

Series PA/F, PA/S

Sampling Valves

PFA-lining or
investment cast stainless steel



Keep for future use!

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

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Relevant documents

- ◆ Manufacturer's Declaration
- ◆ Manufacturer's Declaration German Clean Air Act (TA-Luft)
- ◆ Form for Safety Information Concerning the Contamination QM 0912-16-2001_en
- ◆ For PAP/F, PAP/S: Operating manual for actuator

1 Technical Data

Manufacturer:

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 47906 Kempen, Germany
 Telephone: +49 (0) 2152 146-0
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 E-Mail: richter-info@richter-ct.com
 Internet: <http://www.richter-ct.com>

Designation :

Series

- PA/F** → Plastic lined, lever can be removed
PA/S → Stainless steel version, without lining, lever can be removed
PAP/F → Option, prepared for pneumatic, hydraulic.
PAP/S or electric actuator to ISO 5211

Certified to Clean Air Act (TA-Luft)

Strength and tightness (P10, P11) of the pressure-bearing body tested to DIN EN 12266-1.

Gas-tight (P12) in the seat to DIN EN 12266-1, leak rate A

Face to face:

DIN EN 558-1 basic series 1, ISO 5752 series 1

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

Materials :

Body material: Ductile cast iron EN-JS 1049 to DIN EN 1563 (0.7043 DIN 1693) or investment cast stainless steel

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

Temperature range : -60 °C to +200 °C

See pressure-temperature diagram in [Section 1.4](#).

Operating pressure: from vacuum to max. 16 bar
 See pressure-temperature diagram in [Section 1.4](#).

Nom. sizes :

PA/F, PAP/F DN 25, 40, 50, 80
 PA/S, PAP/S DN 25, 50

Weights: ca. kg

Nom. size	25	40	50	80
PA/F (manually actuated)	10	18	18	48
PA/S (manually actuated)	9	---	14	---

Installation position :

The installation position is normally horizontal with the bottle connection vertically downwards (deviations from this position require a special bottle connection).
 See [Section 6.2](#), [10.4](#) und [10.9](#).

Dimensions and individual parts:

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

Options :

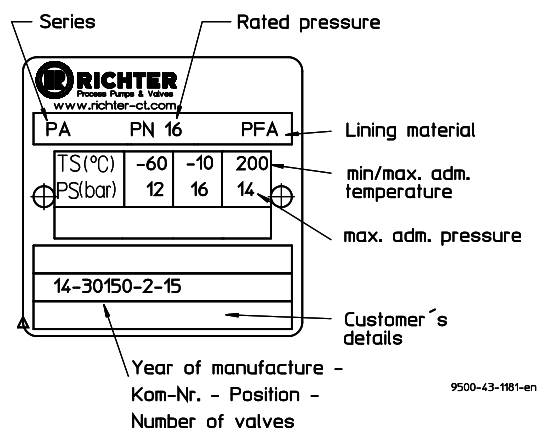
- ◆ Design for highly viscous media or applications with a low a low operating pressure.
 The special flat plug produces a full cross section of the outlet opening of 10 mm at a travel of 3 mm.
 PA/F see [Section 10.5](#)
 PA/S see [Section 10.8](#)
- ◆ Adapter for vertical valve installation
 PA/F see [Section 10.4](#)
 PA/S see [Section 10.9](#)
- ◆ Sampling valve with lever locking
 9510-00-0005
- ◆ Adapter for bottle holder, discharge spout
 PA/F 9510-00-0012
- ◆ Sampling valve with protective cabinet
 PA/F 9510-00-0011
 PA/S 9510-00-0014
- ◆ Sampling valve with protective cabinet and handwheel
 PA/S 9510-00-0015
- ◆ Sampling valve with handwheel
 PA/F 9510-00-0017
 PA/S 9510-00-0016
- ◆ Sampling valve with actuator
 See [Section 10.10](#)
- ◆ Adapter for sampling bottles
- ◆ Adapter prepared for final preparation by the customer
- ◆ Adapter for small bottles with centering
- ◆ Sampling valve with septum bottle
 PA/F 9510-00-0018
- ◆ Sampling valve with heating jacket
 PA/S 9510-00-0019

1.1 Name plate and body markings

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

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

Example of name plate:



Body identification :

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

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

1.2 Tightening torques

All screws greased, tighten in diametrically opposite sequence!

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

The following tightening torques are recommended:

Pipe screws

Flange nom. size [mm]	Screws [ISO/DIN]	Tightening torque [Nm]
25	4 x M12	10
40	4 x M16	20
50	4 x M16	26
80	8 x M16	25

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

Flange nom. size [mm]	[inch]	Screws [ASME]	Tightening torque	
			[in-lbs]	[Nm]
25	1"	4 x ½"	70	8
40	1½"	4 x ½"	135	15
50	2"	4 x ⅝"	220	25
80	3"	4 x ⅝"	400	45

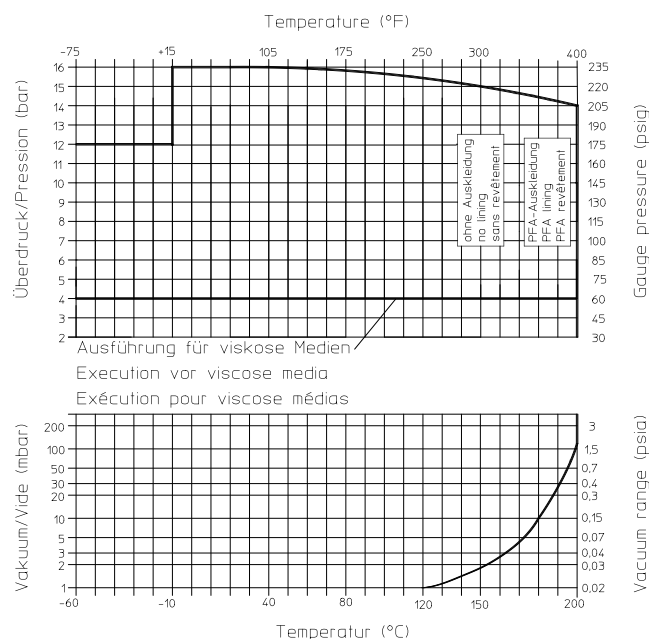
Body screws

Nom. size [mm]	Screws [ISO/DIN]	Tightening torque [Nm]
25	4 x M12	30
40	4 x M16	50
50	4 x M16	50
80	8 x M16	50

1.3 Flow rates

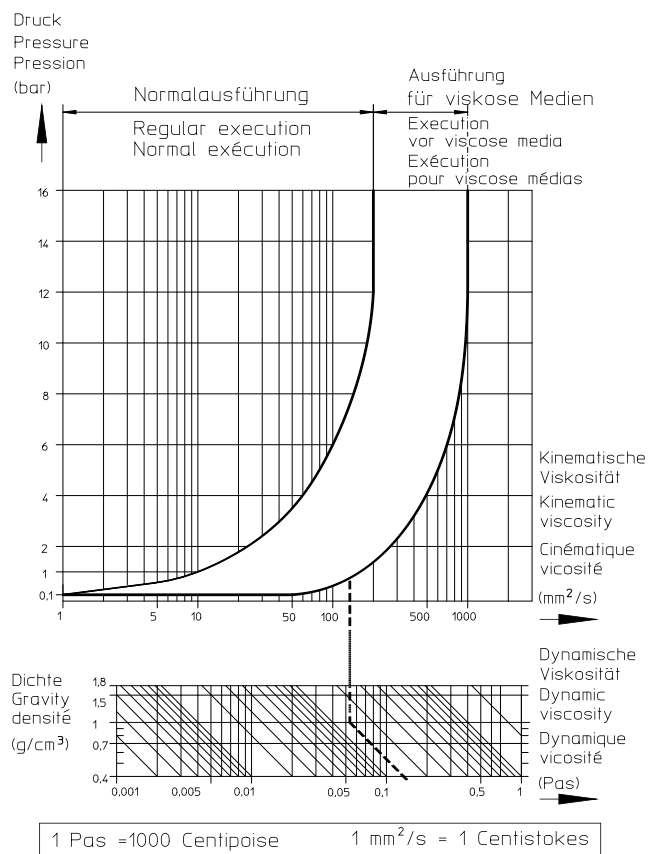
Nom. size		Valve flow	Sampling at max. valve travel	
[mm]	[inch]	kv100 [Cv] [m³/h] [USgpm]		
25	1"	15 [17.5]	0,385 [0.448]	2,56 [2.98]
40	1½"	47 [54.8]		
50	2"	65 [75.7]		
80	3"	200 [233]		

1.4 Pressure-temperature diagram



1.5 Viscosity-pressure diagram

The appropriate valve plug is selected in accordance with this diagram. In the case of different operating parameters, please consult Richter.



