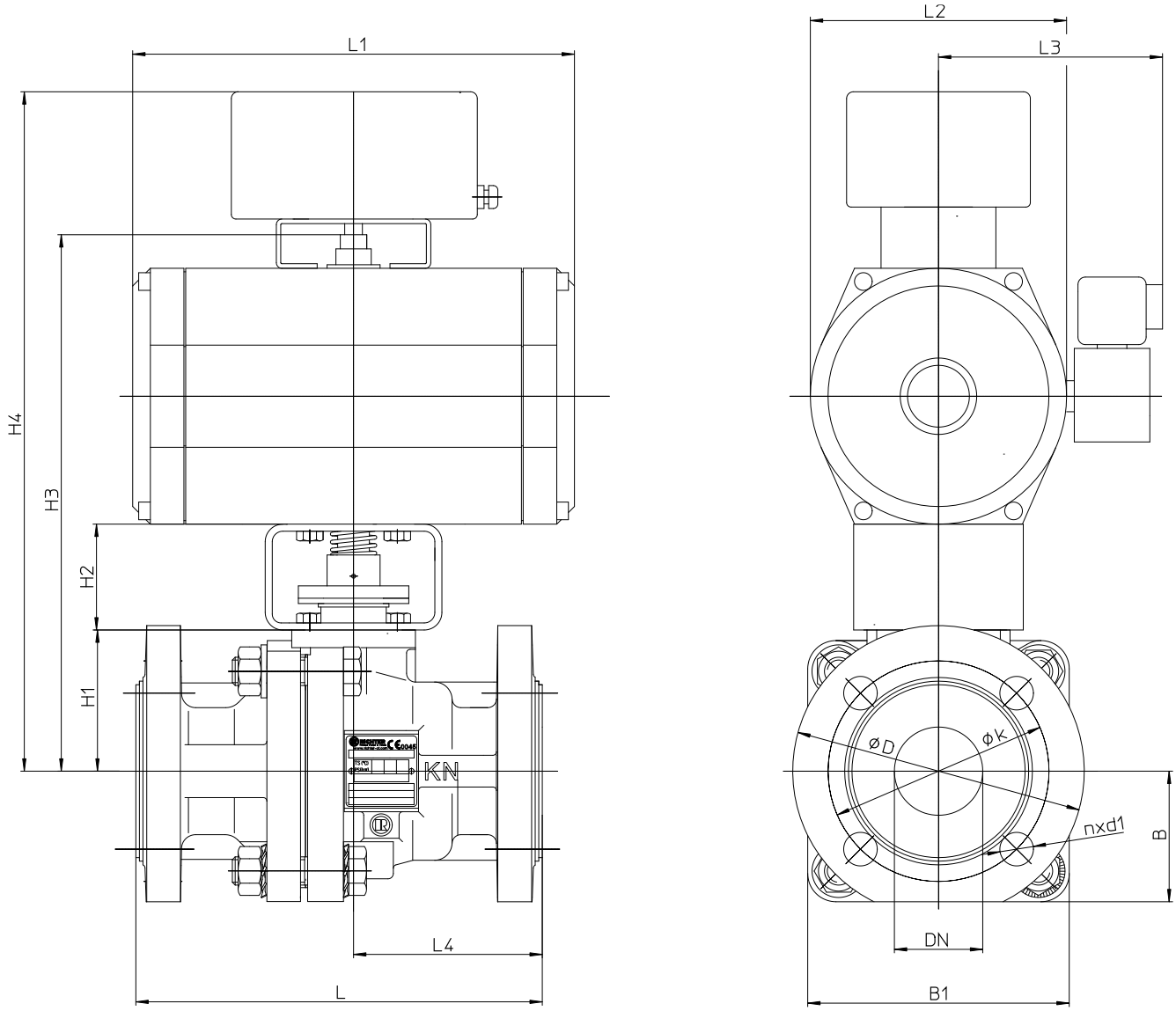
[1)] DN 200/150 with reduced bore DN 150
all dimensions in mm

DN 150 and DN 200/150: At Δp > approx. 2 bar a worm gear is recommended instead of the hand lever.
DN 200: Only with worm gear

10.9 Dimensional drawing ball valve with worm gear DN200



10.10 Dimensional drawing ball valve with actuator



DN	15	20	25	40	50	80	100	150	200/150[1)]	200
L	130	150	160	200	230	310	350	480	457	457
L_4	59			88	107	140	175	240	223.5	228.5
B	52			69		112	130	180	180	238
B1	109			138		240	290	380	380	440
H1	50			77		118	134	184	184	232
H2	60			60 [2)]		80		100		
Connection ISO 5211	F05			F07		F10		F12		
H3										
H4										
L_1										
L_2										
L_3										

