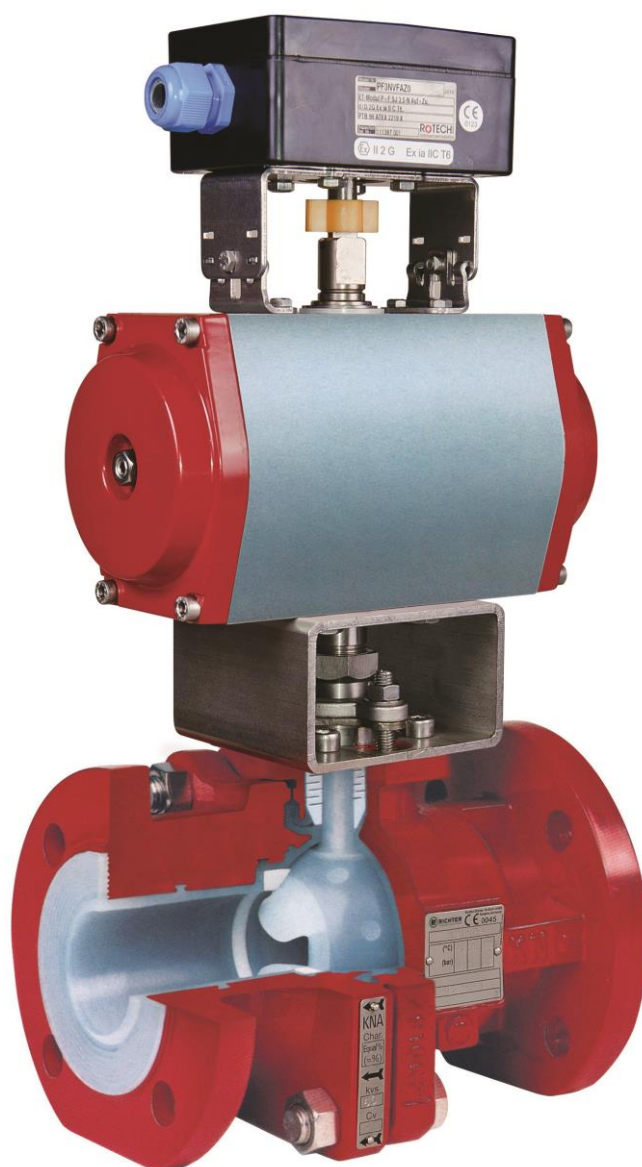


Series KNR/F, KNRP/F  
KNR-D/F, KNRP-D/F

## Control ball valve with V-control ball/stem unit and Richter ENVIPACK universal packing



### 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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9520-003-en Revision 19 Edition 12/2022

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## Relevant documents

|                                                                               |                                   |         |                     |
|-------------------------------------------------------------------------------|-----------------------------------|---------|---------------------|
| ♦ EG-Declaration of conformity                                                | Stem extension                    | Section | <b>9520-00-3009</b> |
| ♦ Declaration of conformity FDA & 97/48/EG                                    | DN 15-100                         | Dimen.  | <b>9520-00-4022</b> |
| ♦ Manufacturer Declaration ATEX Directive 2014/34/EU                          | Stem extension                    | Section | <b>9520-00-3003</b> |
| ♦ Manufacturer Declaration TA-Luft                                            | DN 150-200                        | Dimen.  | <b>9520-00-4013</b> |
| ♦ Form for Safety Information Concerning the Contamination QM 0912-16-2001_en | Limit switch IFM                  | Section | <b>9520-00-3005</b> |
| ♦ For KNRP/F, KNRP-D/F: Operating manual for actuator                         | Spring return unit                | Dimen.  | <b>9520-00-4015</b> |
| ♦ Depending on option, relevant drawing:                                      | Limit switch VDE/VDI              | Section | <b>9520-00-3004</b> |
| Double packing bonnet,                                                        | Turck Initiator                   | Dimen.  | <b>9520-00-4014</b> |
| Section <b>9520-00-3001</b>                                                   | Locking plate                     | Section | <b>9520-00-3006</b> |
| Dimen. <b>9520-00-4011</b>                                                    | Heating jacket                    | Dimen.  | <b>9520-00-4016</b> |
| Lever elevation                                                               | Connection dimension for actuator | Section | <b>9520-00-3007</b> |
| Section <b>9520-00-3011</b>                                                   |                                   | Dimen.  | <b>9520-00-4017</b> |
| Dimen. <b>9520-00-4021</b>                                                    |                                   |         | <b>9520-00-3002</b> |
| Extended stem, round                                                          |                                   |         | <b>9520-00-3012</b> |
| Section <b>9520-00-3010</b>                                                   |                                   | Dimen.  | <b>9520-00-4018</b> |
| Dimen. <b>9520-00-4020</b>                                                    |                                   |         |                     |

## 1 Technical data

### Manufacturer:

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Otto-Schott-Str. 2  
D-47906 Kempen  
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E-Mail : [richter-info@idexcorp.com](mailto:richter-info@idexcorp.com)  
Internet: <http://www.richter-ct.com>

### Designation :

Control ball valve with V-control ball/stem unit and Richter ENVIPACK universal self-adjusting packing, two-piece body.

### Series:

- KNR/F** → Design with lever or hand gear
- KNRP/F** → for pneumatic, hydraulic or electric actuator to DIN EN ISO 5211
- KNR-D/F** → KNR/F with thick-walled (5mm) body lining
- KNRP-D/F** → KNRP/F with thick-walled (5mm) body lining

rangeability 25:1

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 558-1 basic series 1, ISO 5752 series 1  
DN 200 to ASME B16.10, Class 150 column 8

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: Ductile cast iron EN-JS 1049 / ASTM A395

Lining material: PFA/PTFE .../F  
On request: antistatic .../F-L  
highly permeation-resistant .../F-P

### Temperature range :

see pressure-temperature diagram in **Section 1.8**.

### Operating pressure:

DN 15 - DN 100 from vacuum to max. 16 bar (PN16)  
DN 150 - 200 max. 10 bar (PN 16)  
optional: DN 25 - DN 80 to max. 16 bar (PN 25)  
(not KNR-D/F or KNRP-D/F)

See pressure-temperature diagram in **Section 1.8**.

### Ball valve sizes in mm:

DN 15, 20, 25, 40, 50, 80, 100, 150, 200  
DN 200 with reduced bore DN150.

### 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.

### Installation position :

Arbitrary, a direction arrow on an additional name plate indicates the direction of flow. See **Section 1.1** and **10**.

### Dimensions and individual parts :

See sectional drawing in **Section 10**

**Wear parts :** Seat rings  
Packing components  
V-control ball/stem unit

### Options :

- ◆ Richter ENVIPACK double packing for particularly high safety requirements, selfadjusting.  
On request, monitoring and flushing connection.
- ◆ Extended stem for insulated pipes
- ◆ Hand lever extension depending on requirements.
- ◆ Limit switches for remote monitoring of hand and remote-activated ball valves
- ◆ lockable hand lever to prevent unauthorised operation
- ◆ stainless steel heating jacket can be retrofitted, suitable for all common heat transfer media.

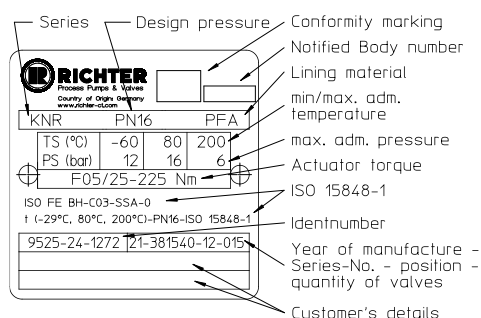
## 1.1 Type plate, conformity and body markings

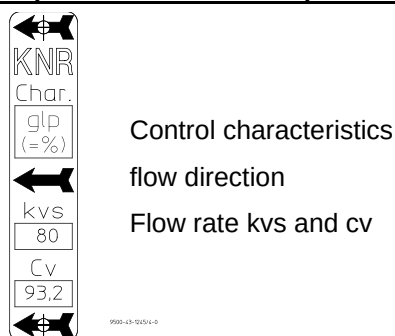
The stainless steel name plate is undetachably riveted to the body.