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

Richter sampling valves are pressure-maintaining components in accordance with the Pressure Equipment Directive (DGRL) for taking liquid samples. The standard PA/F and PA/S are only intended for horizontal installation (vertical installation only with special adapter).

The valves are suitable for non-boiling liquids of group 1 in accordance with the Pressure Equipment Directive.

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

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

2.2 For the customer / operator

If a valve is used, the operator must ensure that

- ◆ actuators which are retrofitted are adapted to suit the valve
- ◆ hot or cold valve parts are protected by the customer against being touched
- ◆ the valve has been properly installed in the pipe system
- ◆ the usual flow rates are not exceeded in continuous operation.
- ◆ an appropriate collection system is used to contain drip leaks/leaks locally and harmlessly.

This is not the manufacturer's responsibility.

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

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 2014/34/EU (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/EU (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 valve is properly serviced and kept in technically perfect order.
- Increased wear to the valve can be expected with the conveyance of liquids containing abrasive constituents. The inspection intervals are to be reduced compared with the usual times.
- Actuators and electric peripherals, such as temperature, pressure and flow sensors etc., must comply with the valid safety requirements and explosion protection provisions.
- The valve must be grounded.
This can be achieved in the simplest way via the pipe screws using tooth lock washers. Otherwise grounding must be ensured by 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)

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

- Perform maintenance at regular intervals and check the screw connections relevant to leak-tightness and, if necessary, retighten them.

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.

Transport securing device:

Set the star knob so that the travel is limited to the minimum flow. The lever has a safety function and must swing freely (dead man's position).

Transporting the valve using the lever is not permitted. 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.
- ◆ It must be ensured that the lever swings freely (dead man's position).



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

6.1 Flange caps and gaskets

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

Where there is a particularly high risk of damage to the plastic sealing surfaces, e.g. if the mating flanges are made of metal 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.

The installation position is normally horizontal with the bottle connection pointing vertically downwards (deviations from this position require a special bottle connection). See [Section 10.4 and 10.9](#).

6.3 Grounding

The valve must be grounded. The simplest solution is to use tooth lock washers which are placed under one pipe bolt of each flange.

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

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 $1.5 \times PS(PN)$ as per the identification of the valve.

6.5 Star knob

The stroke and thus the pressure reduction and medium flow can be influenced with the star knob.

Moreover, the star knob can be used to close the valve like a manual valve.

It also served to enforce tightness in case of damaged seat sealing surfaces or seized particles.

6.6 High-viscosity media / Low operating pressure

With the version "design for high-viscosity media" the changed operating limits acc. to the name plate must be observed and the travel must be set according to the setting instructions in [Section 6.7](#).

6.7 Setting instructions

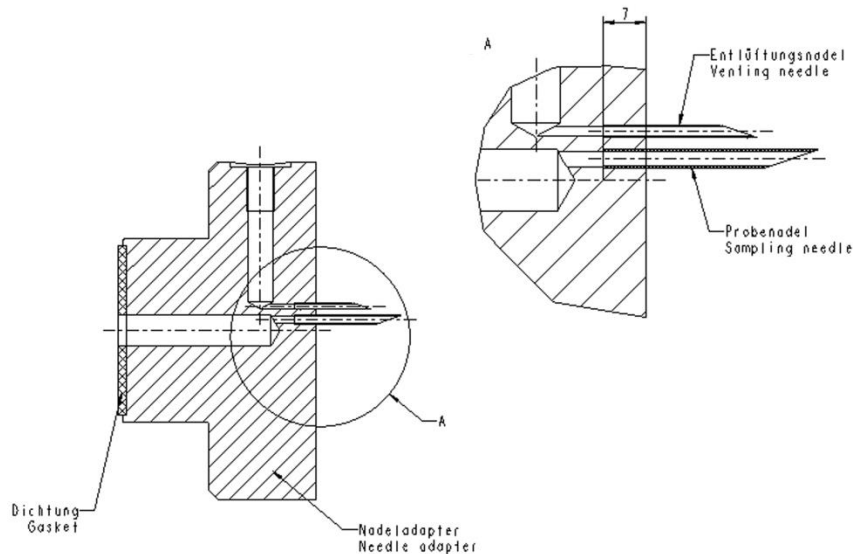
- Press the sampling lever in the direction of the valve.
- Slowly turn the star knob counterclockwise until the flow into the sampling bottle corresponds to the intensity you want.
- Release lever and lock the star knob in this position.

This procedure guarantees that with each further sampling process (with the same internal pressure) the flow of the sample into the bottle remains within the desired range without any risk to the person taking the sample.

If the operating pressures vary, we recommend you for safety's sake to turn the star knob after every sampling operation clockwise again until it reaches zero point (lever cannot execute any travel).

6.8 Needle adapter for PA/S DN25

When you use a stainless steel needle adapter for PA/S DN25 make sure that you insert the flat gasket.



7 Operation

7.1 Initial commissioning



Normally, the ball 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 ball 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

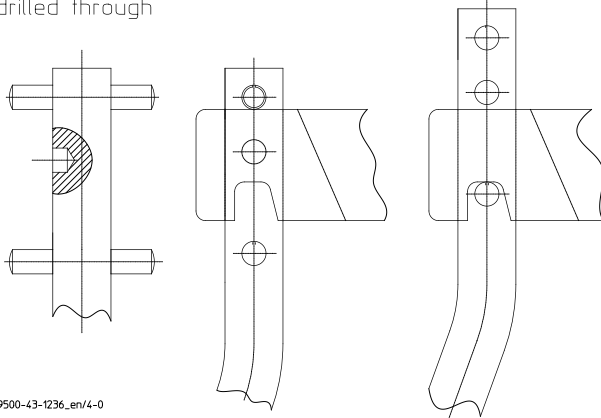
- ◆ Crystallisation may result in damage to the seat rings or ball/stem unit. This can be prevented by heating, for example.
- ◆ In extreme cases a leak may occur.
- ◆ Increased wear occurs when the valve is operated with solid contents.
- ◆ Violent opening or rapid filling may cause the bottle to burst.
- ◆ Non-observance of the pressure-temperature diagram may result in damage.
- ◆ Do not transport the valve using the lever.
- ◆ Do not use a lever extension as otherwise there is a risk of damage.
- ◆ At the customer's request, the middle hole in the lever is drilled through. If the lever is then locked in the lower hole to take samples and if, in addition, a pin is inserted into the middle hole, it must be ensured that sampling does not take place accidentally.

7.3 Sampling (standard)

At the customer's request, the hole is drilled through

Dead's man position

Lever secured



9500-43-1236_en/4-0

Screw bottle into the bottle connection **226**.

Check travel set on the star knob **963/1**.

Lever **203** is in the dead man's position.

For sampling, lock lever in the top groove.

- If it is requested that the lever is firmly locked, drill through the middle hole and insert an additional pin into the middle hole.

CAUTION! Sampling may also take place accidentally.

Press in direction of valve.

Sampling can take place.

A lock is available from Richter as an option.

A device, screw fitting **917** for example, for the risk-free discharge of the medium must be connected to the venting connection. Sealing plugs are not allowed because this results in overpressure in the bottle.

7.4 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/seat or body/cover is leaking
Retighten body screws. See paragraph "Flange connection ball valve/pipe is leaking".
- ♦ Packing leaks
Bellows leaking.
Retighten safety packing and switch off plant as quickly as possible and isolate pipe section with valve.
- ♦ Valve does not close tight
Loosen lock nut under the star knob and close the valve using the star knob.

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**.



Make sure that when working on the sampling valve it is drained.
See also **Section 7.4**.

9.1 Disassembling PA/F en removing the packing rings

- Undo clip **937** and unscrew bottle connection **226**.
- Loosen groove nut **509**. Star knob **963** can remain screwed in.



- Undo spring bonnet **513**.



- Pull pressure spring **952** from stem **855**.
- Loosen setscrew **904** in spring bush **514**.



- Undo spring bush **514**.



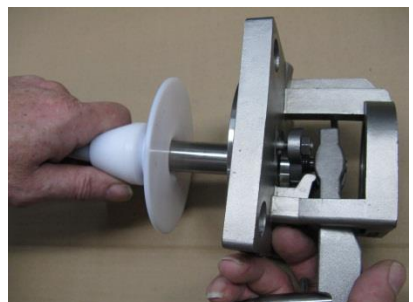
- Undo hex nut **920** with tooth lock washer **936**, and remove seat **205**.