[1)] DN 200/150 with reduced bore DN 150

[2)] H2 = 80 mm if F10 or F12 on the actuator side

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

all dimensions in mm

10.11 Flange connection dimensions

[1)] DN 200/150 with reduced bore DN 150
all dimensions in mm

DN		DIN EN 1092-2, Form B (ISO 7005-2, Form B) PN 16			Flanges drilled acc. to ASME B16.5 Class 150	
		ØD	Øk	n x d_1	Øk	n x d_1
mm	inch	mm	mm	mm	mm	mm
15	½	95	65	4x14	60.5	4x16
20	¾	105	75	4x14	70	4x16
25	**1**	115	85	4x14	79.5	4x16
40	**1½**	150	110	4x19	98.5	4x16
50	**2**	165	125	4x19	120.5	4x19
80	**3**	200	160	8x19	152.5	4x19
100	**4**	220	180	8x19	190.5	8x19
150	**6**	285	240	8x23	241.5	8x23
200/150[1)]	**6/8**	340	295	8x23	298.5	8x23
200	**8**	343	295	12x23	298.5	8x23

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RICHTER
Process Pumps & Valves
A Unit of IDEX Corporation

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

Produkt *Product*	Kunststoffausgekleidete Dreharmaturen *Plastic lined quarter turn valves*
Bauart *Design*	Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn, Absperr- und Regelklappe *Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve*
Baureihe *Series*	KN..., KNA..., BVA..., KNR..., KNAR.., KH.., KK..., KA-N..., NKL..., NKS..., KNP..., KNAP..., BVAP..., KNRP..., KNARP..., KHP..., KKP..., KAP-N..., NKLP..., NKSP...
Nennweite *Size*	DN 15 bis DN 400, ½" bis 16" *DN 15 to DN 400, ½" to 16"*
Seriennummer *Series number*	ab/*from* 01.09.2024
EU-Richtlinie *EU-Directive*	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 *Applied Technical Specification*	DIN EN 16668, AD2000 DIN EN ISO 12100
Überwachungsverfahren *Surveillance Procedure*	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 *Conformity assessment procedure 2014/68/EU*	Modul H Zertifikats Nr. 0045/202/1411/P/00470/22/D/001(00)
Kennzeichnung *Marking*	2014/68/EU [1)] ≥ DN 32, ≥ 1" CE 0045 2006/42/EG *2006/42/EC* CE

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

Kempen, 01.09.2024

i.V. C. Muders

Christian Muders
Director Global Engineering

Manuel Müller
Quality Manager

29.08.2024

Erstellt/Compiled:	MCP/Ma	am/on:	01.09.2024	Seite/Page:	1	QM-Nr./QM-No.: F722024-08
Genehmigt/Approved:	EPE/CM	am/on:	01.09.2024	von/of :	1	

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www.richter-ct.com

RICHTER
Process Pumps & Valves
A Unit of IDEX Corporation

UK CA

Konformitätserklärung
Declaration of Conformity

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

Produkt *Product*	Kunststoffausgekleidete Dreharmaturen *Plastic lined quarter turn valves*
Bauart *Design*	Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn, Absperr- und Regelklappe *Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve*
Baureihe *Serie*	KN…, KNA…, BVA.., KNR…, KNAR.., KH.., KK…, KK-FU.., KA-N…, NKL…, NKS…
Nennweite *Size*	DN 15 bis DN 400, ½“ bis 16“ *DN 15 to DN 400, ½“ to 16“*
Seriennummer *Series number*	ab/*from* 01.09.2024
UK Gesetzliche Vorschriften *UK Statutory instruments*	2016 No. 1105 Druckgeräteverordnung 2016 2008 No. 1597 Maschinenverordnung 2008 *2016 No. 1105 The Pressure Equipment Regulations 2016* *2008 No. 1597 The Supply of Machinery Regulations 2008*
Angewandte Technische Spezifikation *Applied Technical Specification*	DIN EN ISO 12100 DIN EN 16668, EN 13445
Überwachungsverfahren *Surveillance Procedure*	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 *Conformity assessment procedure 2014/68/EU*	Modul H Zertifikat Nr. 0045/202/1411/Z/00470/22/D/001(00), TÜV Nord CE 0045 *Module H* *Certificate no. 0045/202/1411/Z/00470/22/D/001(00), TÜV Nord CE 0045*
Kennzeichnung *Marking*	2016 No. 1105, 2008 No. 1597 [1] *2016 No. 1105, 2008 No. 1597 [1]* UK CA

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, 01.09.2024

i.V. C. Muders

Christian Muders
Director Global Engineering

Manuel Müller
Quality Manager

Erstellt/Compiled:	MCP/Ma	am/on:	01.09.2024	Seite/Page:	1	QM-Nr./QM-No.: F722074-01
Genehmigt/Approved:	EPE/CM	am/on:	01.09.2024	von/of :	1	

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RICHTER
Process Pumps & Valves
A Unit of IDEX Corporation