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

No conformity marking is permissible for the sizes 15, 20 and 25; the name plate therefore has no conformity marking.

### Example of name plate with conformity marking:



**Example: Additional name plate KNR, KNRP****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 V-control ball/stem unit**

The advantage of a single-piece v-control ball/stem unit is the play-free power transmission. This applies in particular to plastic-lined components.

The end of the stem journal or flat pivot point is marked with:

- ◆ flow direction
- ◆ flow rate Kvs and Cv
- ◆ lining material

As viewed from above, closing is in clockwise direction.

**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 and 200 contain 2 spring gland followers **502**.

**Pipe screws**

| Flange nom. size<br>[mm] | screws<br>[ISO/DIN] | Tightening torque<br>[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 nom. size |        | screws   | Tightening torque |      |
|------------------|--------|----------|-------------------|------|
| [mm]             | [inch] | [ASME]   | [in-lbs]          | [Nm] |
| 15               | 1/2"   | 4 x 1/2" | 45                | 5    |
| 20               | 3/4"   | 4 x 1/2" | 55                | 6    |
| 25               | 1"     | 4 x 1/2" | 70                | 8    |
| 40               | 1 1/2" | 4 x 1/2" | 135               | 15   |
| 50               | 2"     | 4 x 5/8" | 220               | 25   |
| 80               | 3"     | 4 x 5/8" | 400               | 45   |
| 100              | 4"     | 8 x 5/8" | 310               | 35   |
| 150              | 6"     | 8 x 3/4" | 710               | 80   |
| 200              | 8"     | 8 x 3/4" | 1020              | 115  |

**Body screws**

| Nominal size |        | screws    | Tightening torque |          |
|--------------|--------|-----------|-------------------|----------|
| [mm]         | [inch] | [ISO/DIN] | [Nm]              | [in-lbs] |
| 15           | 1/2"   | 4 x M12   | 35                | 310      |
| 20           | 3/4"   | 4 x M12   | 35                | 310      |
| 25           | 1"     | 4 x M12   | 35                | 310      |
| 40           | 1 1/2" | 4 x M16   | 45                | 398      |
| 50           | 2"     | 4 x M16   | 45                | 398      |
| 80           | 3"     | 8 x M16   | 50                | 442      |
| 100          | 4"     | 8 x M16   | 60                | 531      |
| 150          | 6"     | 8 x M20   | 150               | 1330     |
| 200/150      | 8"/6"  | 8 x M20   | 150               | 1330     |
| 200          | 8"     | 8 x M24   | 175               | 1549     |

## 1.4 Actuating torques

Test medium: water 20 °C

Higher actuating torques may occur with other media.

| DN<br>[mm] | Δp in bar |           |            |            |                   |
|------------|-----------|-----------|------------|------------|-------------------|
|            | 3<br>[Nm] | 6<br>[Nm] | 10<br>[Nm] | 16<br>[Nm] | max. adm.<br>[Nm] |
| 15         | 8         | 8         | 8          | 10         | 70                |
| 20         | 8         | 8         | 8          | 10         | 70                |
| 25         | 12        | 12        | 12         | 12         | 70                |
| 40         | 20        | 20        | 20         | 25         | 225               |
| 50         | 25        | 25        | 25         | 30         | 225               |
| 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              |

The actuating torque of the actuator must be at least as high as the actuating torque of the valve, about 20% higher being better however.

With highly viscous media and/or solids in the medium it may be necessary to consider other safety allowances in dimensioning the actuator. This is particularly true for non-Newtonian fluids such as high polymer substances, suspensions, pastes, lubricants, resins, lacquers etc.

Admissible factors of safety lie in the range of 20 - 50% of the actuating torque.

In order to avoid damage to the valve, it is imperative to observe the max. admissible actuating torque!

## 1.5 Cavitation coefficient z for 75% duty (Kv/Kv100=0,75)

There are 3-6 different V-control ball/stem units per nominal size

| DN      | z1   | z2   | z3   | z4   | z5   | z6   |
|---------|------|------|------|------|------|------|
| 15      | 0.65 | 0.60 | 0.60 | 0.60 | 0.58 | 0.43 |
| 20      | 0.65 | 0.60 | 0.60 | 0.60 | 0.58 | 0.43 |
| 25      | 0.65 | 0.60 | 0.60 | 0.60 | 0.58 | 0.43 |
| 40      |      |      |      | 0.53 | 0.50 | 0.35 |
| 50      |      |      |      | 0.47 | 0.39 | 0.32 |
| 80      |      |      |      | 0.31 | 0.29 | 0.22 |
| 100     |      |      |      | 0.27 | 0.24 | 0.16 |
| 150     |      |      |      | 0.15 | 0.13 | 0.08 |
| 200/150 |      |      |      | 0.15 | 0.13 | 0.08 |
| 200     |      |      |      |      |      | 0.08 |

$$X_F = \frac{\Delta p}{p_1 - p_v}$$

$X_F$  = Differential pressure ratio

$\Delta p$  = Differential pressure input/outlet

$p_1$  = Absolute pressure at inlet

$p_v$  = Vapour pressure at operating temp.

$X_F \leq z$  : non-critical conditions

$X_F \leq 1,4 \times z$  : tolerable cavitation

$X_F > 1,4 \times z$  : inadmissible cavitation

## 1.6 Flow values Kv in %

| Opening<br>[%] | Kv<br>[%] |
|----------------|-----------|
| 10             | 5.5       |
| 20             | 7.6       |
| 30             | 10.5      |
| 40             | 14.5      |
| 50             | 20.0      |
| 60             | 27.6      |
| 70             | 38.1      |
| 80             | 52.5      |
| 90             | 72.5      |
| 100            | 100.0     |