- Remove cover **106** and the stud screws **902**.



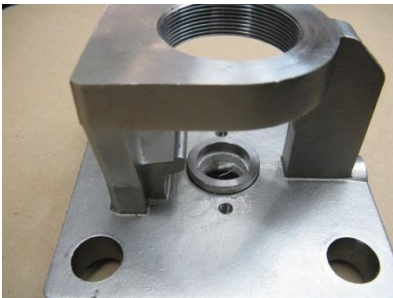
- Pull out bellows **206** with stem **855** downwards.
- Remove actuation **515** from cover **106**.



- Undo both hex nuts **920** of packing gland follower **503**.



- Remove stud screws **902**.
- Remove packing gland follower **503**.
- Remove thrust ring **405** from cover **106**.



- Remove packing rings **402**.



- Turn cover **106** around and remove guide ring **302**.



9.2 Disassembling PA/S and removing the packing rings

- Unscrew cap nut **927**, remove disc **550** and bottle connection **226**.
- Loosen groove nut **509**. Star knob **963** can remain screwed in.



- Undo spring bonnet **513**.



- Pull pressure spring **952** from stem **855**.
- Loosen setscrew **904** in spring bush **514**.



- Undo spring bush **514**.



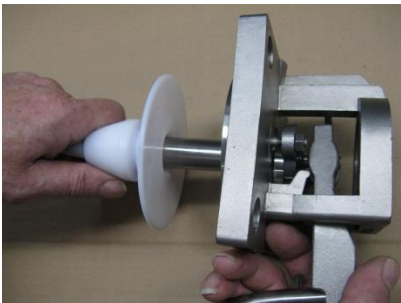
- Undo hex nuts **920** of cover **106**.



- Remove cover **106** and the stud screws **902**.



- Pull out bellows **206** with stem **855** downwards.
- Remove actuation **515** from cover **106**.



- Undo both hex nuts **920** of packing gland follower **503**.



- Remove stud screws **902**.
- Remove packing gland follower **503**.
- Remove thrust ring **405** from cover **106**.



- Remove packing rings **402**.



- Turn cover **106** around and remove guide ring **302**.



9.3 Assembling PA/F and inserting the packing rings

- Mount seat **205** and tighten with hex nut **920** and tooth lock washer **936**.
- Screw stem **855** into bellows **206**.

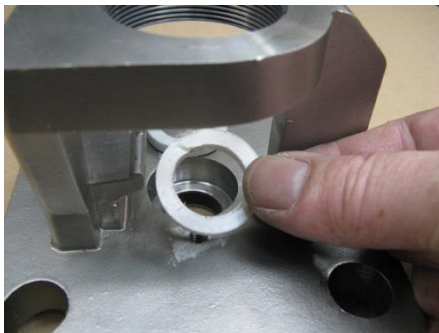


- Insert guide ring **302** from the bottom into cover **106**, and push the ring into the groove.

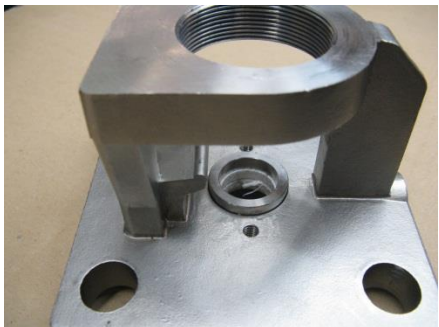


- Turn cover **106** around, and insert two packing rings **402**.

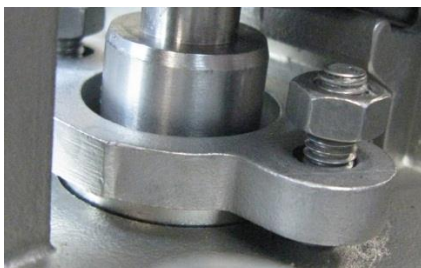
ATTENTION: Offset overlapping from ring to ring by 60° to 90°.



- Insert thrust ring **405**.



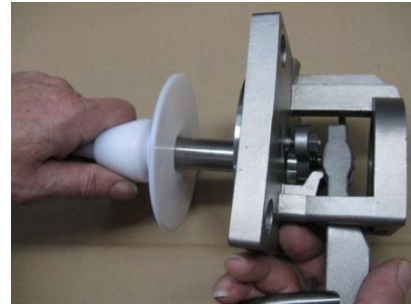
- Place packing gland follower **503**.
- Insert two stud screws **902**, and loosely fasten them with hex nuts **920**. Do not yet tighten the hex nuts!



- Insert actuation **515** into cover **106**.



- Insert stem **855** and bellows **206** into cover **106**.



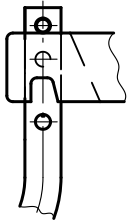
- Place cover **106** on body **100**. Make sure that actuation **515** is located on the same side as the name plate.



- Attach cover **106** with stud screws **902** and hex nuts **920** to body **100**. See [Section 1.2](#) for the tightening torques of the body screws.



- Move actuation **515** into dead man's position.



- Screw on spring bush **514**.
Note: Use your right hand to push actuation **515** up, and at the same time use your left hand to tighten spring bush **514** until the stop.



- Insert spring pressure **952**.
- Mount spring bonnet **513** with groove nut **509**.
Note: The thread of spring bonnet **513** must be just visible at the bottom.



- Use a hook wrench to tighten groove nut **509**.



- Tighten both stud screws **920** of packing gland follower **503**.



- Tighten setscrew **904** in spring bush **514**.



- Standard: Screw in bottle connection **226** and secure with clip **937**.
- Set travel on star knob. See [Section 6.7](#).

9.4 Assembling PA/S and inserting the packing rings

- Screw stem **855** into bellows **206**.

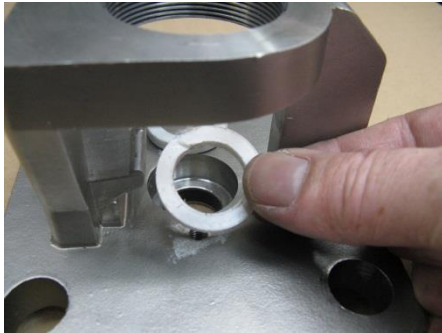


- Insert guide ring **302** from the bottom into cover **106**, and push the ring into the groove.

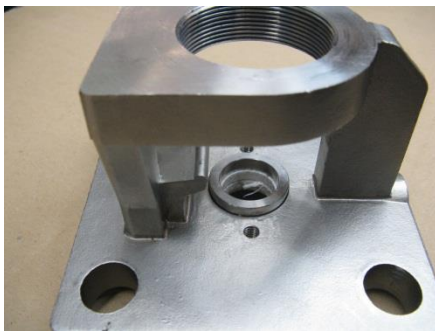


- Turn cover **106** around, and insert two packing rings **402**.

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



- Insert thrust ring **405**.



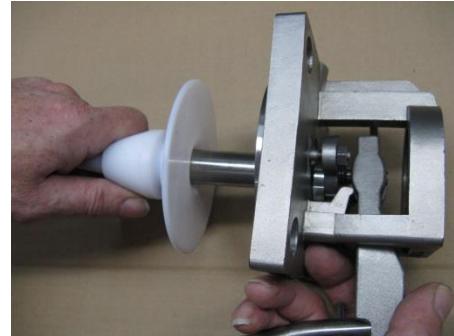
- Place packing gland follower **503**.
- Insert two stud screws **902**, and loosely fasten them with hex nuts **920**. Do not yet tighten the hex nuts!



- Attach actuation **515** to cover **106**.



- Insert stem **855** and bellows **206** into cover **106**.



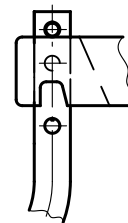
- Place cover **106** on body **100**. Make sure that actuation **515** is located on the same side as the name plate.



- Attach cover **106** with stud screws **902** and hex nuts **920** to body **100**. See [Section 1.2](#) for the tightening torques of the body screws.



- Move actuation **515** into dead man's position.



- Screw on spring bush **514**.
Note: Use your right hand to push actuation **515** up, and at the same time use your left hand to tighten spring bush **514** until the stop.



- Insert spring pressure **952**.
- Mount spring bonnet **513** with groove nut **509**.
Note: The thread of spring bonnet **513** must be just visible at the bottom.



