

Series KK/F, KKP/F, KK/FU, KKP/FU Sandwich Ball Valve



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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Relevant documents

- ◆ Declaration of conformity acc. to the EC Pressure Equipment Directive 97/23/EC
- ◆ Manufacturer's Declaration German Clean Air Act (TA-Luft)
- ◆ Form for General Safety Certificate QM 0912-16-2001_en
- ◆ For KKP/F, KKP/FU: Operating manual for actuator
- ◆ Change from manual operation to power operation drawing **9520-00-4045**

1 Technical data

Manufacturer:

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Designation :

Series:

- KK/F** Sandwich ball valve, hand actuated
- KK/FU (KHK)** Sandwich ball valve with universal connection, hand actuated, for glass lines
- KKP/F** Sandwich ball valve, version prepared for pneum., hydr. or elec. actuator to DIN /ISO 5211
- KKP/FU** Sandwich ball valve with universal connection, for glass lines, version for pneum., hydr. or elec. actuator to DIN /ISO 5211

From DN 65 reduced ball passage

Certified to German 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: Nominal size (DN) + 50 mm

Flange connecting dimensions:

KK/F DIN EN 1092-2, type B
 (ISO 7005-2 type B) PN 16

KK/FU DIN EN 12585

Materials :

Body material: Ductile cast iron EN-JS 1049 / ASTM A395

Lining material: PFA .../F
 on request: conductive design .../F-L

Temperature range :

See pressure-temperature diagram in [Section 1.3](#).

Operating pressure:

KK/F : DN 15 – DN 100 up to max. 16 bar
 DN 150 up to max. 10 bar

KK/FU (KHK): DN 25 – 50 up to max. 4 bar

Ball valve sizes in mm :

KK/F : DN 25, 40, 50, 65, 80, 100, 150

KK/FU (KHK) : DN 25, 40, 50

Installation position:

Arbitrary, with low-cavity ball/stem units a direction arrow indicates the direction of flow.

See [Section 6.2](#).

Dimensions and individual parts:

See sectional drawings in [Section 10](#).

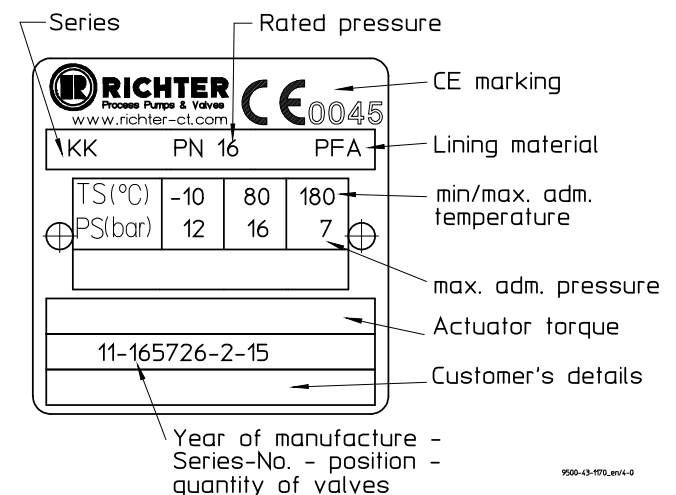
Wear parts: Seat rings (in pairs)
 Packing components
 Ball
 Stem

1.1 Name plate, CE and body markings

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

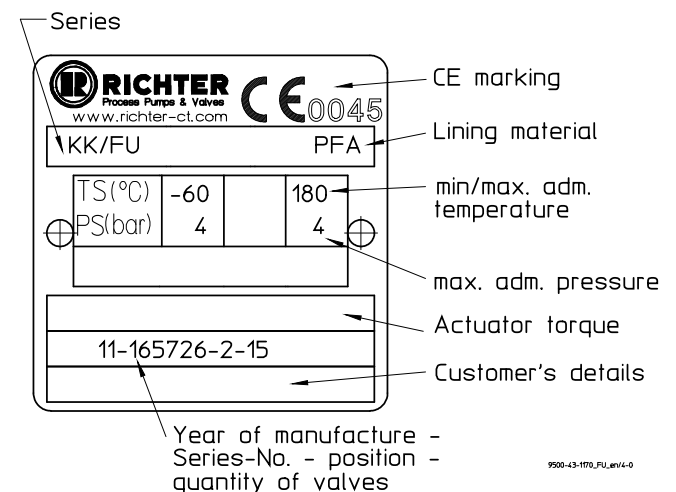
If the operator attaches his identification, it must be ensured that the valve matches the application in question.

Example: Name plate KK/F with CE marking



No CE marking is permissible for the sizes 25; the name plate therefore has no CE marking.

Example: Name plate KK/FU with CE marking



Body identification :

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

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

1.2 Tightening torques

All screws greased, tighten in diametrically opposite sequence!

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

Packing nut

DN	Nm
25	10 Nm
40 - 80	15 Nm
100	20 Nm
150	20 Nm

Pipe screws for KK/F

The following tightening torques are recommended:

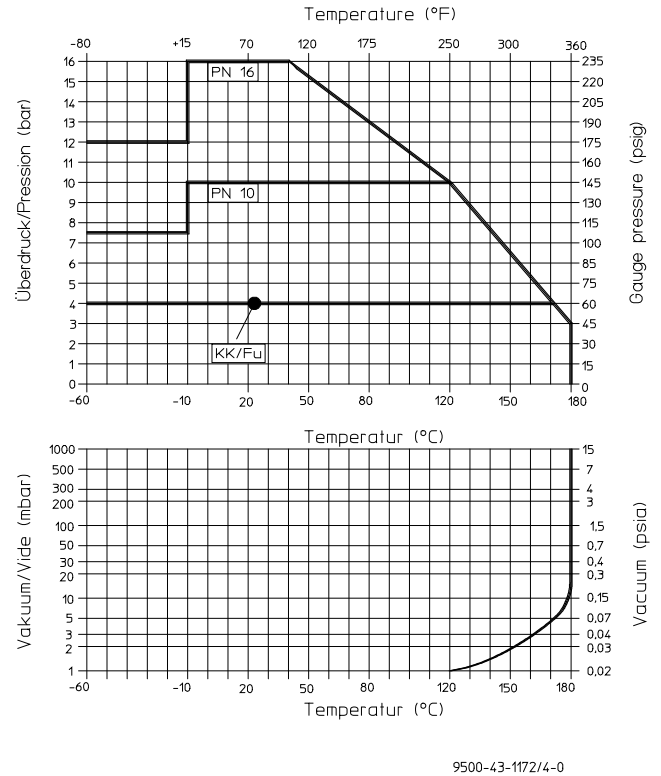
Flanges nom. size [mm]	Operating pressure [PN]	Screws [ISO/DIN]	Tightening torque [Nm]
25	16	4 x M12	10
40	16	4 x M16	20
50	16	4 x M16	26
65	16	4 x M16	40
80	16	8 x M16	25
100	16	8 x M16	35
150	10	8 x M20	65

Body screws for KK/FU (KHK)

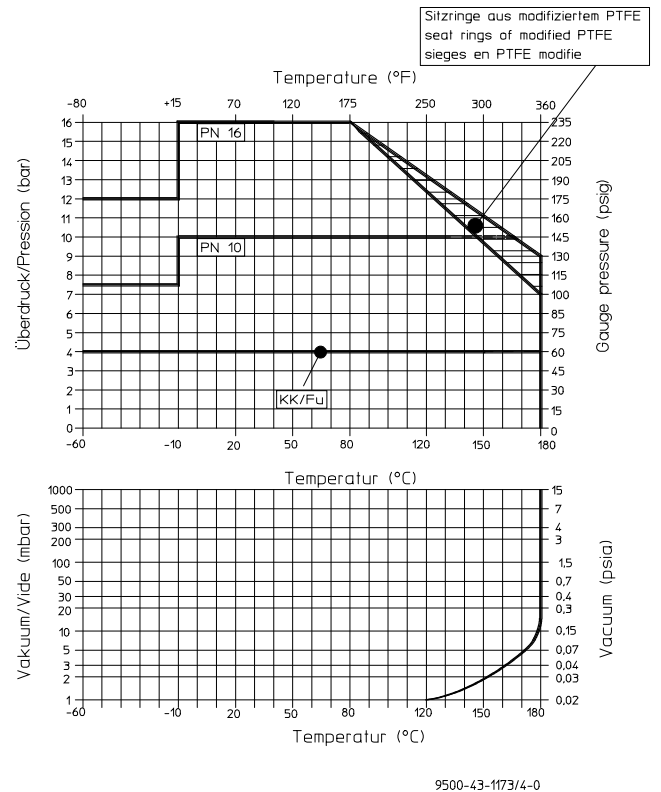
Flanges nom. size [mm]	Operating pressure [PN]	Screws [ISO/DIN]	Tightening torque [Nm]
25	4	4 x M8	10
40	4	4 x M8	25
50	4	4 x M8	25

1.3 Pressure-temperature-diagram

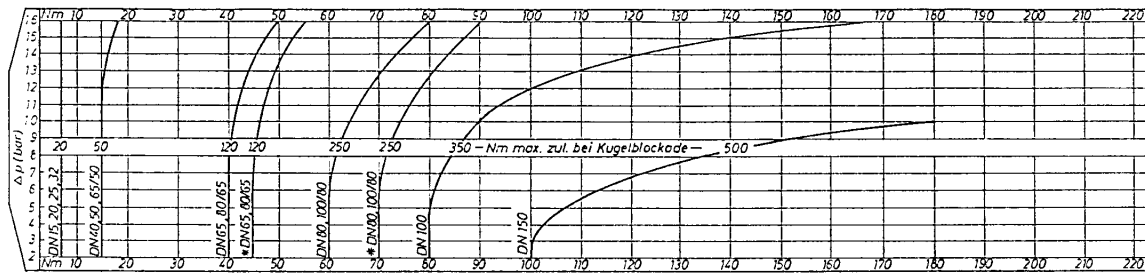
For PFA-ball



For Al₂O₃ - ball



1.4 Torques in Nm for ball valves



* Seat rings = PTFE/carbon low-cavity

Torques apply to balls Al_2O_3 or FEP/PFA with metal core.