Characteristics  
equal percentage

rangeability 25:1

Best control range  
20-90% of angle of  
opening

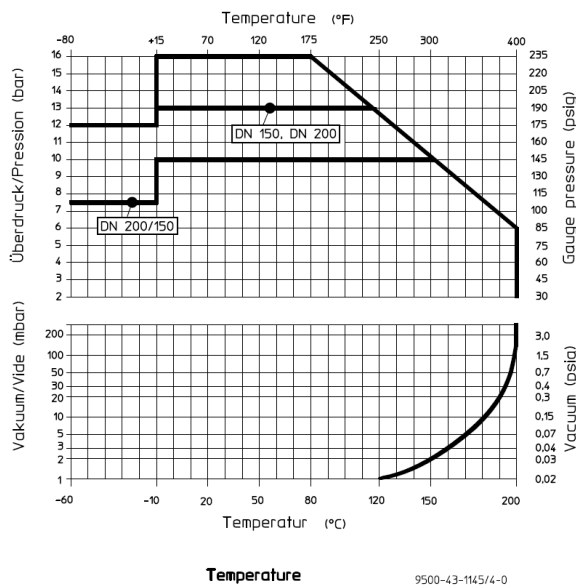
## 1.7 Flow rates

There are 3-6 different V-control ball/stem units per nominal size

| DN<br>[mm]<br>[inch] | Kv100 - Cv<br>[m³/h]<br>[USgpm] |      |       |       |        |        |              |
|----------------------|---------------------------------|------|-------|-------|--------|--------|--------------|
|                      | 0.8                             | 1.6  | 4     | 8     | 14     | 20     |              |
| 15<br>½"             | 0.93                            | 1.86 | 4.66  | 9.32  | 16.3   | 23.3   |              |
| 20<br>¾"             | 0.93                            | 1.86 | 4.66  | 9.32  | 16.3   | 23.3   |              |
| 25<br>1"             | 0.93                            | 1.86 | 4.66  | 9.32  | 16.3   | 23.3   |              |
| 40<br>1½"            |                                 |      |       | 16    | 25     | 40     |              |
|                      |                                 |      |       | 18.64 | 29.12  | 46.6   |              |
| 50<br>2"             |                                 |      | 16    | 25    | 40     | 60     |              |
|                      |                                 |      | 18.64 | 29.12 | 46.6   | 69.9   |              |
| 80<br>3"             |                                 |      | 40    | 80    | 120    | 160    |              |
|                      |                                 |      | 46.6  | 93.2  | 139.8  | 186.4  |              |
| 100<br>4"            |                                 |      | 60    | 100   | 160    | 250    |              |
|                      |                                 |      | 69.9  | 116.5 | 186.4  | 291.25 |              |
| 150<br>6"            |                                 |      |       | 160   | 250    | 400    |              |
|                      |                                 |      |       | 186.4 | 291.25 | 466    |              |
| 200/150<br>8"/6"     |                                 |      |       | 160   | 250    | 400    |              |
|                      |                                 |      |       | 186.4 | 291.25 | 466    |              |
| 200<br>8"            |                                 |      |       |       |        |        | 1000<br>1165 |

## 1.8 Pressure-temperature diagram

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



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



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

## 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

Richter control ball valves are pressure containing components in accordance with the Pressure Equipment Directive (PED) for the passage and shutoff 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 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

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 inadmissible modes of 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<sup>-8</sup> 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<sup>9</sup> Ohm, leakage resistance <10<sup>6</sup> 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.

- ♦ 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.

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.
- ◆ Observe direction of flow.
- ◆ 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.

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

Any fitting position can be chosen.

A direction arrow on an additional name plate for control ball valve shows the direction of flow. See [Section 1.1](#).

### 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.

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

The V-control ball/stem unit **201** is grounded using a grounding spring washer **557**.

### 6.4 Test pressure

The test pressure PT of a valve must not exceed the value of  $1.5 \times PS(PN)$  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 1.3](#).



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 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 1.3](#).

### 7.2 Improper operation and their consequences

- ◆ Crystallisation may result in damage to the seat rings or V-control ball/stem unit. This can be prevented by heating.  
In extreme cases this may cause blocking.
- ◆ If the ball blocks, do not apply force as the ball/stem 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.

Move V-control ball/stem unit into the "half-open position".



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.

## 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?  
Are the sleeve nuts **512** and setscrew **904/4** tightened?  
The V-control ball/stem unit has too much play/hysteresis.  
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](#).
  - ♦ Spare parts are to be ordered 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 should be made in line with the operating requirements.
- For tightening torques, see [Section 1.3](#).

### 9.1 Dismantling

#### 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 and DN 200) are one unit and it is levered out using 2 screwdrivers.
- ♦ Undo screw connection body end piece **102** / main body **100**.
- ♦ Remove body end piece **102**.
- ♦ Remove V-control ball/stem unit **201**. Make sure that you do not damage the body lining.
- ♦ 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

- ♦ Undo setscrew **904/4** in the coupling **804** by one turn.
- ♦ Undo sleeve nut **512** on the coupling by about 2 turns. Left-hand thread. Observe drawing in [Sections 10.3](#) and [10.5](#).
- ♦ 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](#).

### 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**.
- ♦ Mount and adjust V-control ball/stem unit **201**. Make sure that you do not damage the body lining.
- ♦ Observe direction of flow. See sectional drawing in [Section 10](#).
- ♦ 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 and DN 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 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 and spring gland follower. See [Section 1.3](#) and [10.4](#).
- ♦ Notice direction of rotation of V-control ball/stem unit.
- ♦ 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 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 and spring gland follower. 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**. Notice direction of rotation of V-control ball/stem unit.

- ♦ Observe the actuator position in accordance with the actuator operating manual.
- ♦ Tighten setscrew **904/4** in the coupling **804**.
- ♦ Tighten sleeve nut **512** on the coupling tight.  
**Attention: Left-hand thread.**
- ♦ Observe drawing in Section 10.3 and 10.5.

### 9.3 Conversion from lever to actuator

- ♦ Select the actuator in accordance with the instructions of the actuator manufacturer.
- ♦ Remove lever **203**.

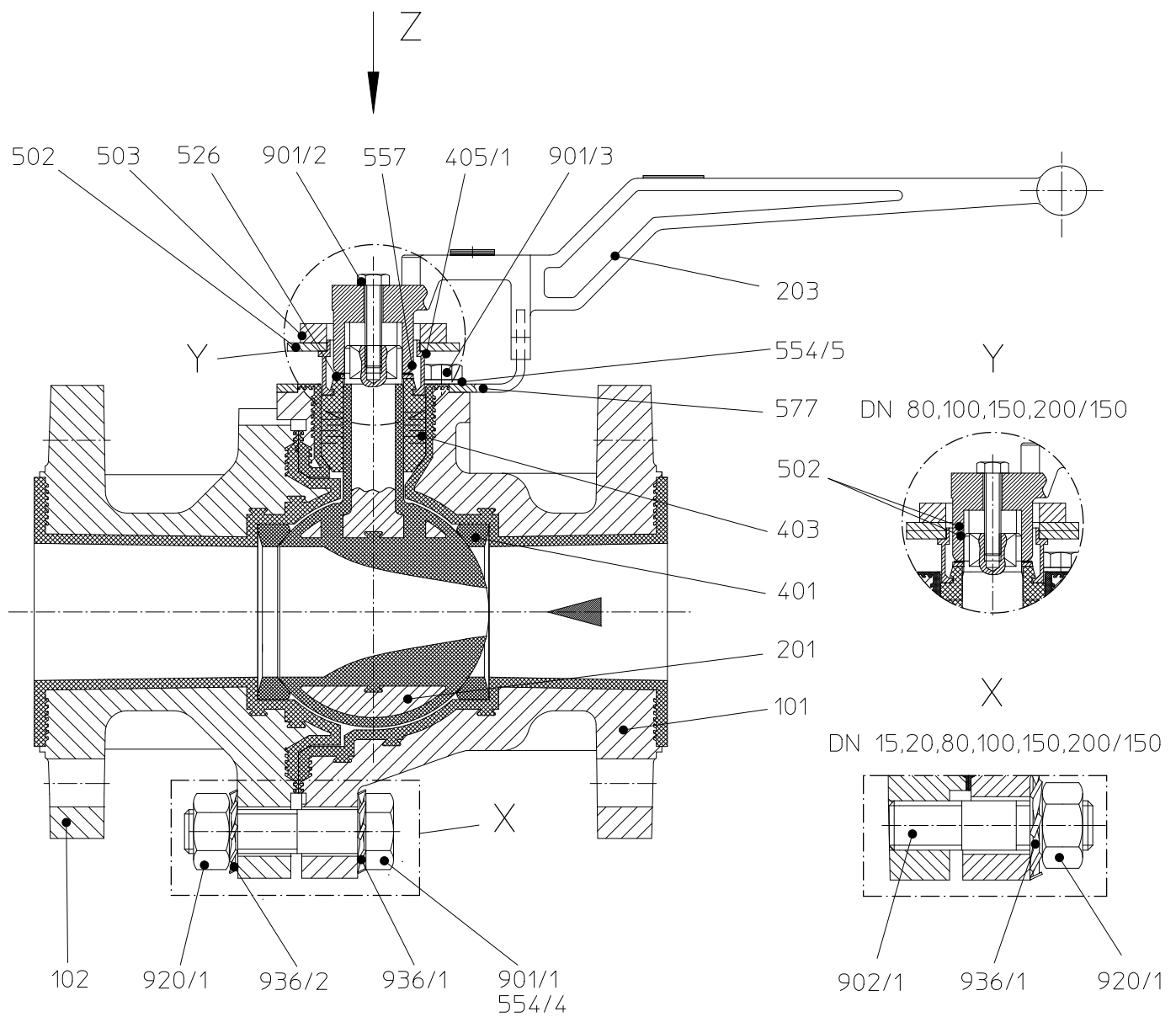
- ♦ Remove lever stop **577** and plug.
- ♦ Check the fits of the coupling **804**, bracket **510** and actuator **850**.
- ♦ Mount bracket **510** with the opening at right angles to the direction of flow.
- ♦ Mount coupling **804** and actuator **850**. Notice direction of rotation of V-control ball/stem unit.
- ♦ Observe the actuator position in accordance with the actuator operating manual.
- ♦ Tighten setscrew **904/4** in the coupling **804**.
- ♦ Tighten sleeve nut **512** on the coupling tight.  
**Attention: Left-hand thread.**
- ♦ Observe drawing in Sections 10.3 and 10.5.