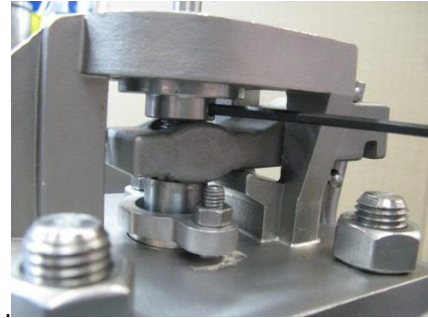
- Use a hook wrench to tighten groove nut **509**.



- Tighten both stud screws **920** of packing gland follower **503**.



- Tighten setscrew **904** in spring bush **514**.



Standard: Secure bottle connection **226** with threaded rod **918** and cap nut **927**.

- Set travel on star knob. See [Section 6.7](#).

10 Sectional drawings and options

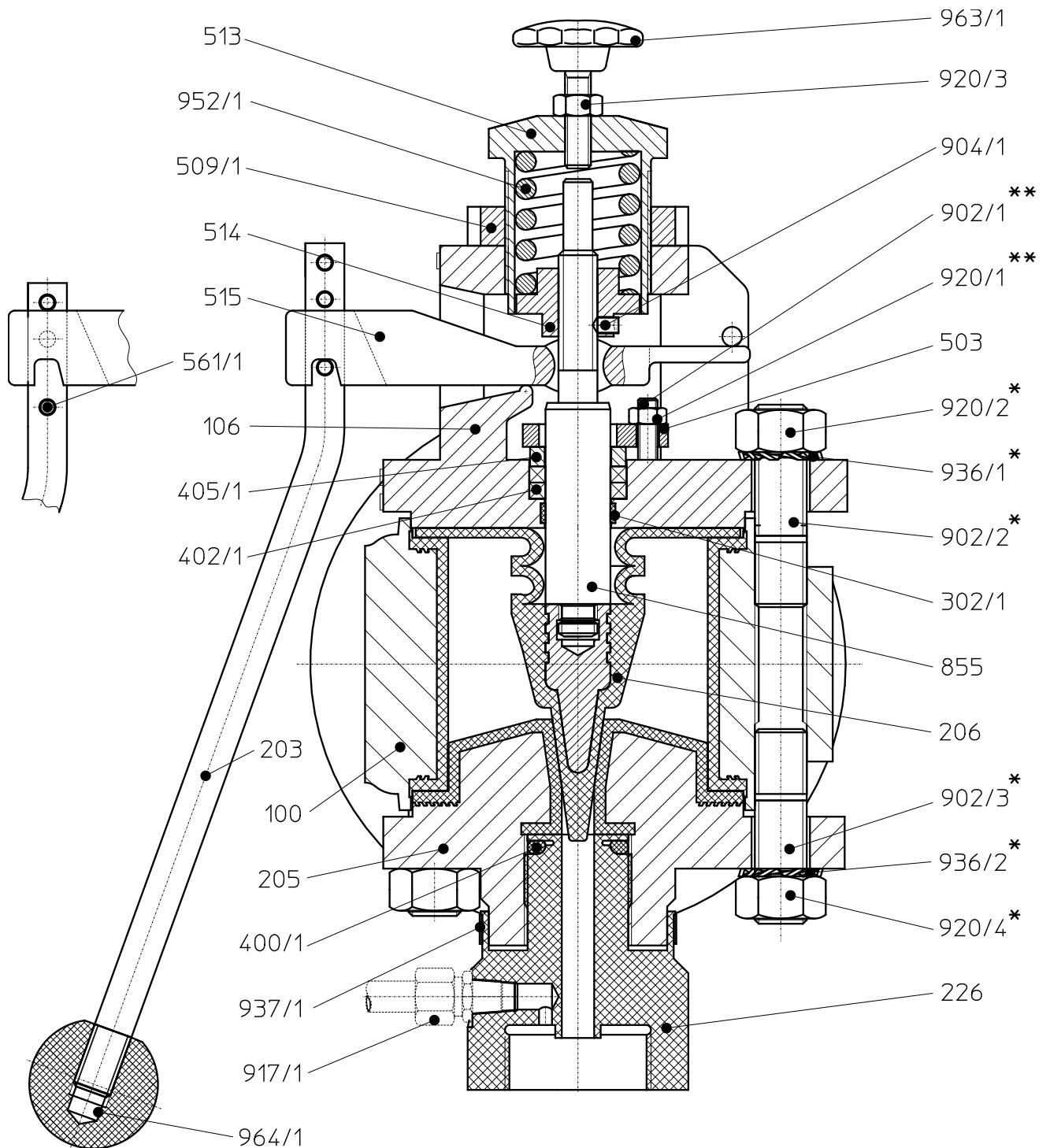
10.1 Legend PA/F

100	body	514	spring bush
104	transistion flange (DN 40, 80)	515	actuation
106	cover	554	washer (DN 25, DN 40)
203	lever	561	grooved pin
205	seat	804	coupling
206	bellows	850	actuator
226	bottle connection	855	stem
302/x	guide ring	902/x	stud screw
400	O-ring	904	setscrew
402	packing ring	917	screw fitting
405	thrust ring	920/x	hex nut
408	flat gasket (DN 40, 80)	936/x	toothed lock washer
500	ring	937	clip
503	packing gland follower	952	pressure spring
509	groove nut	963	star knob
510	bracket	964	ball head
513	spring bonnet		

10.2 Legend PA/S

100	body	515	actuation
104	transistion flange (DN 40, 80)	550	disc
106	cover	554	washer (DN 25, DN 40)
203	lever	561	grooved pin
205	seat	804	coupling
206	bellows	850	actuator
226	bottle connection	855	stem
302/x	guide ring	902/x	stud screw
400	O-ring	904/x	setscrew
402	packing ring	917	screw fitting
405	thrust ring	918	threaded rod
408	flat gasket (DN 40, 80)	920/x	hex nut
500	ring	927	cap nut
503	packing gland follower	950	cup spring
505	tie rod	952	pressure spring
509	groove nut	963	star knob
510	bracket	964	ball head
513	spring bonnet		
514	spring bush		