Test medium water 20 °C; depending on medium - e.g. dry gases or viscous or crystallising fluids - the torques may be higher. If the actuator is to be rated by Richter, we request detailed information. Observe operating limits acc. to pressure-temperature diagram.

2 Notes on safety

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

It must therefore be read before installation and commissioning!

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 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 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

Sandwich ball valves of the series KK are flangeless open/closed valves.

Richter sandwich ball valves of the series KK/KKP 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 safety 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 which are used as end valves must be sealed with a blind flange at the free connection end or 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 reliability 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 94/9/ EC (Atex 95)

The valves are intended for use in a potentially explosive area and are therefore subject to the conformity assessment procedure of the directive 94/9/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 unit.

In connection with explosion protection, potential sources of ignition (overheating, electrostatic and induced charges, mechanical and electric sparks) may result from these improper operation; their occurrence can only be prevented by adhering to the intended use.

Furthermore, reference is made in this connection to the Directive 95/C332/06 (ATEX 118a) which contains the minimum regulations for improving the occupational health and safety of the workers who may be at risk from an explosive atmosphere.

A difference is made between two cases for the use of chargeable liquids (conductivity $<10^{-8}$ S/m):

1. Chargeable liquid and non-conductive lining

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

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).

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 unit 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 other action, e.g. cable bridges.
- 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 German Clean Air Act (TA Luft)

On request, this valve can be supplied compliant with the German Clean Air Code. Certificate / Manufacturer Declaration Validity is dependent on the operating instructions being read and observed.

In particular, servicing must be conducted at regular intervals, and the bolted connections relevant for tightness must be inspected and retightened if necessary.

5 Transport, storage and disposal



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



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

Handle the goods being transported with care. During transport the valve must be protected against impacts and collisions.

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

Do not damage the external epoxy coating.

5.1 Storage

If the valve is not installed immediately after delivery, it must be put into proper storage.

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

Elastomers are to be protected against UV light.

In general, a storage period of 10 years should not be exceeded.

5.2 Return consignments



Valves which have conveyed aggressive or toxic media must be well rinsed and cleaned before being returned to the manufacturer's works.

It is **imperative** to enclose a **safety information sheet / general safety certificate** on the field of application with the return consignment.

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

Safety precautions and decontamination 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 ball valves must not be installed.
- ◆ Before installation the valve and the connecting pipe must be carefully cleaned to remove any dirt, especially hard foreign matter.
- ◆ During installation, pay attention to the correct tightening torque, aligned pipes and tension-free assembly.



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

6.1 Flange caps and gaskets

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

KK/F: Where there is a particularly high risk of damage to the plastic sealing surfaces, e.g. if the mating flanges are made of metal are glass-lined, PTFE-lined gaskets with a metal inlay should be used. 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 installation position can be chosen.

Exception: with a relief or drain bore, identified with a direction arrow on the ball valve.

The position of the ball ("open" - "closed") is indicated by the hand lever or flat pivot point on the stem. (Lever longitudinal to the valve - open; lever at right angles to the valve - closed. A stud screw serves as an end stop).

6.3 Grounding

Grounding is provided by the pipe screws. The valve is grounded by means of a grounding rope **532**.

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.

6.4 Test pressure

The test pressure PT of an **open valve** must not exceed the value of $1.5 \times \text{PN/PS}$ 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 body bolting. For torques see [Section 1.2](#).



Unless otherwise agreed, there could be residual amounts of water in the flow section of the valve; this could result in a possible reaction with the medium.

To prevent leaks, all connection screws should be retightened after the initial loading of the valve with operating pressure and operating temperature.

For torques see [Section 1.2](#).

7.2 Improper operation and their consequences

- ◆ The ball valve is an open/closed valve and is not to be operated in an intermediate position. Damage to the seat rings or the ball/stem unit could occur.
- ◆ Crystallisation may result in damage to the seat rings or ball/stem unit. This can be prevented by heating. In extreme cases this may cause blocking.
- ◆ Operation with solids leads to increased wear.
- ◆ Operating during cavitation leads to increased wear.

- ◆ Non-observance of the pressure-temperature diagram can lead to damage.
- ◆ Do not subject the lever to heavy loads; the lever or ball valve may be damaged.
- ◆ Do not use a lever extension as otherwise there is a risk of damage.

7.3 Shutdown

The local regulations are to be observed when dismantling the valve.

Prior to undoing the flange connection ensure, that the plant is depressurised and emptied.



Prior to starting any repair work, the valve is to be thoroughly cleaned. Even if the valve has been properly emptied and rinsed, residual medium may still be found in the valve,

After dismantling, immediately protect the valve flanges against mechanical damage with flange caps.

See also [Section 6.1](#).

8 Malfunctions

- ◆ Flange connection ball valve/pipe is leaking
Retighten the flange screws to a tightening torque according to [Section 1.2](#). If this does not remedy the leak, the recommended torques may be exceeded by 10%.
If this also fails to stop the leak, dismantle and inspect the ball valve.
- ◆ Flange connection body centre piece/transition cover 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 1.2](#).
- ◆ Ball valve does not operate
Is the actuator being supplied with power?
Is any directional control valve connected correctly?
Is there any foreign matter in the ball 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 fro.
2. Remove the lever stop and try to switch against the normal direction of rotation.
3. If activation is not possible with the max. admissible breakaway 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. Generally recognised practice in mechanical engineering is to be observed.
- ◆ 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 torques see [Section 1.2](#).

9.1 Dismantling KK/F, KKP/F

9.1.1 Dismantling of seat ring and ball

- See also sectional drawings in [Section 10](#).
- Place ball valve on a soft, clean surface.
- Undo cover holder **111**.
- Remove transition cover **109** and seat rings **401**.

ATTENTION: Mark the inside and outside of the transition cover with a felt-tip pen!

- Move ball **200** into the "closed position" and remove from the body centre piece **103** by lifting and turning it.

9.1.2 Dismantling of the packing gland and stem DN 25-100

See sectional drawings in [Section 10.1 and 10.3](#).
After dismantling the seat rings and ball, as described in [Section 9.1.1](#), the packing gland and stem are dismantled as follows:

- Unscrew hex. nut **920/1**.
- Dismantle lever **203** and actuator **850**.
- Undo hex. screw **901/1** of the grounding rope **532**. Unscrew with the design with actuator.
- Undo hex. nut **920/2** and remove cup spring cage.
- Force stem **202** downwards with a rubber hammer and remove.
- Remove thrust ring **405** and ring **500**.
- Dismantle packing rings **402/1**.

9.1.3 Dismantling of the packing gland and stem for DN 150, lever

See sectional drawing in [Section 10.2](#).

After dismantling the seat rings and ball as described in [Section 9.1.1](#), the packing gland and stem are dismantled as follows:

- Undo hex. screws **903/1** and hex. nuts **920/3**; as a result, the cup spring is **950/1** are relieved.
- Unscrew hex. screws **901/2** and then hex. socket screw **914/1**, and remove lever **203**, disc **550** and lever stop **577**.
- Undo attachment screw **901/1** of the grounding rope **532**.
- Remove pressure plate **524**, cup spring **950/1**, plain bearing **300** and support disc **232**.
- Force the stem **202** downwards with a rubber mallet and remove.
- Turn profiled sheet **533** to the side.
- Remove thrust ring **405** and ring **500**.
- Remove packing rings **402/1**.

9.1.4 Dismantling of packing gland and stem for DN 150, actuator

See also sectional drawing in [Section 10.6](#).