## 10 Drawings

### 10.1 Legend

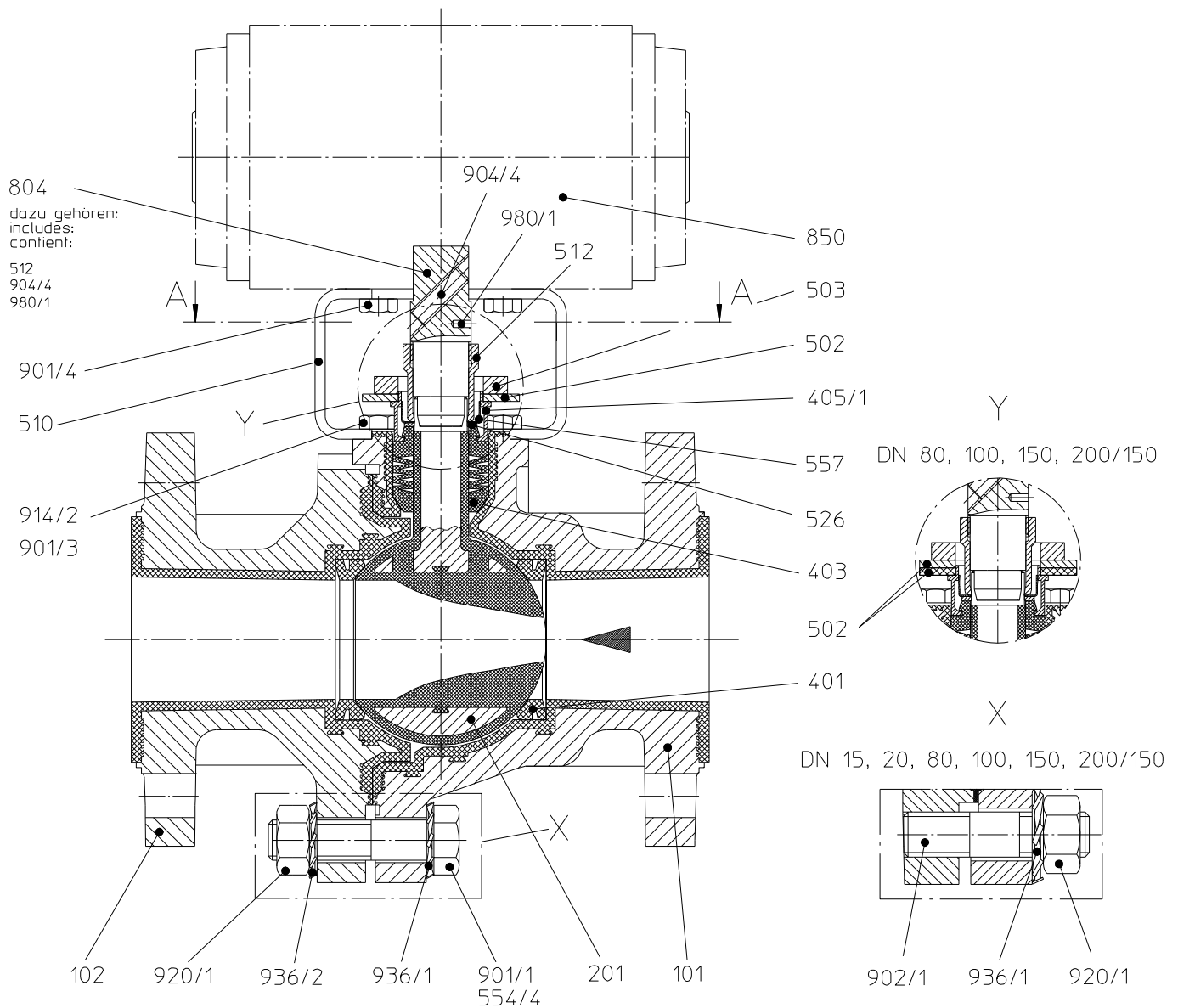
|              |                                                |              |                                             |
|--------------|------------------------------------------------|--------------|---------------------------------------------|
| <b>101</b>   | main body                                      | <b>804</b>   | Coupling                                    |
| <b>102</b>   | body end piece                                 |              | includes:                                   |
| <b>201</b>   | ball/stem unit                                 | <b>512</b>   | sleeve nut                                  |
| <b>203</b>   | lever                                          | <b>904/4</b> | setscrew                                    |
| <b>401</b>   | seat ring                                      | <b>980/1</b> | round head grooved pin                      |
| <b>403</b>   | stuffing box bellows                           | <b>850</b>   | actuator                                    |
| <b>405/1</b> | Thrust ring                                    | <b>901/1</b> | Hex. screw<br>(DN 25,40,50)                 |
| <b>502</b>   | spring gland follower                          | <b>901/2</b> | Hex. screw                                  |
| <b>503</b>   | Spring gland follower                          | <b>901/3</b> | Hex. screw                                  |
| <b>510</b>   | bracket                                        | <b>901/4</b> | Hex. screw                                  |
| <b>526</b>   | retaining washer<br>(DN 15,20,25,40,50,80,100) | <b>902/1</b> | Stud screw<br>(DN 15,20,80,100,150,150/200) |
| <b>554/1</b> | Washer                                         | <b>904/1</b> | Setscrew                                    |
| <b>554/4</b> | Washer<br>(DN 25)                              | <b>914/2</b> | hex socket screw (F07)                      |
| <b>554/5</b> | Washer                                         | <b>918/1</b> | threaded rod<br>(DN 150, 150/200)           |
| <b>557</b>   | grounding spring washer                        | <b>920/x</b> | Hex. nut                                    |
| <b>577</b>   | lever stop                                     | <b>936/x</b> | Tooth lock washer                           |

## 10.2 Sectional drawing ball valve with lever



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

### 10.3 Sectional drawing ball valve with actuator

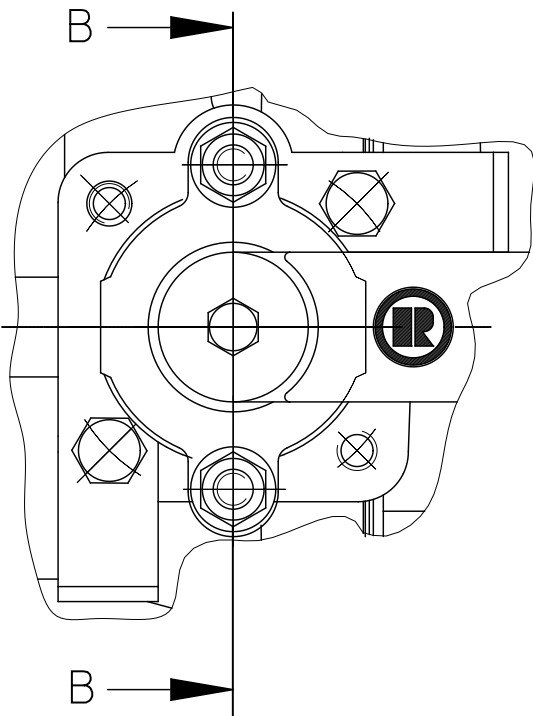


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Holes of the flange- and housing screws view displaced by 45°.