10.3 Sectional drawing PA/F horizontal installation



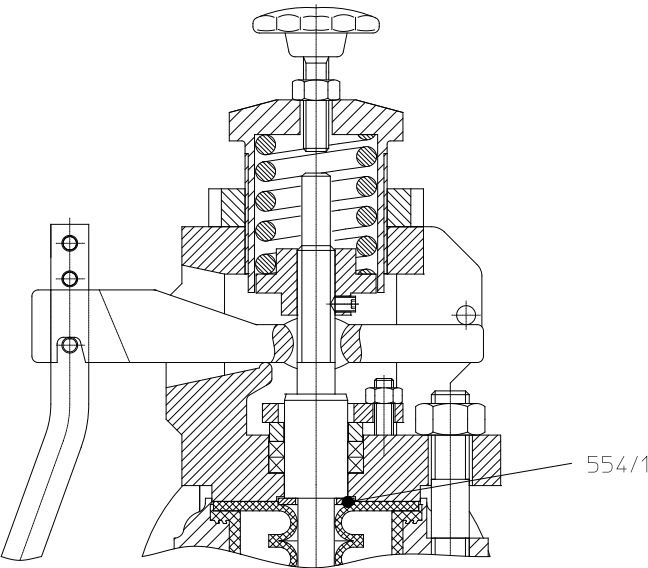
9510-00-3020_B1

* view displaced by 90°

** view displaced by 45°

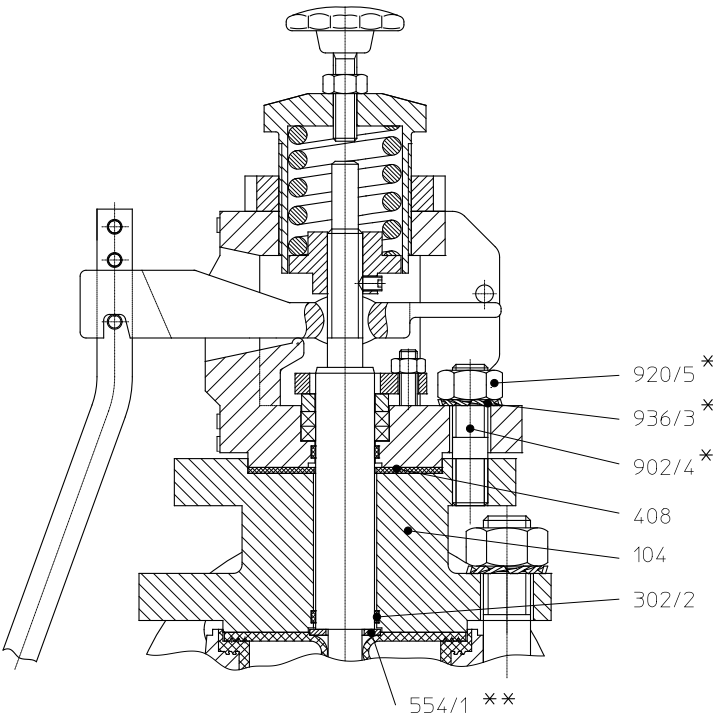
10.4 Details

PA/F DN 25



9510-00-3020_B5

PA/F DN 40, 80

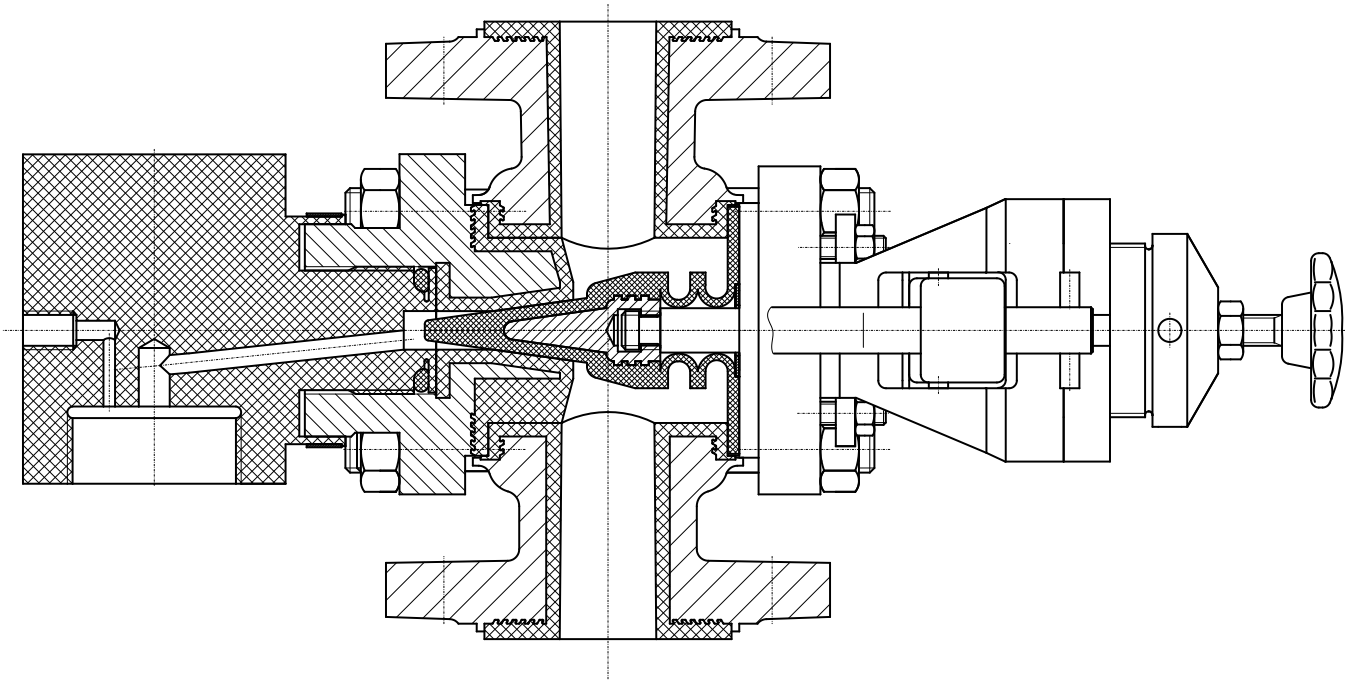


9510-00-3020_B3

* view displaced

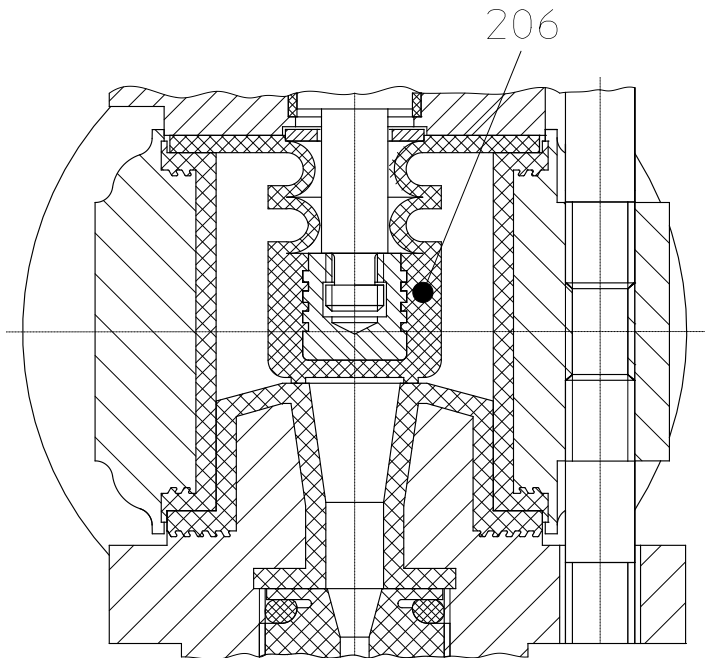
** not DN 80

10.5 PA/F vertical installation



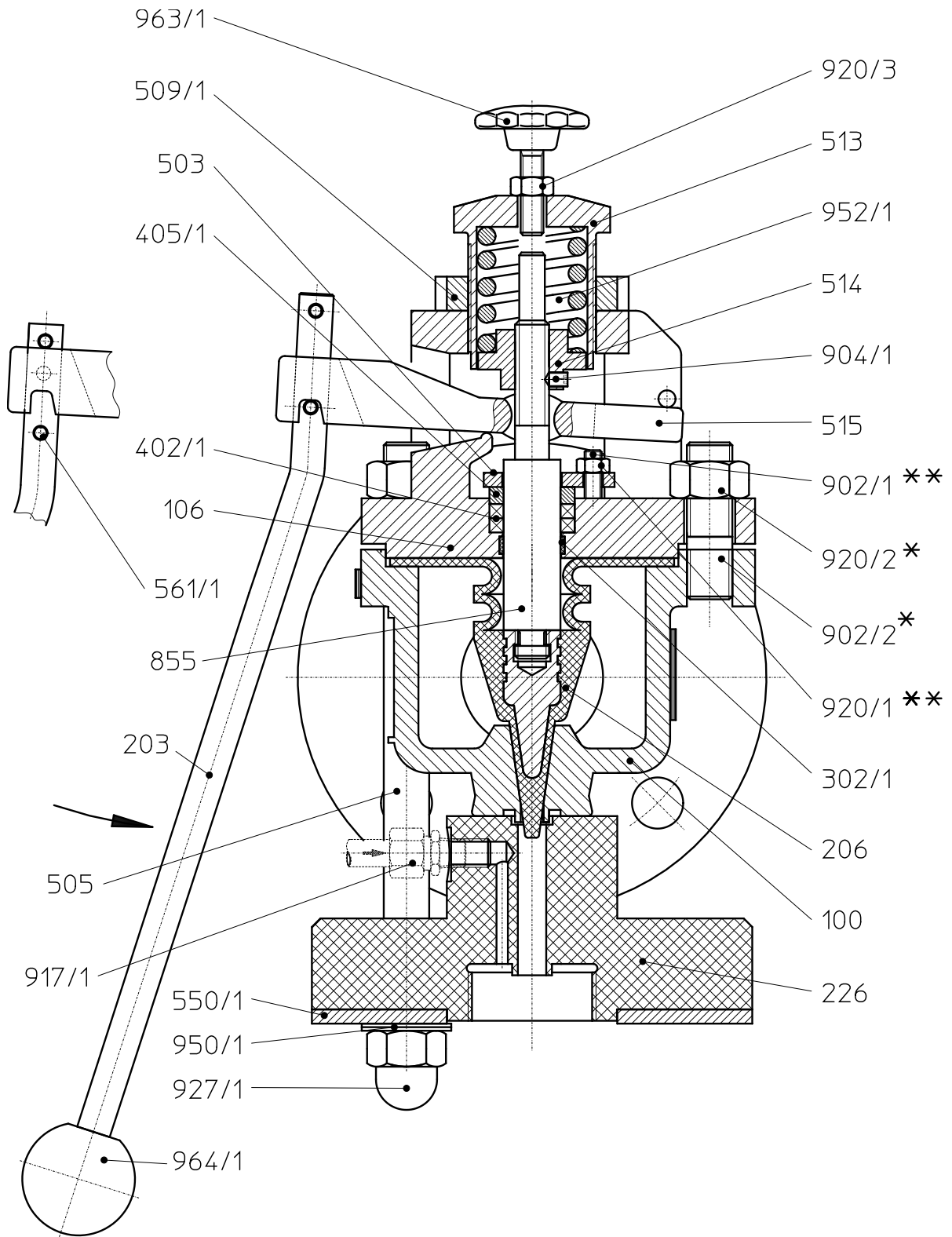
9510-00-3020_B4