After dismantling the seat rings and ball as described in [Section 9.1.1](#), the packing gland and stem are dismantled as follows:

- Dismantle actuator **850** and bracket **510**.
- Undo hex. screws **903/1** and hex. nuts **920/3**; as a result, the cup spring **950/1** is relieved.
- Undo hex. screws **901/2**, force spring-type slotted pins **939/1** out with a rubber mallet, dismantle coupling **804**.
- Undo hex. socket screw **914/1**; remove disc **550** and position indicator **531**.
- Remove pressure plate **524**, cup spring **950/1**, plain bearing **300** and support disc **232**.
- Force the stem **202** downwards with a rubber mallet and remove.
- Turn profiled sheet **533** to the side.
- Remove thrust ring **405** and ring **500**.
- Remove packing rings **402/1**.

9.2 Assembly KK/F, KKP/F

9.2.1 Assembly of packing gland and stem DN 25-100

- See sectional drawings in **Section 10.1 and 10.3**.
- Prior to assembly all parts are to be cleaned and the plastic-lined components checked for damage.
- Insert stem **202** from below into the body centre piece **103**.
- Insert packing rings **402/1**.

ATTENTION: Offset overlapping from ring to ring by 60°- 90°.

- Mount disc **550** and then the thrust ring **405**.
- Attach cup spring cage **504** with hex. nut **920/2**. (Observe torque data; see **Section 1.2**).
- Mount lever **203** and hex. nut **920/1**, or with the KKP first tighten the hex. nut **920/2** and then mount the coupling.
- Install hex. screw **901/1** with washer **554/1**, grounding rope **532** and profiled sheet **533** again.

9.2.2 Assembly of packing gland and stem for DN 150 lever

- See also sectional drawing in **Section 10.2**.
- Prior to assembly, all parts must be cleaned and the plastic-lined parts checked for damage.
- Insert stem **202** from below into the body centre piece **103**.
- Insert packing rings **402/1**.
NOTE: Offset overlapping from ring to ring by 60°-90°.
- Push ring **500**, thrust ring **405** and profiled sheet **533** onto the stem.
- Push support disc **232**, plain bearing **300**, cup spring **950/1** and pressure plate **524** onto the stem.
- Attach lever stop **577** with hex. socket screw **914/1**.
- Pre-tension cup spring **950/1** with hex. screw **903/1** and hex. nut **920/3**.
- Mount lever **203**.
- Install hex. screw **901/1** with washer **554/1**, grounding rope **532** and profiled sheet **533** again.
- Check whether the lever can be easily activated. Otherwise relieve or tension cup spring slightly (check nut).

9.2.3 Assembly of packing gland and stem for DN 150 actuator

- See sectional drawing in **Section 10.6**.
- Prior to assembly, all parts are to be cleaned and the plastic-lined parts checked for damage.
- Introduce stem **202** from below into the body centre piece **103**.
- Insert packing rings **402/1**.
NOTE: Offset overlapping from ring to ring by 60°- 90°.
- Push ring **500**, thrust ring **405** and profiled sheet **533** onto the stem.
- Push support disc **232**, plain bearing **300**, cup spring **950/1** and pressure plate **524** onto the stem.
- Secure disc and position indicator **531** with hex. socket screw **914/1** to stem **202**.
- Loosely screw coupling **804** onto position indicator **531**, force in spring-type slotted pins **939/1**, tighten screws.
- Pre-tension cup spring **950/1** with hex. screw **903/1** and hex. nut **920/3**.
- Mount bracket **510** and actuator **850**.
- Install hex. screw **901/1** with washer **554/1**, grounding rope **532** and profiled sheet **533** again.
- Check actuator to see if it switches. Otherwise, relieve or tension cup spring slightly (check nut).

9.2.2 Assembly of seat ring and ball

- Mount ball **200** by threading the ball slot onto the stem **202**.
- In the case of balls with a relief or drain bore install these opposite the direction of flow.
- Mount upper seat ring **401**.
- Install seat rings **401** and transition cover **109** and attach cover holder **111** again.
ATTENTION: Ensure correct position of the transition cover! See **Section 9.1.1**.

9.3 Dismantling KK/FU (KHK)

9.3.1 Dismantling of seat ring and ball

- See sectional drawings in Section 10.7 and 10.8.
- Place ball valve on a soft, clean surface.
- Undo screw fittings **918/1**, **559/1**, **920/3** and remove transition cover **109**.
- Remove seat rings **401**.
- Move ball **200** into "closed position" and remove from the body centre piece **103** by lifting and turning it.

Further dismantling as described in Section 9.1.2.

9.4 Assembly KK/FU (KHK)

Assembly of packing gland and stem as described in Section 9.2.1.

9.4.1 Assembly of seat ring and ball

- See sectional drawings in Section 10.7 and 10.8.
- Mount ball **200** by threading the ball slot onto the stem **202**.
- In the case of balls with a relief or drain bore, mount them opposite the direction of flow.
- Mount top seat ring **401**.
- Install seat rings **401** and transition cover **109** and secure again with the screw fittings **918/1**, **559/1**, **920/3**.

9.5 Conversion from hand lever to actuator

9.5.1 DN 25-100

- Selection of the actuator in accordance with the instructions of the actuator manufacturer.
- Unscrew hex. nut **920/1**.
- Remove lever **203**.
- Remove stud screw **905/1** and sealing plug.
- The hex. nut **920/2** and cup spring cage **504** do not need to be removed.
If, however, the cup spring cage has been dismantled, pay attention during re-assembly to the tightening torques in Section 1.2 and see Section 9.2.1.
- Remove hex. screw **901/1** with washer **554/1**, grounding rope **532** and distance bushing **530**.
- Check the fits of the coupling, bracket and actuator.
- Bend the profiled sheet **533** of the cup spring cage **504** upwards.
- Mount bracket **510** with the opening at right angles

to the direction of flow.

- Mount hex. screw **901/1** with washer **554/1**, grounding rope **532** and profiled sheet **533** again. With F07 the hex. screw **901/1** is replaced by a hex. socket screw **914/2**.
- Mount coupling **804** and actuator **850**. Observe actuator position in accordance with the actuator operating manual.
- See also sectional drawings KKP/F and KKP/FU in Sections 10.3 and 10.8.