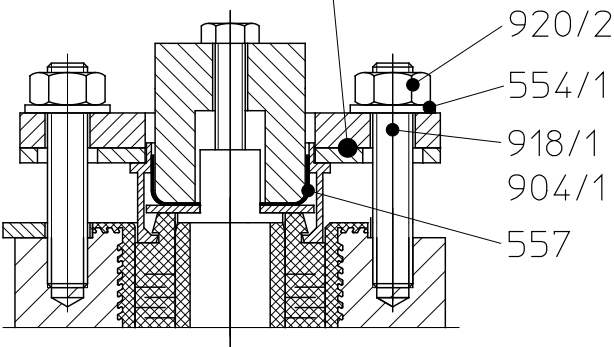
10.4 View and section ball valve with lever

View Z



Section B-B

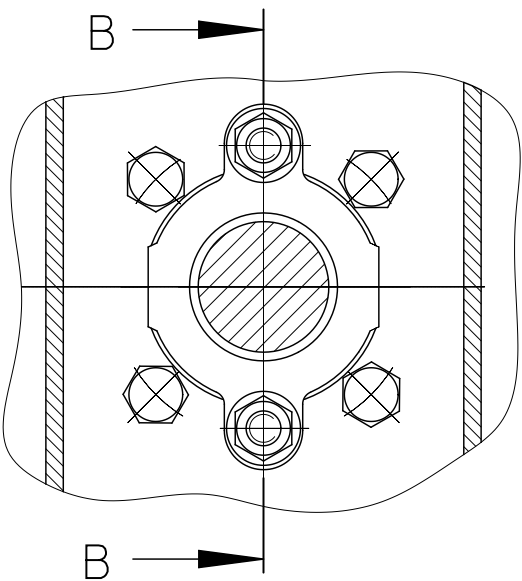
Tighten packing gland follower 503 until spring gland follower 502 is in contact without any gap



9500-43-1279\_en/4-0

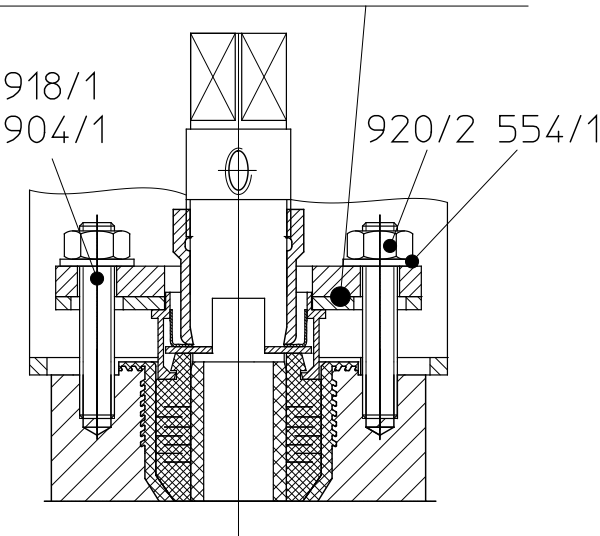
10.5 Sections ball valve with actuator

Section A-A



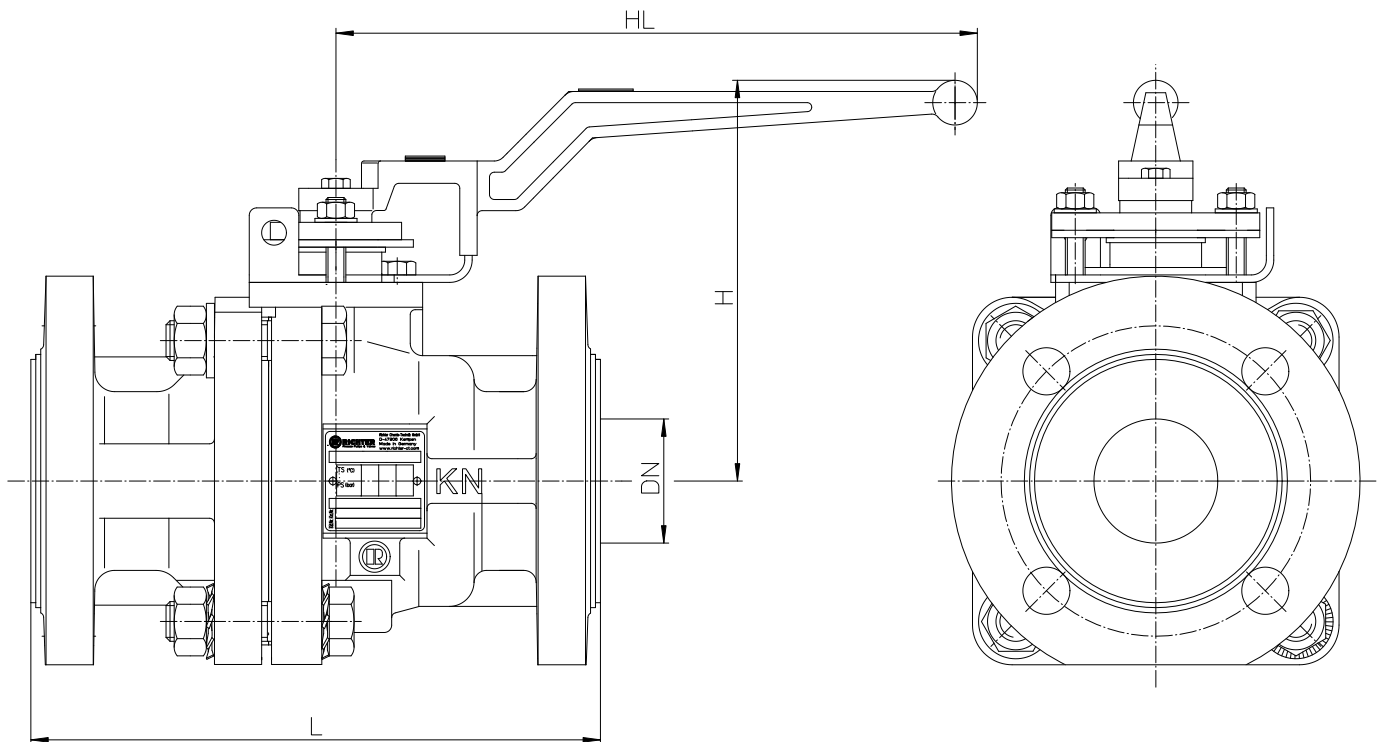
Section B-B

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



9500-43-1247\_en/4-0

## 10.6 Dimensional drawing ball valve with lever



| DN | 15  | 20  | 25  | 40  | 50  | 80  | 100 | 150 | 200/150 * | 200 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----------|-----|
| L  | 130 | 150 | 160 | 200 | 230 | 310 | 350 | 480 | 457       | 457 |
| H  | 130 | 130 | 130 | 155 | 155 | 180 | 195 | 265 | 265       | -   |
| HL | 179 | 179 | 179 | 259 | 259 | 410 | 410 | 513 | 513       | -   |