10.6 PA/F, PAP/F Option high-viscosity media



9510-00-3020_B2

10.7 Sectional drawing PA/S

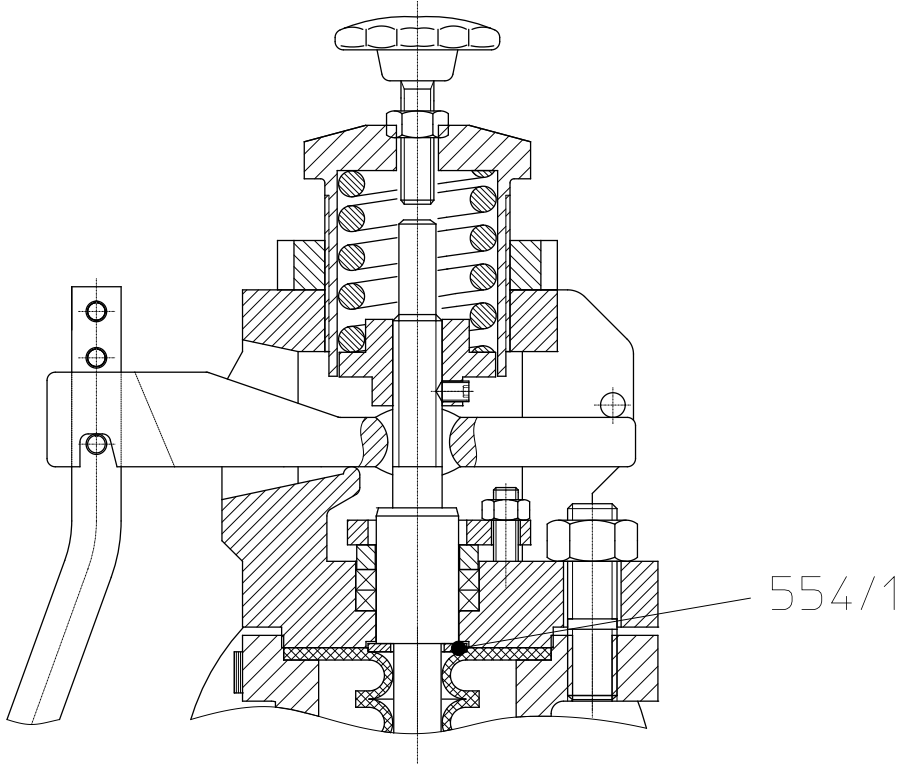


9510-00-3040_B1

* view displaced by 90°

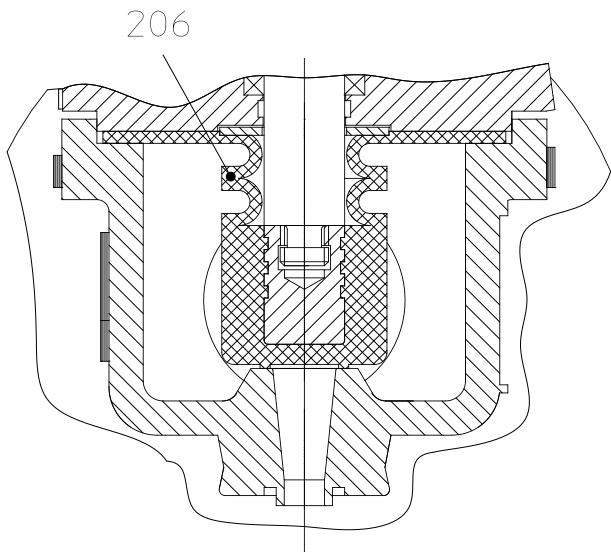
** view displaced by 45°

10.8 Detail PA/S DN 25



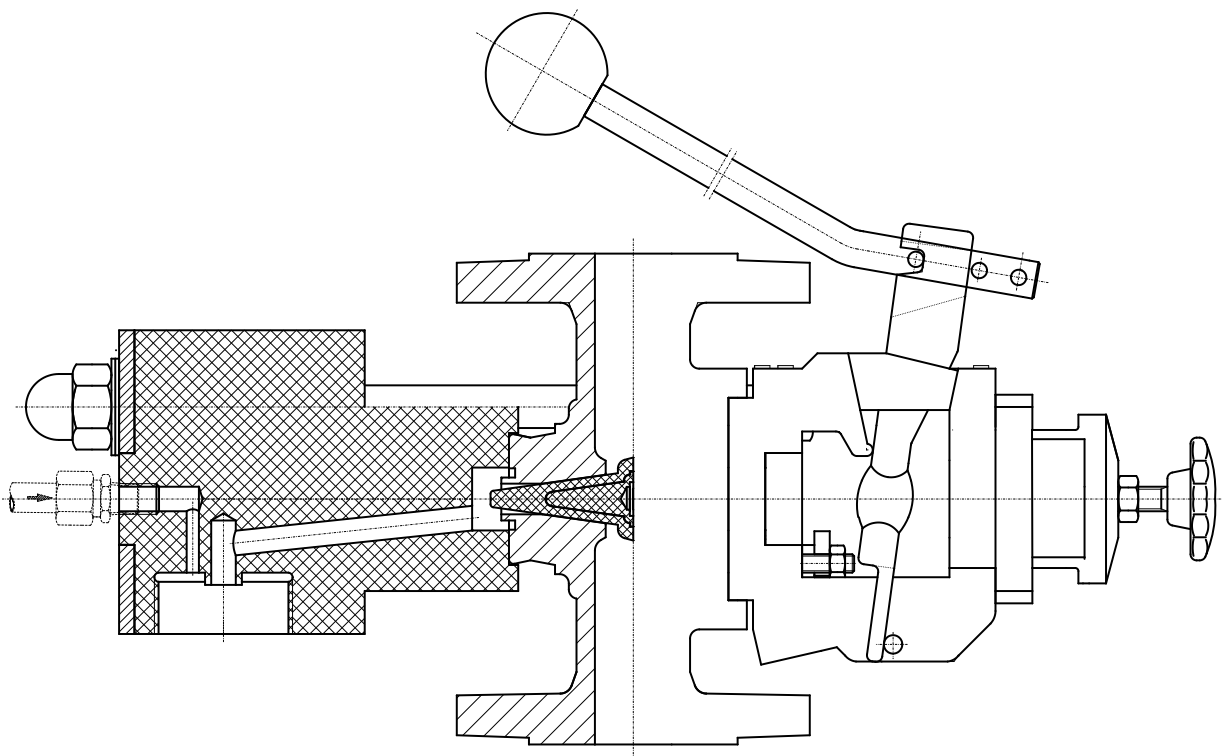
9510-00-3040

10.9 PA/S, PAP/S Option high-viscosity media



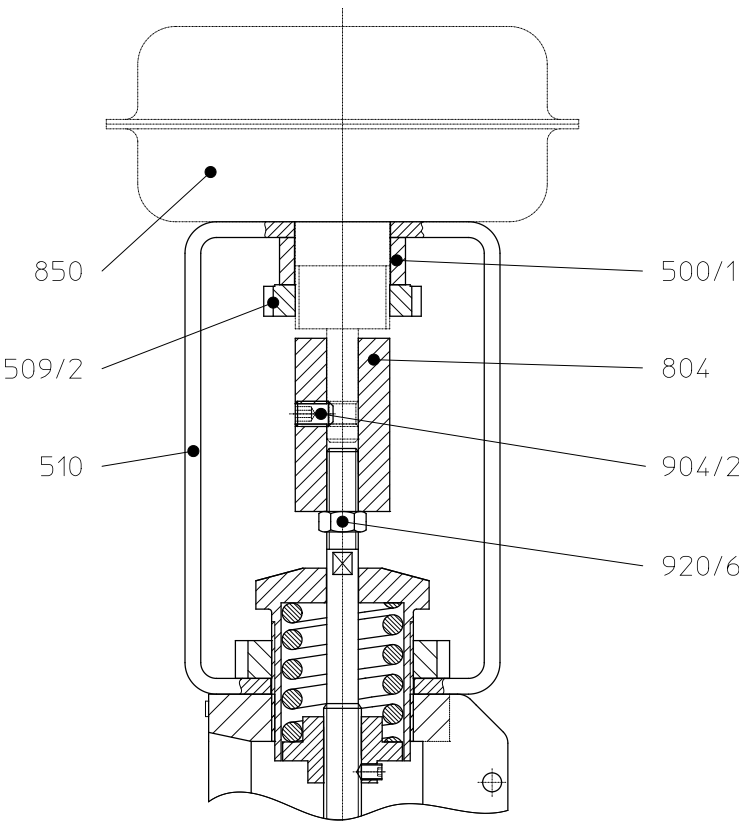
9510-00-3040_B2

10.10 PA/S Vertical installation



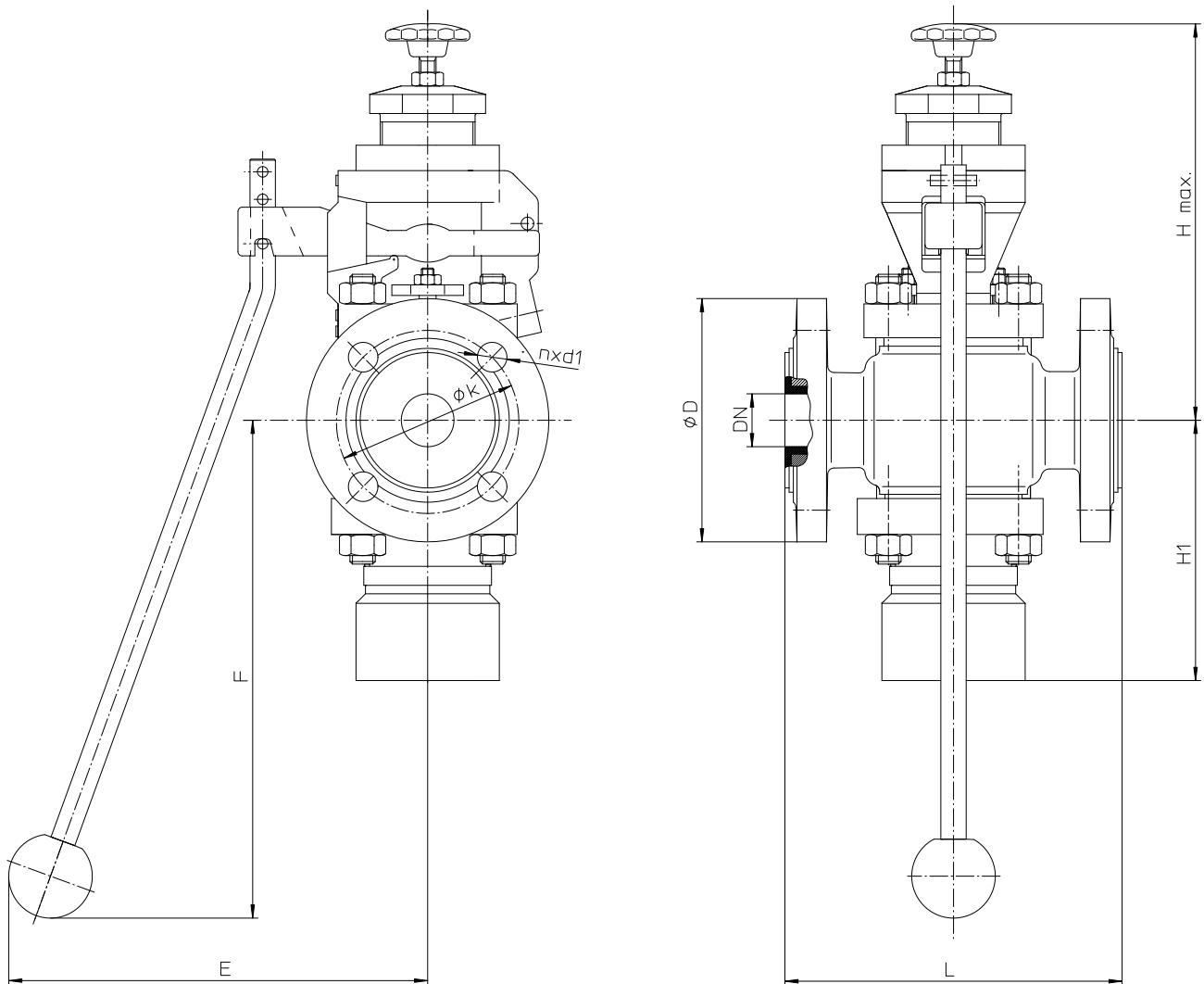