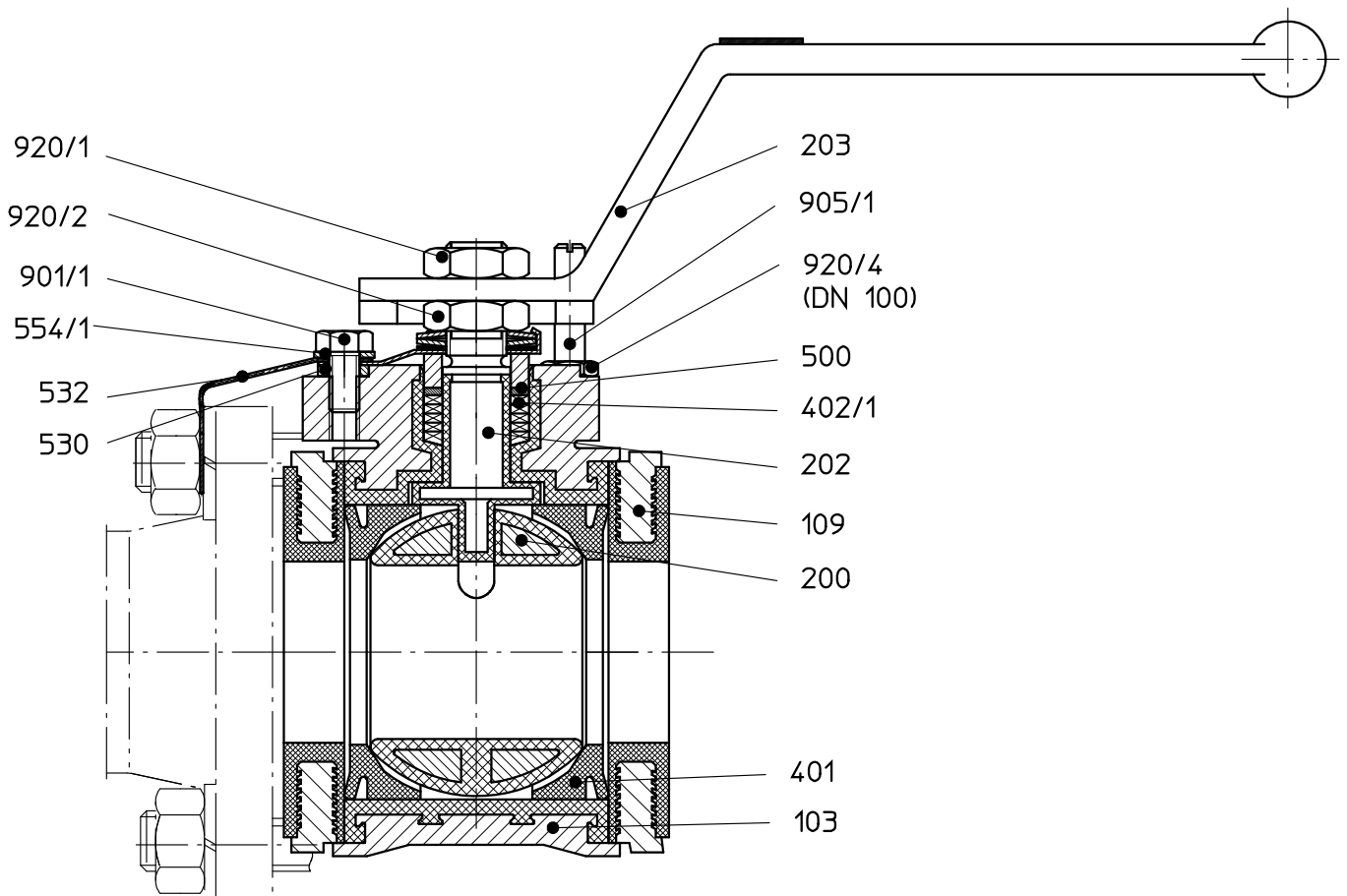
9.5.2 DN 150

- Selection of the actuator in accordance with the manual of the actuator manufacturer.
- Remove lever **203**.
- Remove headless screw **905/1** and sealing plug.
- The hex. nut **920/2** and the cup spring cage **504** need **not** be removed.
If the cup spring cage is nevertheless removed, pay attention to the tightening torques in Section 1.2 for re-assembly.
- Remove hex. screw **901/1** with washer **554/1**, grounding rope **532** and distance bushing **530**.
- Check the fits of the coupling, bracket and actuator.
- Bend profiled sheet **533** of the cup spring cage **504** upwards.
- Mount bracket **510** with the opening at right angles to the direction of flow.
- Mount hex. screw **901/1** with washer **554/1**, grounding rope **532** and profiled sheet **533** again. With F07 the hex. screw **901/1** is replaced by a hex. socket screw **914/2**.
- Mount coupling **804** and actuator **850**. Observe actuator position in accordance with the operating manual.
- See also sectional drawings KKP/F in Section 9.5.

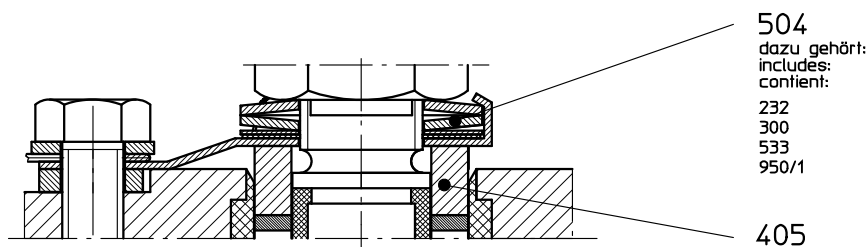
10 Drawings

10.1 Sectional drawing and legend KK/F (DN 25-100)

103	body centre piece	504	cup spring cage
109	transition cover		includes:
200	ball	232	support disc
202	stem	300	plain bearing
203	lever	533	profiled sheet
401	seat ring	950/1	cup spring
402/1	packing ring	530	distance bushing
405	thrust ring	532	grounding rope
500	ring	554/1	washer
		901/1	hex. screw
		905/1	headless screw
		920/x	hex. nut