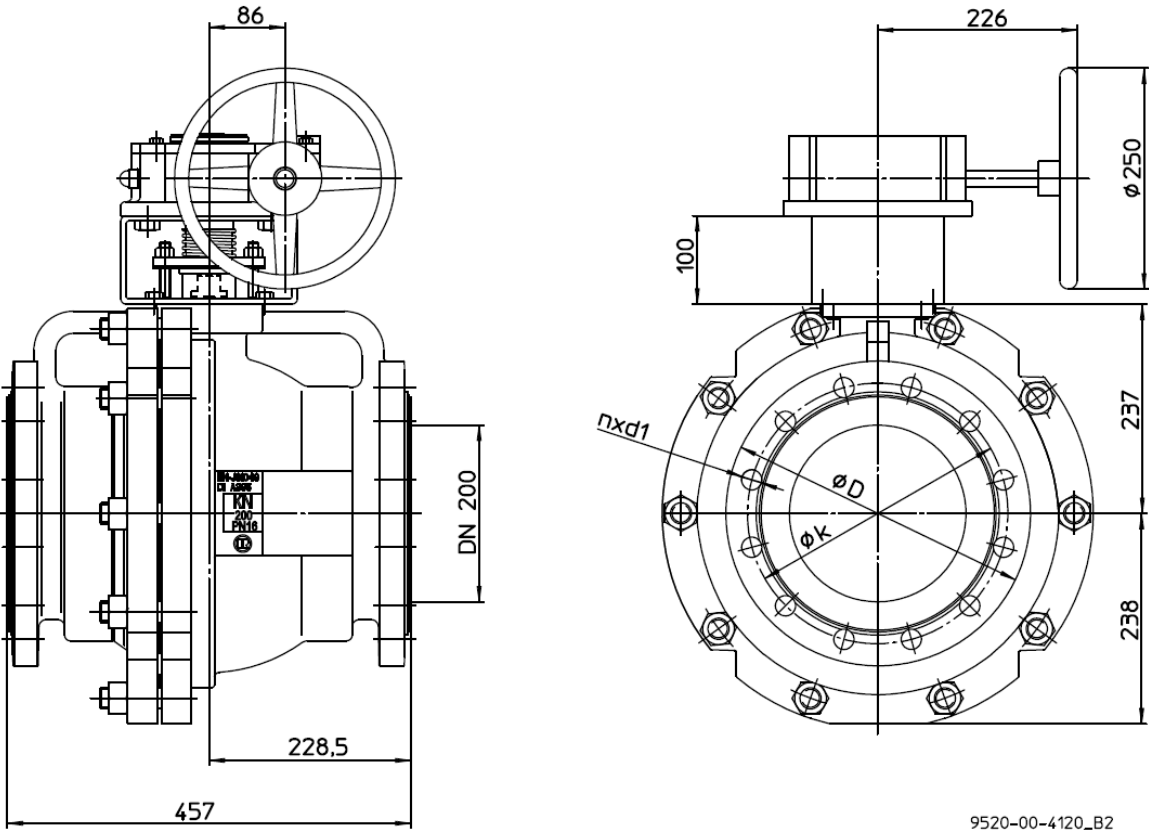
\* DN 200 with reduced bore DN150.

all dimensions in mm

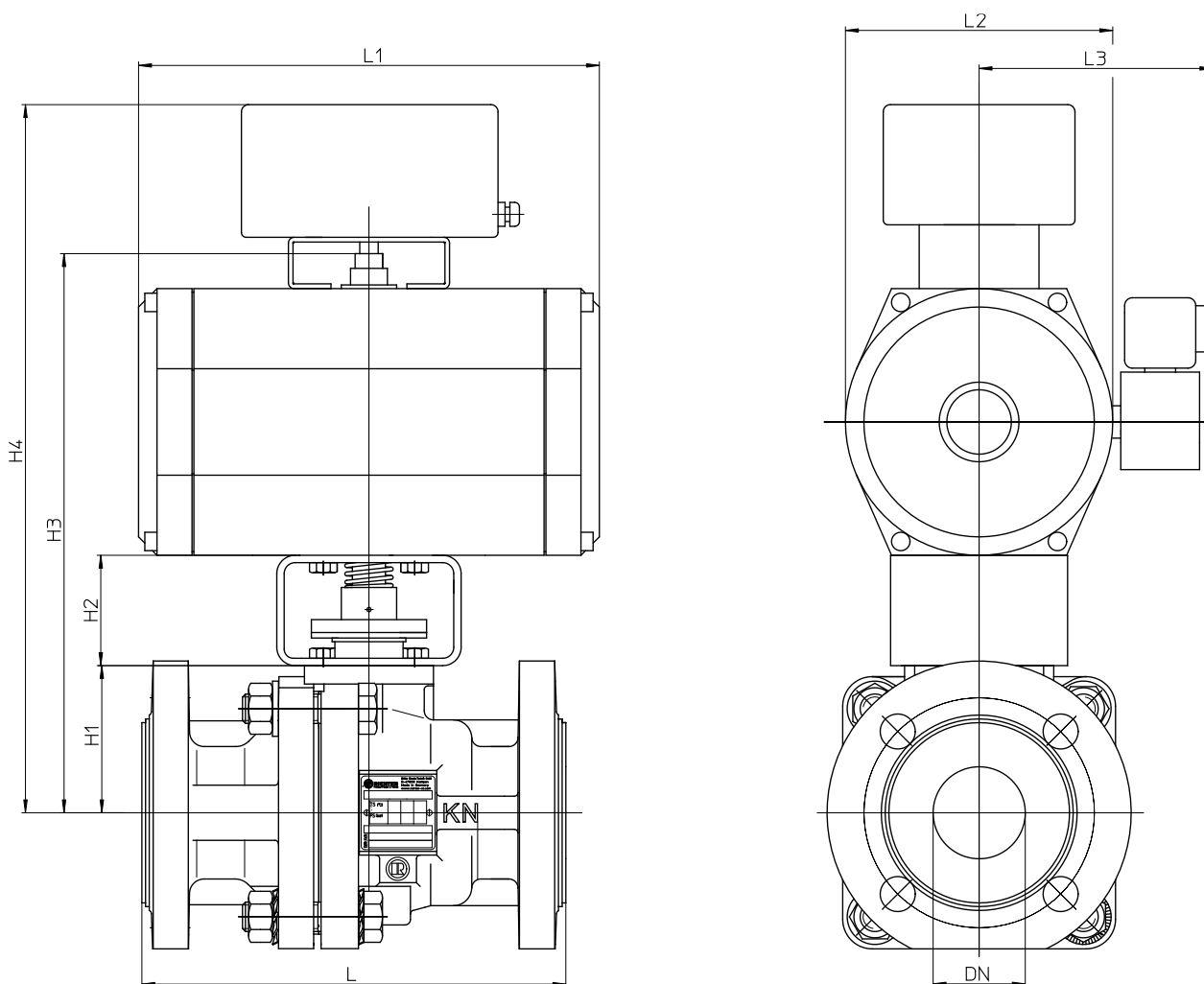
### Flange connecting dimensions:

DIN EN 1092-2, type B (ISO 7005-2, type B) PN 16 or flanges drilled to ASME 16.5 Class 150

10.7 Dimensional drawing ball valve with gear DN200



## 10.8 Dimensional drawing ball valve with actuator



9520-00-400V4-0

| DN        | H1  | H2    | Connecting<br>dimen. acc. to<br>ISO 5211 | H3 | H4 | L   | L <sub>1</sub> | L <sub>2</sub> | L <sub>3</sub> |
|-----------|-----|-------|------------------------------------------|----|----|-----|----------------|----------------|----------------|
| 15        | 50  | 60    | F05                                      |    |    | 130 |                |                |                |
| 20        |     |       |                                          |    |    | 150 |                |                |                |
| 25        |     |       |                                          |    |    | 160 |                |                |                |
| 40        | 77  | 60 ** | F07                                      |    |    | 200 |                |                |                |
| 50        | 80  |       |                                          |    |    | 230 |                |                |                |
| 80        | 118 | 80    | F10                                      |    |    | 310 |                |                |                |
| 100       | 134 |       |                                          |    |    | 350 |                |                |                |
| 150       | 184 | 80    | F12                                      |    |    | 480 |                |                |                |
| 200/150 * |     |       |                                          |    |    | 457 |                |                |                |
| 200       |     |       |                                          |    |    | 457 |                |                |                |