Konformitätserklärung FDA & 2014/68/EU
Declaration of Conformity

Produkt *Product*	PFA ausgekleidete Dreharmaturen *PFA lined quarter turn valves*
Bauarten *Design*	Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn Absperr- und Regelklappe *Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve*
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, BVA-S, 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_2O_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 Einzelnachweise 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, 01.09.2024

i.V. C. Muders

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RICHTER
Process Pumps & Valves

IDEX
FLUID & METERING

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

i. V. Kleining

Gregor Kleining
Director Global Engineering

i. A. Watermann

Ivo Watermann
ATEX Beauftragter

RICHTER
Process Pumps & Valves
A Unit of IDEX Corporation

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 (≤ 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 (≤ 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, 01.09.2024

i.V. C. Muders

Christian Muders
Director Global Engineering

i.V.

Manuel Müller
Quality Manager

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 Harzadous 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

Richter Chemie-Technik GmbH
Otto-Schott-Straße 2
D-47906 Kempen
USt. Id. Nr. DE 811 127 054

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Sitz der Gesellschaft: Kempen · Amtsgericht Krefeld HRB 9635
Geschäftsführer: Barbara Wladarz, Bret A. Prybylski

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

RICHTER Process Pumps & Valves

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 it's 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
	Repair: o subject to fee o Warranty
Street :	**Austausch:** o subject to fee o Warranty
Postcode, city :	o Exchange/ Replacement already initiated/received
Contact person :	**Return**: o Leasing o Loan o for credit note
Phone : Fax :	
End user :	

A. Details of Richter-product:

Classification:
Article number:
Serial number:

Failure description:

B. Condition of the Richter-product:

	no[1]	yes	no
Was it in operation ?	o	o	
Drained (product/operating supply item) ?		o	o
All openings hermetically locked!		o	
Cleaned ?		o	o
If yes, with which cleaning agent:			
and with which cleaning method:			

Contamination :

	no[1]	yes
toxic	o	o
caustic	o	o
inflammable	o	o
explosive[2]	o	o
mikrobiological[2]	o	o
radioactive[3]		
other pollutant	o	o

[1] if "no", then forward to **D**.

[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)		

	no	yes
2. **Are the materials specified above harmful to health ?**	o	o
3. **Dangerous decomposition products during thermal load ?**	o	o

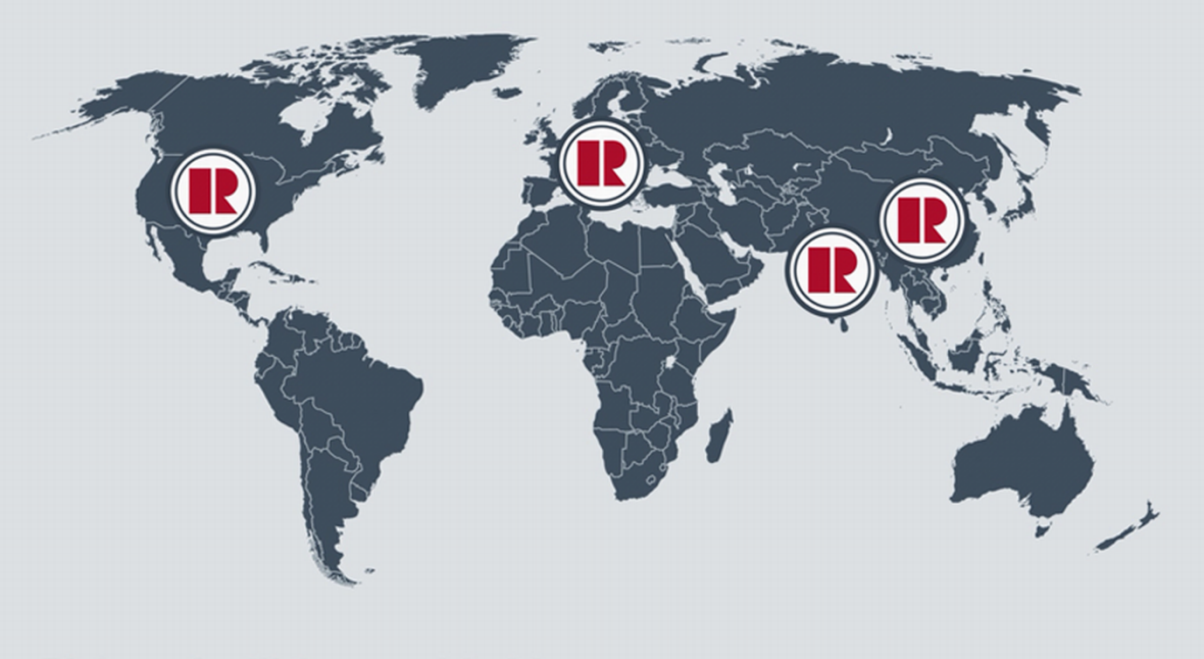
If yes, which ones?

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



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