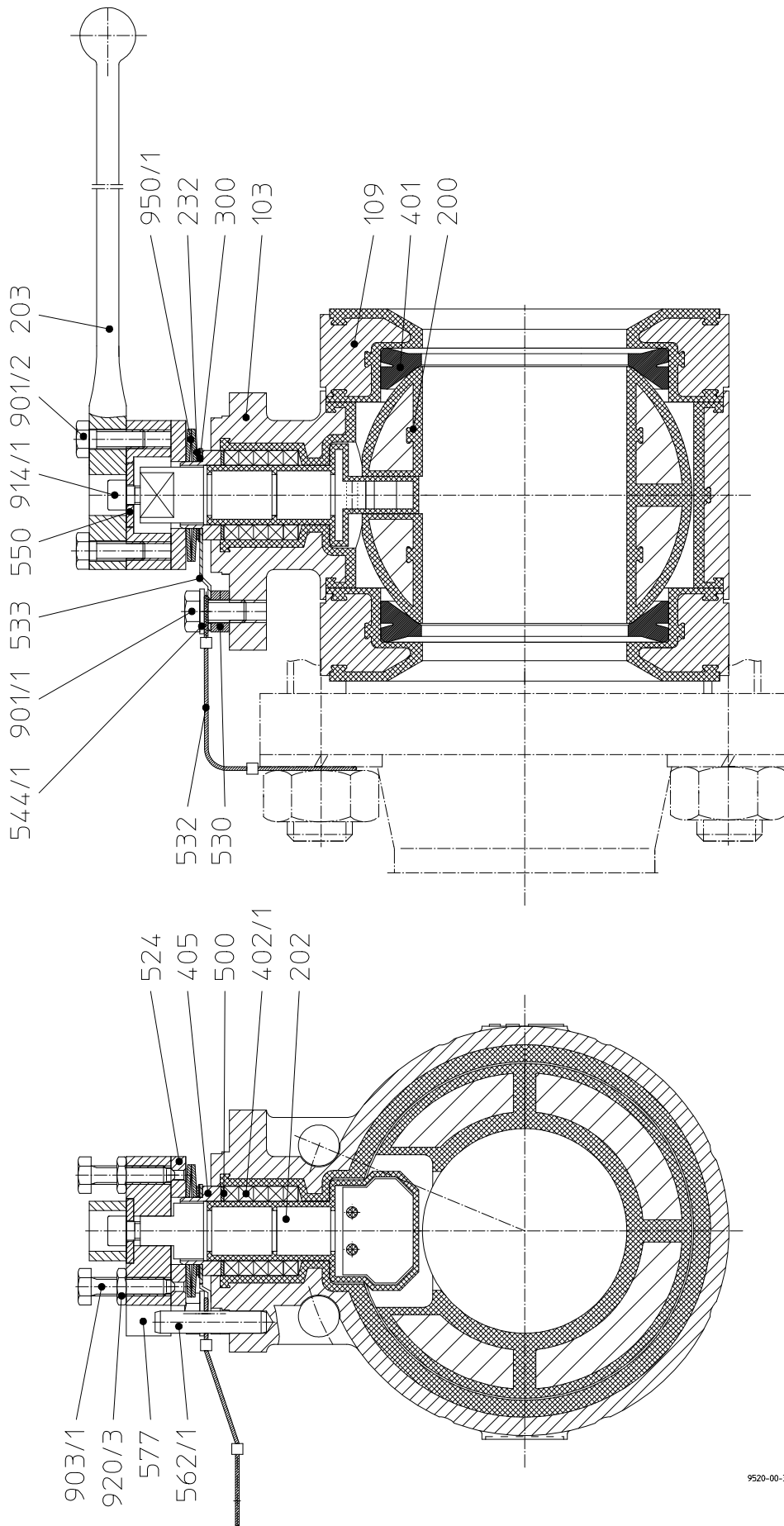
Self adjusting packing



10.2 Legend KK/F (DN 150)

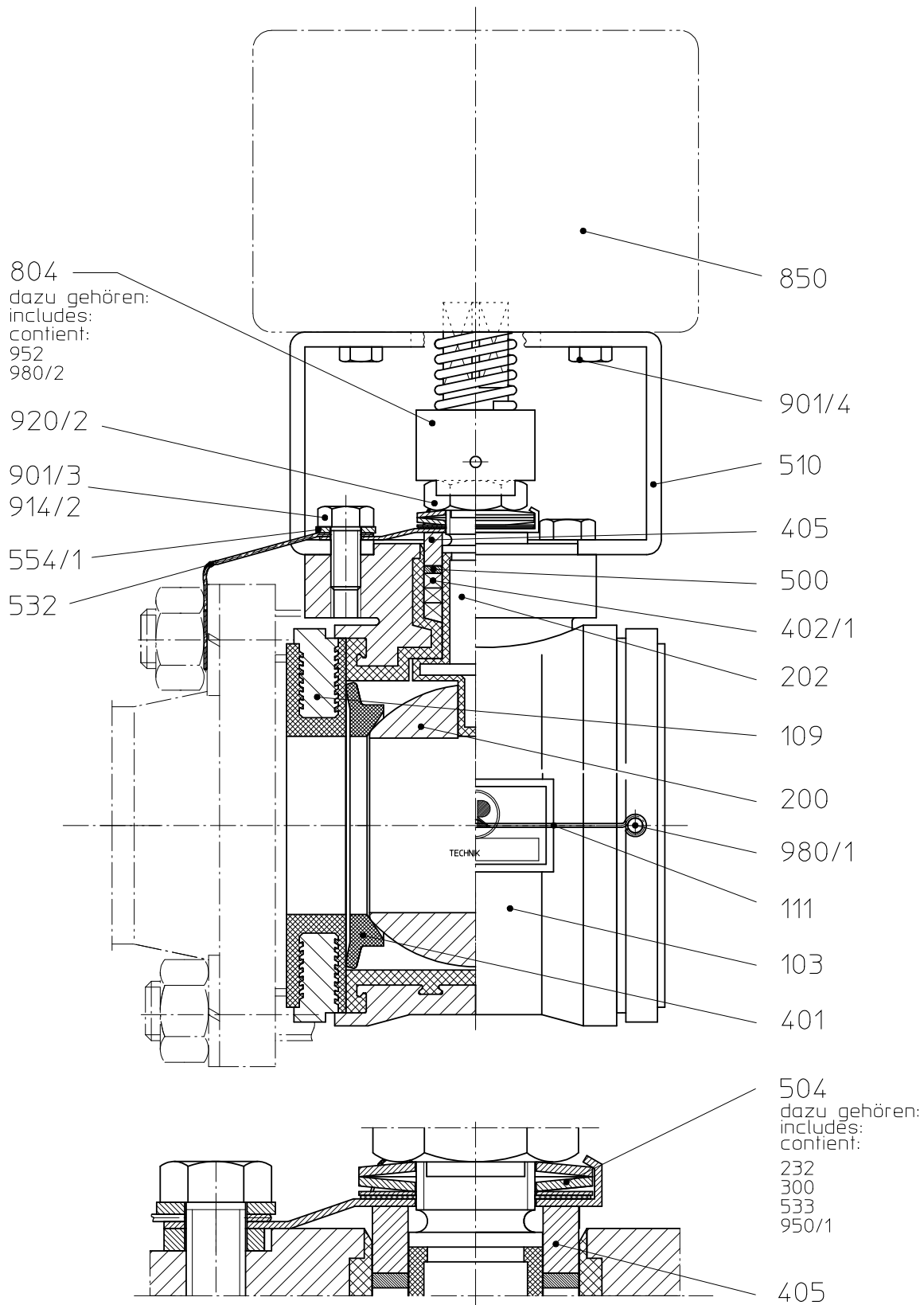
103	body centre piece	530	distance bushing
109	transition cover	532	grounding rope
111	cover holder	533	profiled sheet
200	ball	550	disc
202	stem	554/1	washer
203	lever	562/1	parallel pin
232	support disc	577	lever stop
300	plain bearing	901/x	hex. screw
401	seat ring	903/1	hex. screw DIN 564
402/1	packing ring	914/1	hex. socket screw
405/1	thrust ring	920/x	hex. nut
500/1	ring	950/1	cup spring
524	pressure plate	980/1	round head grooved pin

10.3 Sectional drawing KK/F (DN 150)



9520-00-3042/4-0

10.4 Sectional drawing KKP/F.. (DN 25-100)



selbstnachstellende wartungsfreie Stopfbuchse
self adjusting packing
autoreglable presse-étoupe sans entretien

9500-43-1994/4-0

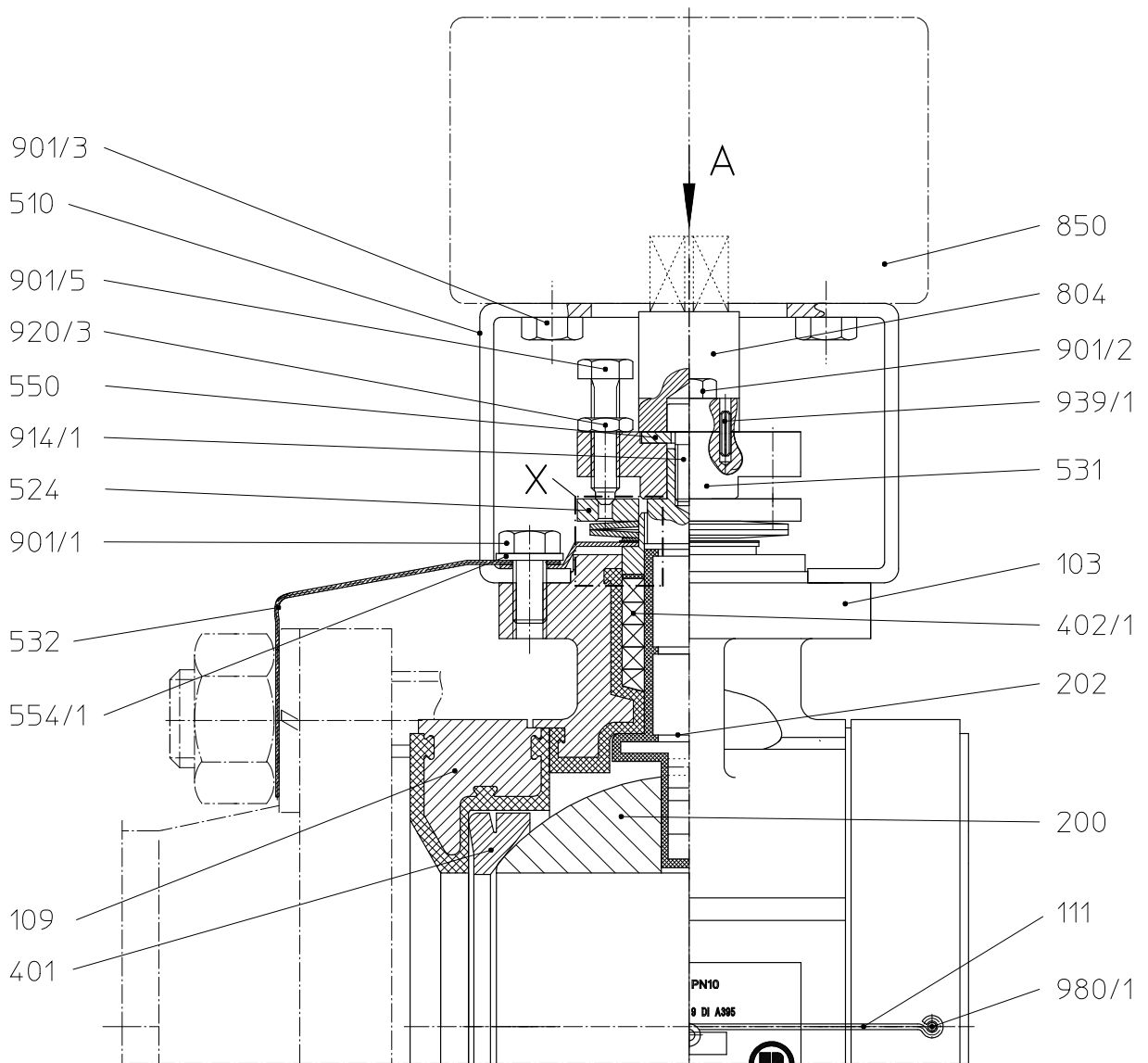
10.5 Legend KKP/F (DN 25-100)

103	body centre piece	510	bracket
109	transition cover	532	grounding rope
111	cover holder	554/1	washer
200	ball	804	coupling
202	stem	includes:	
401	seat ring	952/1	pressure spring
402/1	packing ring	980/1	round head grooved pin
405	thrust ring	850	actuator
500	ring	901/x	hex. screw
504	cup spring cage	914/2	hex. socket screw
includes:		920/2	hex. nut
232	support disc		
300	plain bearing		
533	profiled sheet		
950/1	cup spring		

10.6 Legend KKP/F (DN 150)

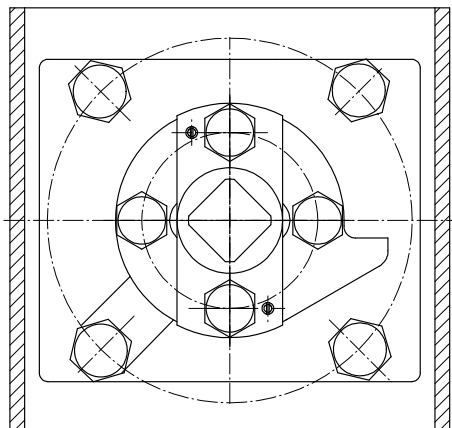
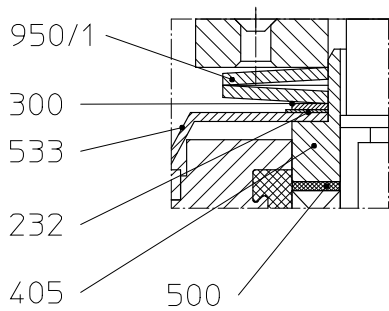
103	body centre piece	531	position indication
109	transition cover	532	grounding rope
111	cover holder	533	profiled sheet
200	ball	550	disc
202	stem	554/1	washer
232	support disc	804	coupling
300	plain bearing	850	actuator
401	seat ring	901/x	hex. nut
402/1	packing ring	901/5	hex. nut DIN 564
405	thrust ring	914/1	hex. socket screw
500	ring	920/x	hex. nut
510	bracket	936/3	toothed lock washer
524	pressure plate	939/1	spring-type pin
		950/1	cup spring
		980/1	round head grooved pin