9510-00-3040_B6

10.11 PAP/F, PAP/S



9510-00-3020_B8

10.12 Dimensional drawing PA/F

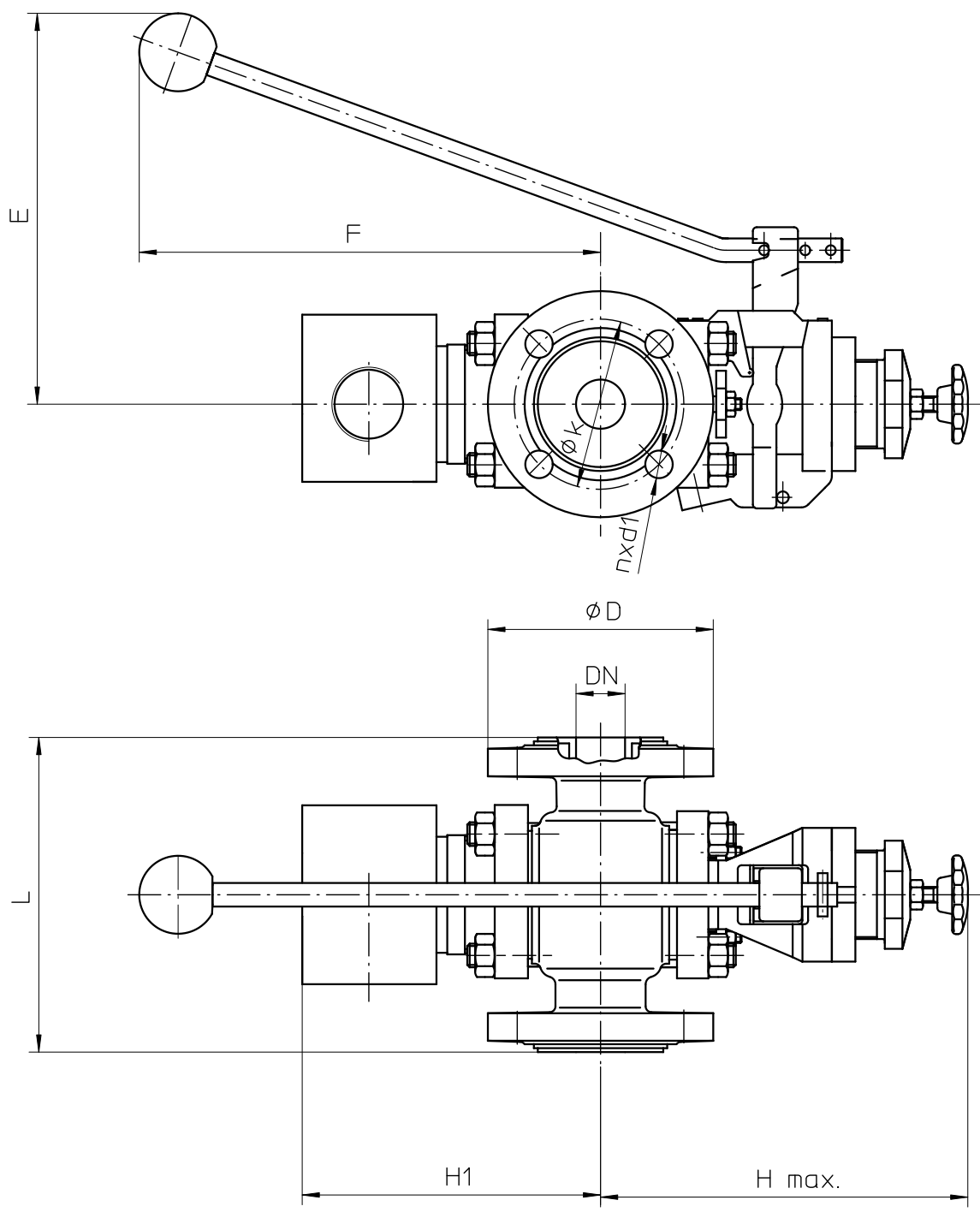


DN		H1		H max.		E		F		L EN 558 Series 1	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
25	1	123	4.84	190	7.48	ca.200	ca.7.87	ca.235	ca.9.25	160	6.3
40	1½	127	5.0	250	9.84	ca.200	ca.7.87	ca.175	ca.6.89	200	7.87
50	2	131	5.16	195	7.68	ca.200	ca.7.87	ca.230	ca.9.06	230	9.06
80	3	173	6.81	310	12.2	ca. 211	ca.8.3	ca. 97	ca.3.81	310	12.2