\* DN 200 with reduced bore DN 150

\*\* 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.  
all dimensions in mm

## 10.9 Flange connection dimensions

<sup>1)</sup> DN 200/150 with reduced bore DN 150  
all dimensions in mm

| DN                    |      | DIN EN 1092-2, Form B (ISO 7005-2, Form B)<br>PN 16 |     |                    | Flansche gebohrt nach<br>ASME B16.5 Class 150 |                    |
|-----------------------|------|-----------------------------------------------------|-----|--------------------|-----------------------------------------------|--------------------|
|                       |      | ØD                                                  | Øk  | n x d <sub>1</sub> | Øk                                            | n x d <sub>1</sub> |
| 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 <sup>1)</sup> | 6/8  | 340                                                 | 295 | 8x23               | 298,5                                         | 8x23               |
| 200                   | 8    | 343                                                 | 295 | 12x23              | 298.5                                         | 8x23               |



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

|                                                                                                          |                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Produkt<br><i>Product</i>                                                                                | Kunststoffausgekleidete Dreharmaturen<br><i>Plastic lined quarter turn valves</i>                                                                                                                                           |
| Bauart<br><i>Design</i>                                                                                  | Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn, Absperr- und Regelklappe<br><i>Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve</i> |
| Baureihe<br><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<br><i>Size</i>                                                                                 | DN 15 bis DN 400, ½" bis 16"<br><i>DN 15 to DN 400, ½" to 16"</i>                                                                                                                                                           |
| Seriennummer<br><i>Series number</i>                                                                     | ab/from 01.09.2024                                                                                                                                                                                                          |
| EU-Richtlinie<br><i>EU-Directive</i>                                                                     | 2014/68/EU Druckgeräterichtlinie<br>2006/42/EG <sup>2)</sup> Maschinenrichtlinie Anhang II, Nr. 1A<br>2014/68/EU Pressure Equipment<br>2006/42/EC <sup>2)</sup> Directive Machinery Annex II, No. 1A                        |
| Angewandte techn. Spezifikation<br><i>Applied Technical Specification</i>                                | DIN EN 16668, AD2000<br>DIN EN ISO 12100                                                                                                                                                                                    |
| Überwachungsverfahren<br><i>Surveillance Procedure</i>                                                   | 2014/68/EU<br>Zertifizierungsstelle für Druckgeräte<br>der TÜV Nord Systems GmbH & Co. KG<br>Große Bahnstraße 31<br>D-22525 Hamburg<br>Notified Body 0045                                                                   |
| Konformitätsbewertungs-<br>verfahren 2014/68/EU<br><i>Conformity assessment<br/>procedure 2014/68/EU</i> | Modul H<br>Zertifikats Nr. 0045/202/1411/P/00470/22/D/001(00)                                                                                                                                                               |
| Kennzeichnung<br><i>Marking</i>                                                                          | 2014/68/EU <sup>1)</sup> ≥ DN 32, ≥ 1"<br>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.*

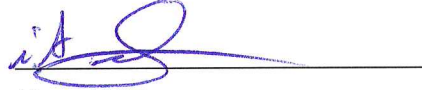
<sup>1)</sup> Für nicht aufgeführte Nennweiten ist eine Kennzeichnung nicht zulässig.  
*For sizes not listed a marking is not permitted.*

<sup>2)</sup> 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



Christian Muders  
Director Global Engineering



Manuel Müller  
Quality Manager

29.08.2024

Erstellt/Compiled: MCP/Ma  
Genehmigt/Approved: EPE/CM

am/on: 01.09.2024  
am/on: 01.09.2024

Seite/Page: 1  
von/of: 1

QM-Nr./QM-No.: F722024-08



**Konformitätserklärung**  
**Declaration of Conformity**

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

|                                                                                                 |                                                                                                                                                                                                                                                                                                 |                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Produkt<br><i>Product</i>                                                                       | Kunststoffausgekleidete Dreharmaturen<br><i>Plastic lined quarter turn valves</i>                                                                                                                                                                                                               |                                                                                                                                                             |
| Bauart<br><i>Design</i>                                                                         | Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn, Absperr- und Regelklappe<br><i>Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve</i>                                                                     |                                                                                                                                                             |
| Baureihe<br><i>Serie</i>                                                                        | KN..., KNA..., BVA..., KNR..., KNAR..., KH..., KK..., KK-FU..., KA-N..., NKL..., NKS...                                                                                                                                                                                                         |                                                                                                                                                             |
| Nennweite<br><i>Size</i>                                                                        | DN 15 bis DN 400, ½" bis 16"<br><i>DN 15 to DN 400, ½" to 16"</i>                                                                                                                                                                                                                               |                                                                                                                                                             |
| Seriennummer<br><i>Series number</i>                                                            | ab/from 01.09.2024                                                                                                                                                                                                                                                                              |                                                                                                                                                             |
| UK Gesetzliche Vorschriften<br><i>UK Statutory instruments</i>                                  | 2016 No. 1105<br>2008 No. 1597<br>2016 No. 1105<br>2008 No. 1597                                                                                                                                                                                                                                | Druckgeräteverordnung 2016<br>Maschinenverordnung 2008<br><i>The Pressure Equipment Regulations 2016</i><br><i>The Supply of Machinery Regulations 2008</i> |
| Angewandte Technische Spezifikation<br><i>Applied Technical Specification</i>                   | DIN EN ISO 12100<br>DIN EN 16668, EN 13445                                                                                                                                                                                                                                                      |                                                                                                                                                             |
| Überwachungsverfahren<br><i>Surveillance Procedure</i>                                          | 2016 No. 1105, 2008 No. 1597<br>Conformity Assessment<br>Durchgeführt gemäß dem bestehenden PED-Modul H-Zertifikat im Rahmen der Erleichterungen der britischen Regierung vom Juni 2022.<br>Applied according to existing PED Module H certificate under the UK government June 2022 easements. |                                                                                                                                                             |
| Konformitätsbewertungsverfahren 2014/68/EU<br><i>Conformity assessment procedure 2014/68/EU</i> | Modul H<br>Zertifikat Nr. 0045/202/1411/Z/00470/22/D/001(00), TÜV Nord CE 0045<br>Module H<br>Certificate no. 0045/202/1411/Z/00470/22/D/001(00), TÜV Nord CE 0045                                                                                                                              |                                                                                                                                                             |
| Kennzeichnung<br><i>Marking</i>                                                                 | 2016 No. 1105, 2008 No. 1597 <sup>1)</sup><br>2016 No. 1105, 2008 No. 1597 <sup>1)</sup>                                                                                                                                                                                                        |                                                                        |

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.*

<sup>1)</sup> Alle Armaturen, mit Ausnahme der Armaturen mit Handbetätigung.  
*For all valves, with exceptions to manually operated valves*

Kempen, 01.09.2024



Christian Muders  
Director Global Engineering



Manuel Müller  
Quality Manager

**Konformitätserklärung**  
**Declaration of Conformity**

**FDA & 2014/68/EU**

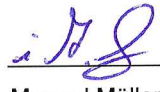
|                                                                     |                                                                                                                                                                                                                                     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

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

  
Christian Muders  
Director Global Engineering

  
Manuel Müller  
Quality Manager

**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:

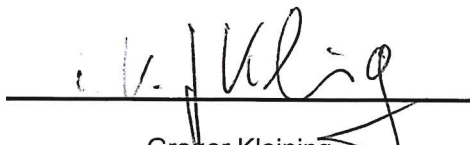
*The valves specified above underwent a risk analysis according to Directive 2014/34/EU with the following result:*