10.7 Sectional drawing KKP/F (DN150)



Detail X

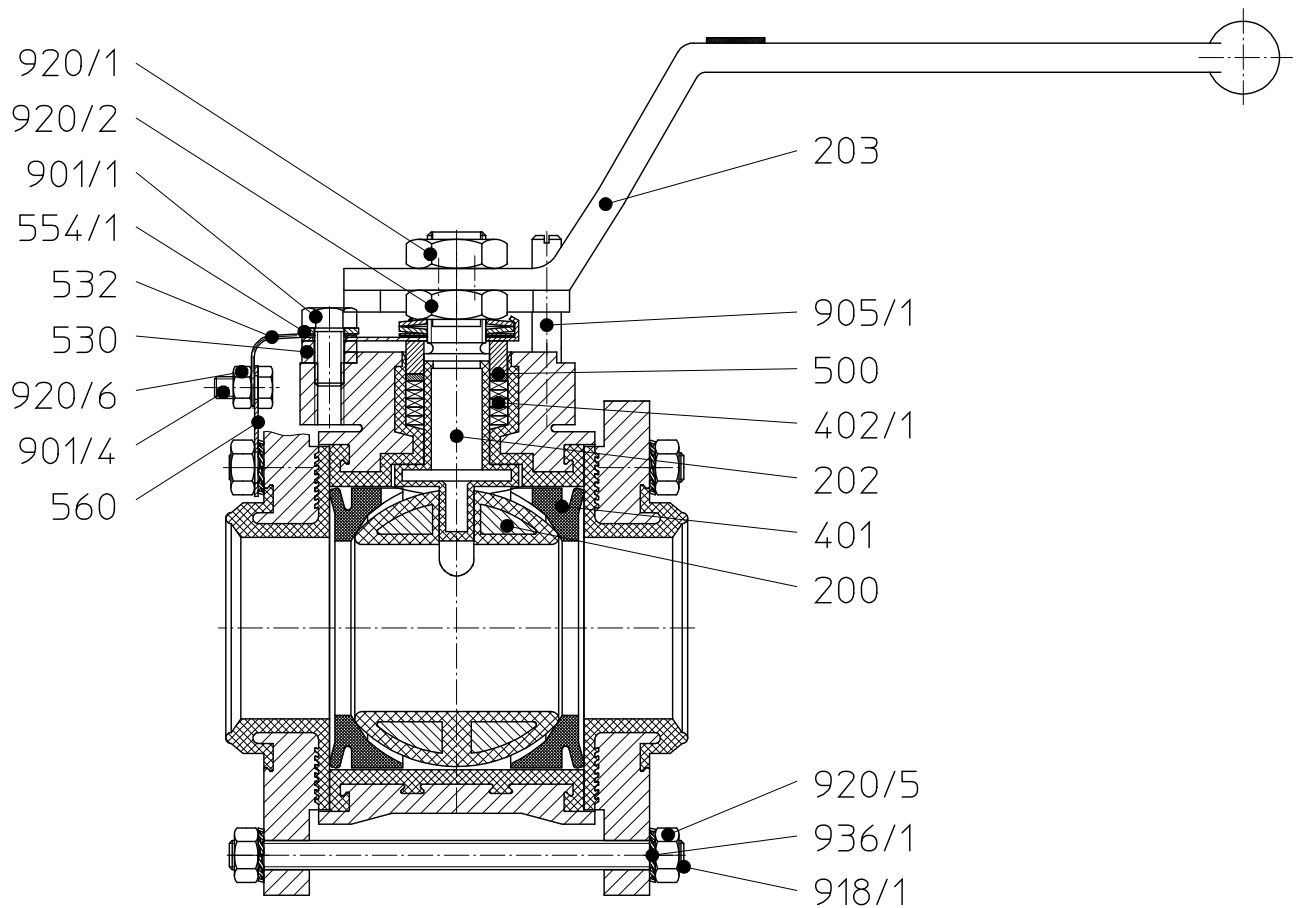
View A



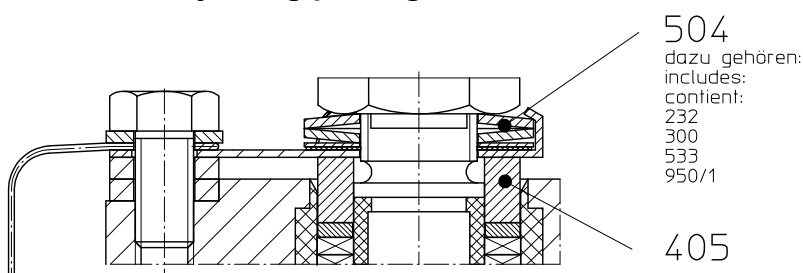
9500-43-1226/4-0

10.8 Legend and sectional drawing KK/FU (KHK)

- | | | | |
|--------------|-------------------|--------------|----------------------|
| 103 | body centre piece | 504 | cup spring cage |
| 109 | transition cover | includes: | |
| 200 | ball | 232 | support disc |
| 202 | stem | 300 | plain bearing |
| 203 | lever | 533 | profiled sheet |
| 401 | seat ring | 950/1 | cup spring |
| 402/1 | packing ring | 530 | distance bushing |
| 405 | thrust ring | 532 | grounding rope |
| 500 | ring | 554/1 | washer |
| | | 901/1 | hex. screw |
| | | 905/1 | headless screw |
| | | 918/1 | threaded rod |
| | | 920/x | hex. nut |
| | | 936/1 | toothed lock washer/ |

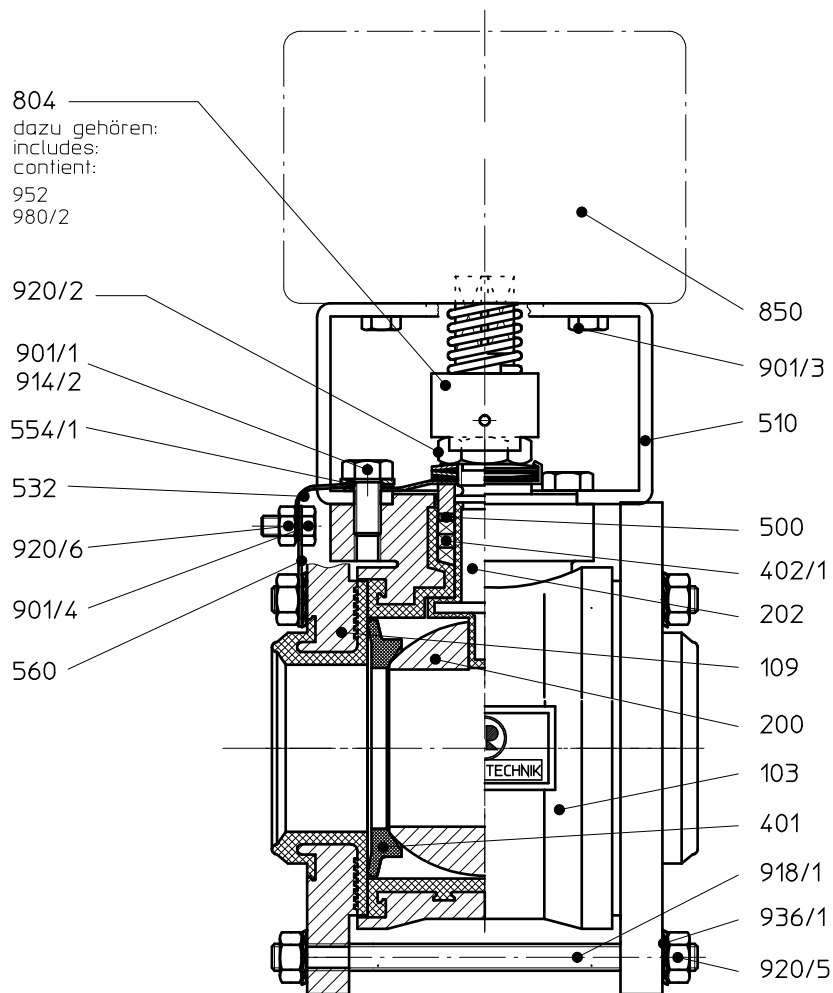


Self adjusting package



10.9 Legend and sectional drawing KKP/FU

- | | | | |
|--------------|-------------------|--------------|------------------------|
| 103 | body centre piece | 510 | bracket |
| 109 | transition cover | 532 | grounding rope |
| 200 | ball | 554/1 | washer |
| 202 | stem | 560 | grounding tab |
| 401 | seat ring | 804 | coupling |
| 402/1 | packing ring | includes: | |
| 405 | thrust ring | 952/1 | pressure spring |
| 500 | ring | 980/1 | round head grooved pin |
| 504 | cup spring cage | 850 | actuator |
| includes: | | 901/x | hex. screw |
| 232 | support disc | 914/2 | hex. socket screw |
| 300 | plain bearing | 918/1 | threaded rod |
| 533 | profiled sheet | 920/2 | hex. nut |
| 950/1 | cup spring | | |



804
dazu gehören:
includes:
contient:

952
980/2

920/2

901/1
914/2

554/1

532

920/6

901/4

560

850

901/3

510

500

402/1

202

109

200

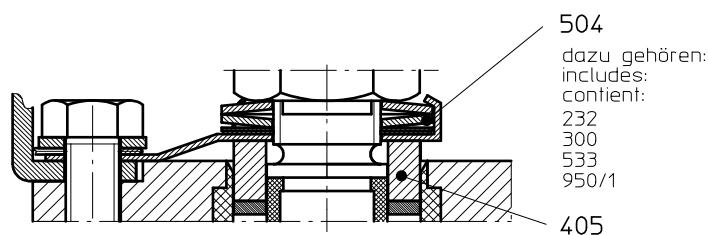
103

401

918/1

936/1

920/5



504

dazu gehören:
includes:
contient:

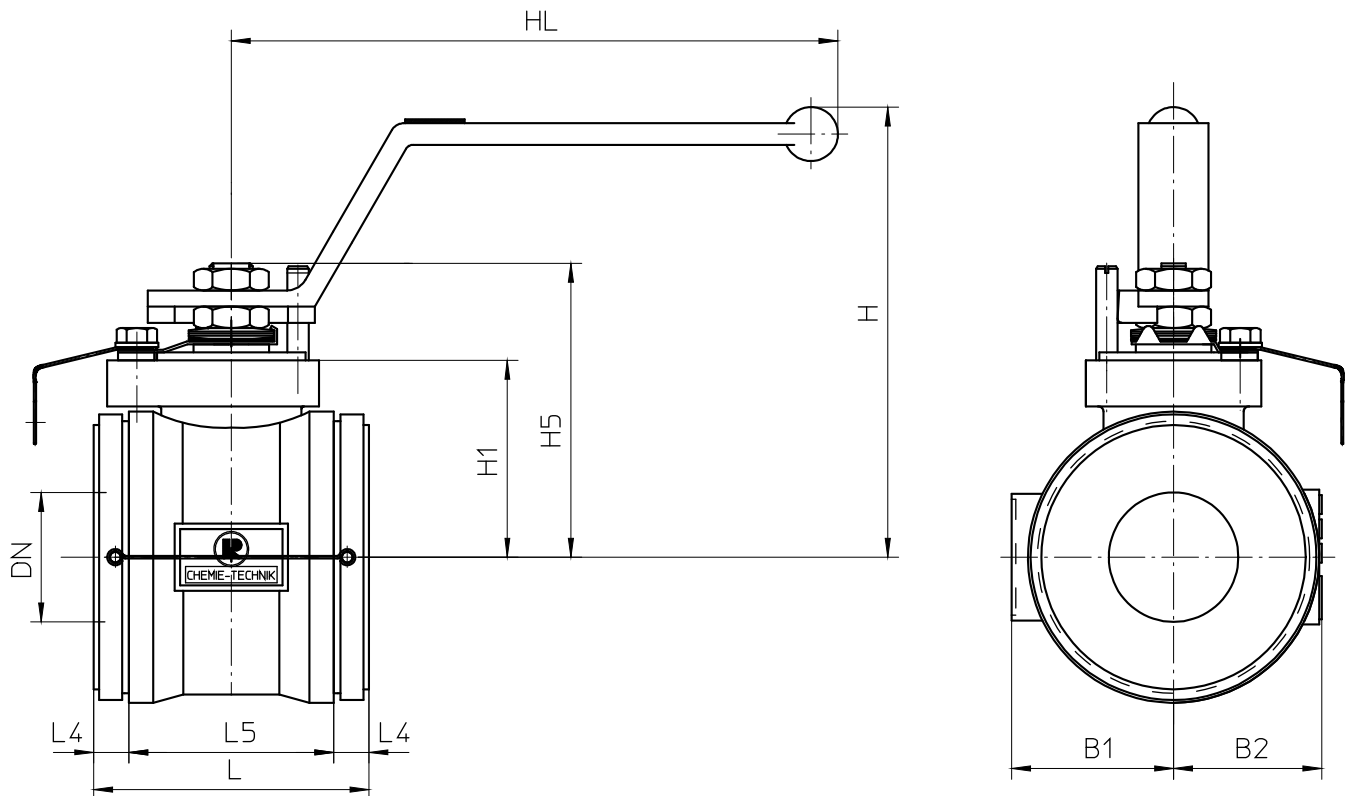
232
300
533
950/1

405

Self adjusting package

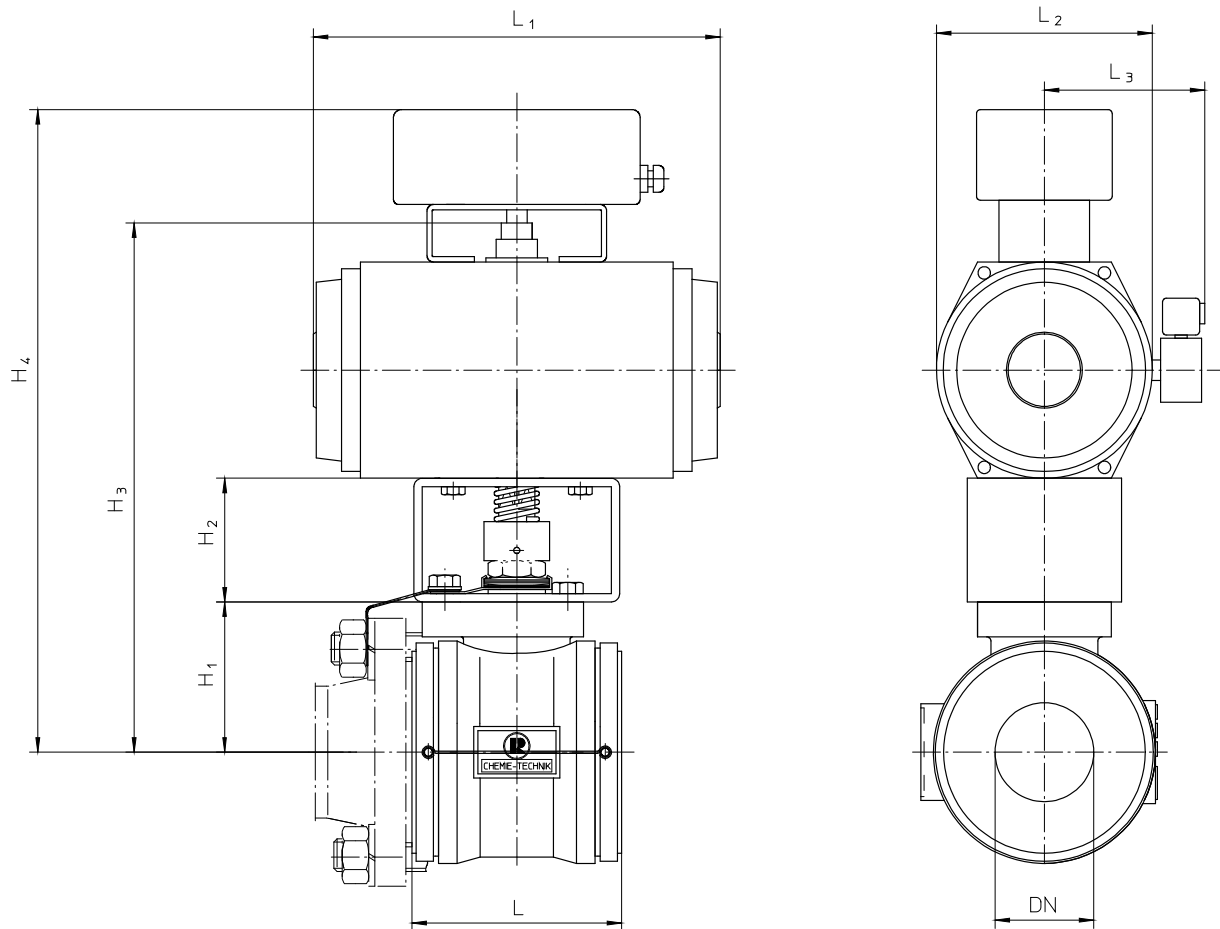
9500-43-1228/4-0

10.7 Dimensional drawing KK/F, KK/FU



DN		25 (1")	40 (1.5")	50 (2")	65 (2.5")	80 (3")	100 (4")	150 (6")
H1	mm (inch)	44 (1.73)		73 (2.87)				
H5	mm (inch)	70,5 (2.78)		109 (4.29)				
H	mm (inch)	120 (4.72)	165 (6.50)	170 (6.69)	170 (6.69)	190 (7.48)	190 (7.48)	240 (9.45)
HL	mm (inch)	150 (5.91)	225 (8.86)	225 (8.86)	225 (8.86)	225 (8.86)	325 (12.79)	385 (15.20)
L	mm (inch)	75 (2.95)	90 (3.54)	100 (3.94)	115 (4.53)	130 (5.12)	150 (5.91)	200 (7.87)
L4	mm (inch)	15,5 (0.61)		12 (0.47)				
L5	mm (inch)	44 (1.73)		76 (2.99)				
B	mm (inch)	76 (2.99)		115 (4.53)				
B1	mm (inch)	40 (1.57)		60 (2.36)				
B2	mm (inch)	36 (1.41)		55 (2.17)				
Ball Inside Ø max.	mm (inch)	25 (0.98)	40 (1.57)	47,6 (1.87)	58.5 (2.30)	80 (3.15)	96 (3.78)	111 (4.37)
Ball Inside Ø min.	mm (inch)	24 (0.94)	39 (1.53)	46 (1.81)	57 (2.24)	78 (3.07)	94 (3.70)	109 (4.29)