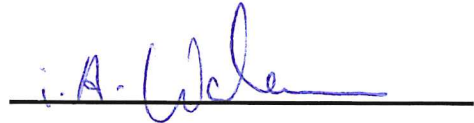
- **Richter Armaturen besitzen keine eigenen potentiellen Zündquellen. Die Armaturen können sowohl manuell als auch mechanisch/elektrisch angetrieben werden.**  
**Die Armaturen fallen nicht in den Anwendungsbereich der ATEX-Richtlinie 2014/34/EU und dürfen deshalb auch nicht danach gekennzeichnet werden.**  
*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.**  
*Electric/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  $L_B (\leq 10^{-4} \text{ mg/s}\cdot\text{m})$  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  $L_B (\leq 10^{-4} \text{ mg/s}\cdot\text{m})$  according to clause 5.2.6.4 of German Clean Air Act (TA-Luft) of 2021.*

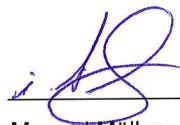
*This is based on the tests as well as their evaluation and qualification according to DIN EN ISO 15848-1 by TÜV Süd Industrie Service GmbH.*

*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



Christian Muders  
Director Global Engineering



Manuel Müller  
Quality Manager

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

## **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

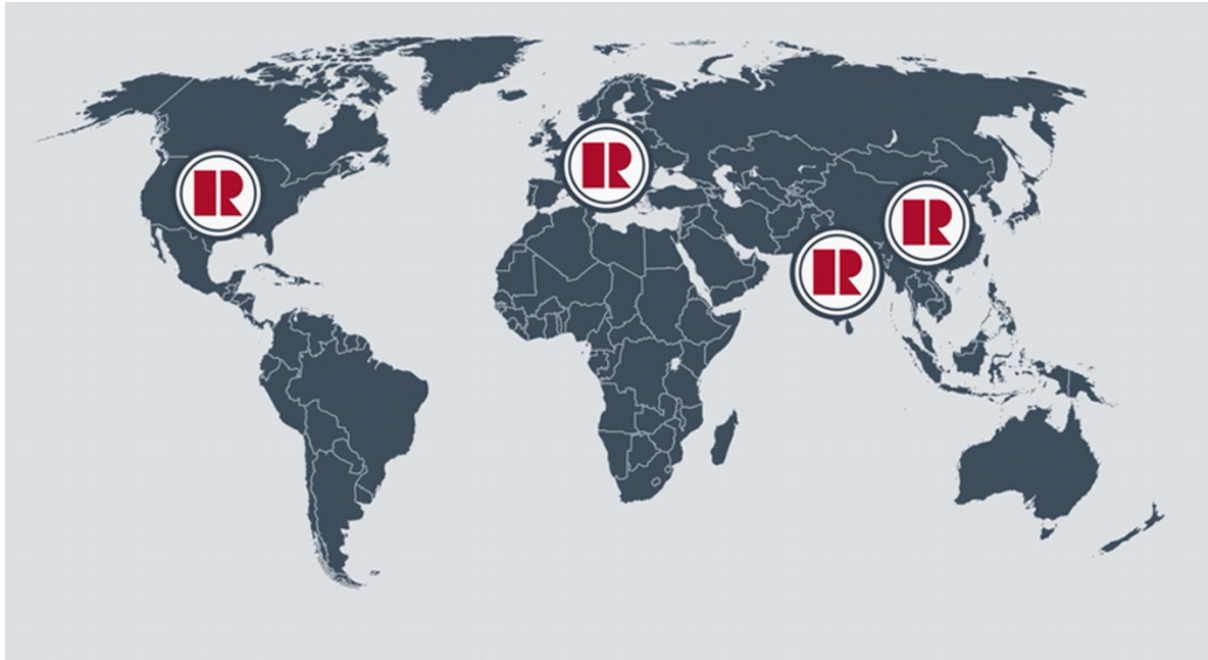


**RICHTER**  
Process Pumps & Valves

**Every aggregate has to have it's own declaration.**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---|-------------|-----------------------|----|--|--|----|--|--|----|--|--|----|--|--|
| Contractor/dep./institute : _____<br>Street : _____<br>Postcode, city : _____<br>Contact person : _____<br>Phone : _____ Fax : _____<br>End user : _____                                                                                                                                                                                                                                                                                                                            |             | Reason for transmitting * Please mark the applicable<br><b>Repair:</b> <input type="radio"/> subject to fee <input type="radio"/> Warranty<br><b>Austausch:</b> <input type="radio"/> subject to fee <input type="radio"/> Warranty<br><input type="radio"/> Exchange/ Replacement already initiated/received<br><b>Return:</b> <input type="radio"/> Leasing <input type="radio"/> Loan <input type="radio"/> for credit note                                                                                                                                                                                                                                                                                       |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
| <b>A. Details of Richter-product:</b><br>Classification: _____<br>Article number: _____<br>Serial number: _____                                                                                                                                                                                                                                                                                                                                                                     |             | <b>Failure description:</b><br>_____<br>_____<br>_____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
| <b>B. Condition of the Richter-product:</b><br>Was it in operation ? <input type="radio"/> no <sup>1)</sup> <input type="radio"/> yes <input type="radio"/> no →<br>Drained (product/operating supply item) ?      ↓ <input type="radio"/> <input type="radio"/><br>All openings hermetically locked! <input type="radio"/> <input type="radio"/><br>Cleaned ? <input type="radio"/> <input type="radio"/><br>If yes, with which cleaning agent:<br>and with which cleaning method: |             | <b>Contamination :</b><br>toxic <input type="radio"/> no <sup>1)</sup> <input type="radio"/> yes<br>caustic <input type="radio"/> <input type="radio"/><br>inflammable <input type="radio"/> <input type="radio"/><br>explosive <sup>2)</sup> <input type="radio"/> <input type="radio"/><br>mikrobiological <sup>2)</sup> <input type="radio"/> <input type="radio"/><br>radioactive <sup>3)</sup> <input type="radio"/> <input type="radio"/><br>other pollutant <input type="radio"/> <input type="radio"/>                                                                                                                                                                                                       |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
| <sup>1)</sup> if "no", then forward to <b>D</b> .<br><sup>2)</sup> Aggregates, which are contaminated with microbiological or explosive substances, are only accepted with documented evidence of an approved cleaning.<br><sup>3)</sup> Aggregates, which are contaminated with radioactive substances, are not accepted in principle.                                                                                                                                             |             | <b>C. Details of the discharged materials (must be filled out imperatively)</b><br><b>1. With which materials did the aggregate come into contact ?</b> 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)<br><table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">X</td> <td style="width: 40%;">Trade name:</td> <td style="width: 50%;">Chemical designation:</td> </tr> <tr><td>a)</td><td></td><td></td></tr> <tr><td>b)</td><td></td><td></td></tr> <tr><td>c)</td><td></td><td></td></tr> <tr><td>d)</td><td></td><td></td></tr> </table> |  | X | Trade name: | Chemical designation: | a) |  |  | b) |  |  | c) |  |  | d) |  |  |
| X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Trade name: | Chemical designation:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
| a)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
| b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
| c)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
| d)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |
| <b>2. Are the materials specified above harmful to health ?</b><br><input type="radio"/> no <input type="radio"/> yes<br><b>3. Dangerous decomposition products during thermal load ?</b><br><input type="radio"/> no <input type="radio"/> yes<br>If yes, which ones?                                                                                                                                                                                                              |             | _____<br>_____<br>_____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |   |             |                       |    |  |  |    |  |  |    |  |  |    |  |  |

Company stamp



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Subject to change without notice.  
These installation and operating instructions must be kept!

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