10.8 Dimensional drawing KKP/F, KKP/FU



DN		25 (1")	40 (1.5")	50 (2")	65 (2.5")	80 (3")	100 (4")	150 (6")
H1	mm (inch)	44 (1.73)	69 (2.72)	73 (2.87)		105 (4.13)	113 (4.45)	159 (6.26)
H2	mm (inch)	60 (2.36)					80 (3.15)	100 (3.94)
H3	mm (inch)							
H4	mm (inch)							
L	mm (inch)	75 (2.95)	90 (3.54)	100 (3.94)	115 (4.53)	130 (5.12)	150 (5.91)	200 (7.87)
L1	mm (inch)							
L2	mm (inch)							
L3	mm (inch)							
Ball Inside Ø	mm (inch)	25 (0.98)	40 (1.57)	50 (1.97)		65 (2.56)	80 (3.15)	110 (4.33)

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

Produkt <i>Product</i>	Kunststoffausgekleidete Dreharmaturen <i>Plastic lined quarter turn valves</i>		
Bauart <i>Design</i>	Kugelhahn, Regel-Kugelhahn, Kompakt-Kugelhahn, Bodenablass-Kugelhahn, Absperr- und Regelklappe <i>Ball valve, control ball valve, sandwich ball valve, bottom drain ball valve, shut-off and control butterfly valve</i>		
Baureihe <i>Serie</i>	KN..., KNA..., BVA..., BVI..., KNR..., KNAR..., KH..., KK..., KK-FU..., KA-N..., NK..., NKL..., NKS...		
Nennweite <i>Size</i>	DN 15 bis DN 400, ½" bis 16" <i>DN 15 to DN 400, ½" to 16"</i>		
Seriennummer <i>Series number</i>	ab/from 29.12.2009		
EU-Richtlinie <i>EU-Directive</i>	97/23/EG Druckgeräterichtlinie <i>97/23/EC Pressure Equipment</i>	2006/42/EG ²⁾ <i>2006/42/EC²⁾</i>	Maschinenrichtlinie <i>Directive Machinery</i>
Angewandte Technische Spezifikation <i>Applied Technical Specification</i>	DIN EN ISO 12100-2 AD 2000		
Überwachungsverfahren <i>Surveillance Procedure</i>	97/23/EG Zertifizierungsstelle für Druckgeräte der TÜV Nord Systems GmbH & Co. KG Notified Body 0045		
Konformitätsbewertungsverfahren 97/23/EG <i>Conformity assessment procedure 97/23/EC</i>	Modul H		
Kennzeichnung <i>Marking</i>	97/23/EG ¹⁾ 97/23/EC ¹⁾ ≥ DN 32, ≥ 1"	CE 0045	
	2006/42/EG ²⁾ 2006/42/EC ²⁾	CE	


Das Unternehmen Richter Chemie-Technik GmbH bescheinigt hiermit, dass die o.a. Baureihen die grundsätzlichen Anforderungen der aufgeführten Richtlinien und Normen erfüllt.
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) Alle Armaturen, mit Ausnahme der Armaturen mit Handbetätigung.
For all valves, with exceptions to valves with hand operation

Kempen, 14.01.2011



G. Kleining
Leiter Forschung & Entwicklung
Manager Research & Development



A. Linges
Leiter Qualitätsmanagement
Quality Manager

Herstellererklärung / *Manufacturer's Declaration*

TA-Luft / *German Clean Air Act (TA-Luft)*

Richter Kugelhahn / *Richter Ball Valve*

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, BVI, KK, KK/FU, KH; KA-N

die Anforderung bezüglich der Gleichwertigkeit gemäß Ziffer 5.2.6.4 der Technischen Anleitung-Luft (TA-Luft vom 01.10.2002 / VDI 2440 Ziffer 3.3.1.3) erfüllen.

Grundlage sind die "Prüfgrundsätze für den Eignungsnachweis von Spindelabdichtungen in Armaturen als gleichwertig nach TA-Luft" des TÜV Süddeutschland Bau und Betrieb GmbH vom 22.09.1992.

Zusätzlich beinhaltet die Herstellererklärung den Eignungsnachweis einer Spindelabdichtung und einer inneren Flanschverbindung gemäß VDI 2440 hinsichtlich Dichtheit bzw. der Einhaltung der spezifischen Leckagerate nach TA-Luft $\lambda \leq 10^{-4} \frac{\text{mbar} \cdot \text{l}}{\text{s} \cdot \text{m}}$ und einer erweiterten Prüfung unter Betriebsbedingungen.

Voraussetzung für die Gültigkeit der Herstellererklärung ist das Beachten und Einhalten der Betriebsanleitung. Insbesondere sind regelmäßige Wartungsintervalle durchzuführen und die dichtheitsrelevanten Schraubverbindungen zu überprüfen und, wenn notwendig, nachzuziehen.

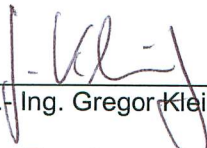
meets the requirement relating to the equivalence according to Section 5.2.6.4 of the German Clean Air Act (Clean Air Act dated 01.10.2002 / VDI 2440 Section 3.3.1.3).

The basics are the "Testing principles for the suitability verification of stem seals in valves as being equivalent in accordance to the German Clean Air Act of the TÜV Süddeutschland Bau und Betrieb GmbH dated 22 September 1992.

Additionally, the manufacture's declaration contains the suitability verification of a stem seal and internal flange connection in accordance to VDI 2440 with regard to tightness and the observance of the specific leakage rate according to the German Clean Air Act $\lambda \leq 10^{-4} \frac{\text{mbar} \cdot \text{l}}{\text{s} \cdot \text{m}}$ and an extended test under the above-mentioned operating conditions.

Manufacturer's declaration validity is dependent on the operating instructions being read and observed. In particular, service must be conducted at regular intervals and the bolted connection relevant for tightness should be inspected and retightened if necessary.

Kempen, 01.03.2010


Dipl.-Ing. Gregor Kleining

Leiter Forschung & Entwicklung
Manager Research & Development


Dipl. Wirt.- Ing. Alexander Linges
Leiter Qualitätsmanagement
Quality Manager

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

1 SCOPE AND PURPOSE

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

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

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

2 PREPARATION OF DISPATCH

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

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

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

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

Every aggregate has to have 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 <input checked="" type="checkbox"/> Please mark the applicable	
Street : _____		Repair: <input type="checkbox"/> subject to fee <input type="checkbox"/> Warranty	
Postcode, city: _____		Exchange: <input type="checkbox"/> subject to fee <input type="checkbox"/> Warranty	
Contact person: _____		<input type="checkbox"/> Exchange/ Replacement already initiated/received	
Phone : _____ Fax : _____		Return: <input type="checkbox"/> Leasing <input type="checkbox"/> Loan <input type="checkbox"/> for credit note	
End user : _____			
A. Details of Richter-product:		Failure description:	
Classification: _____		Equipment: _____	
Article number: _____		Application tool: _____	
Serial number: _____		Application process: _____	
B. Condition of the Richter-product:		Contamination :	
	no ¹⁾ yes no		no ¹⁾ yes
Was it in operation ?	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	toxic	<input type="checkbox"/> <input type="checkbox"/>
Drained (product/operating supply item) ?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	caustic	<input type="checkbox"/> <input type="checkbox"/>
All openings hermetically locked!	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	inflammable	<input type="checkbox"/> <input type="checkbox"/>
Cleaned ?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	explosive ²⁾	<input type="checkbox"/> <input type="checkbox"/>
If yes, with which cleaning agent:		mikrobiological ²⁾	<input type="checkbox"/> <input type="checkbox"/>
and with which cleaning method:		radioactive ³⁾	<input type="checkbox"/> <input type="checkbox"/>
		other pollutant	<input type="checkbox"/> <input type="checkbox"/>
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) _____		_____	
2. Are the materials specified above harmful to health ?		no yes	←
		<input type="checkbox"/> <input type="checkbox"/>	
3. Dangerous decomposition products during thermal load ?		<input type="checkbox"/> <input type="checkbox"/>	
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

FAX**Fax No. ()****Pages (incl. cover sheet) ()****To:**

()

Richter Chemie-Technik GmbH
Otto-Schott-Straße 2
D-47906 KempenTelefon +49 (0) 21 52/146-0
Telefax +49 (0) 21 52/146-190richter-info@richter-ct.com
www.richter-ct.comContact person:
()Reference:
()Extension:
- ()E-Mail Address:
()Date:
()**Your order No.:** ()**Our Kom. No.:** ()**Serial No.:** ()

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 GMBHEnclosures

()