Flange connecting dimensions:

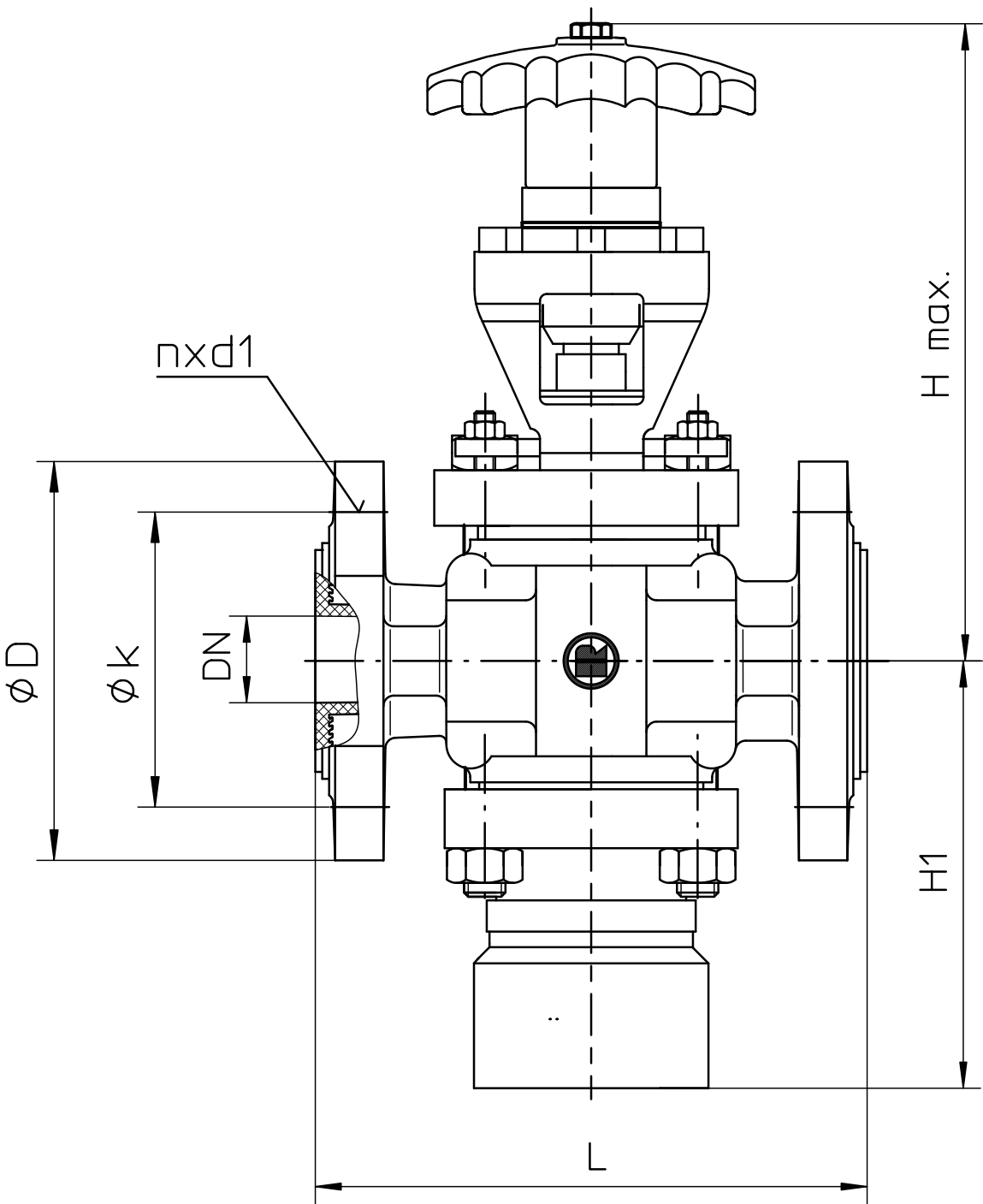
DIN EN 1092-2, type B (ISO 7005-2, type B) PN 16 or flanges drilled to ASME B16.5 Class 150

10.13 Dimensional drawing PA/F vertical intallation



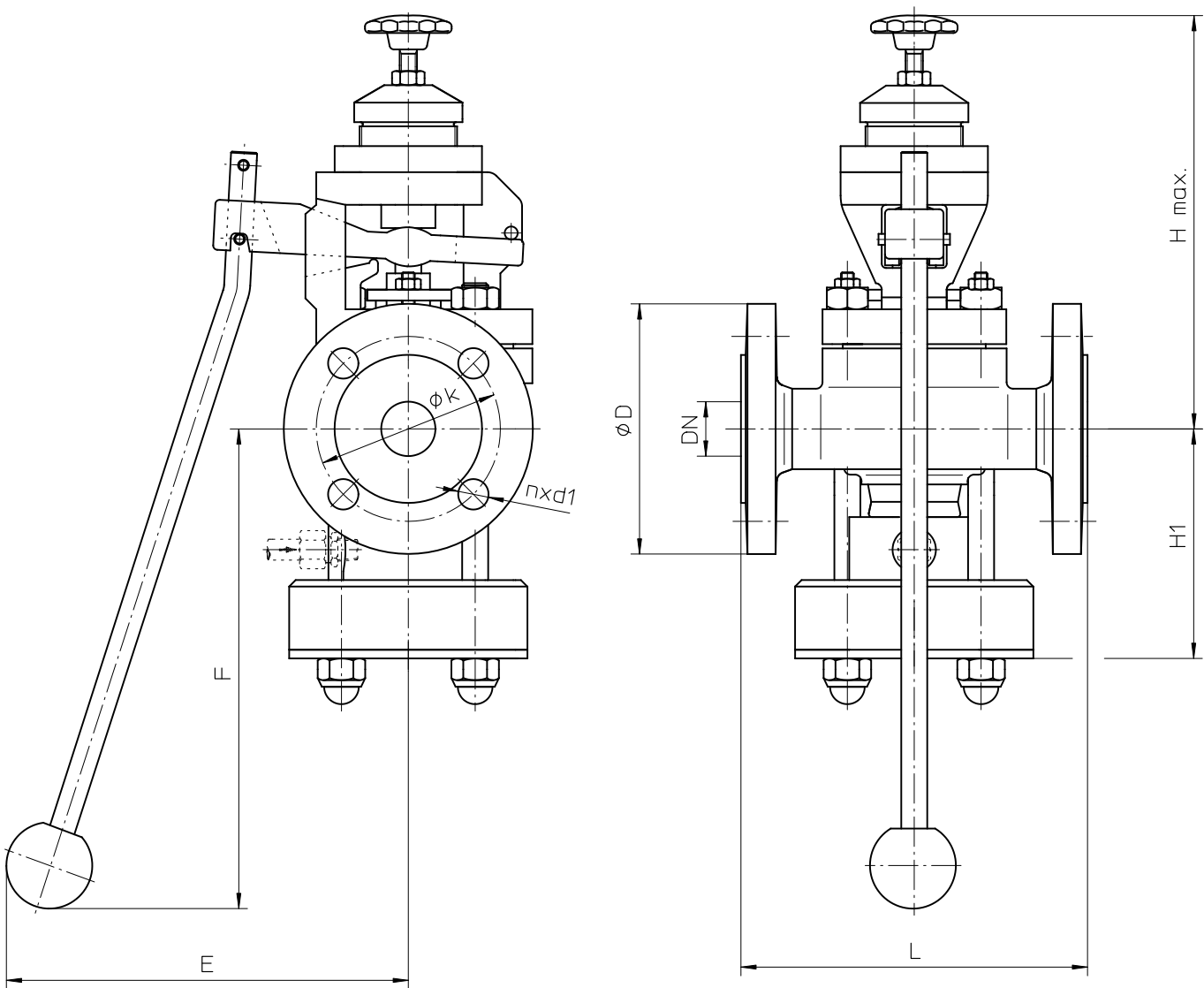
DN		H1		H max.		E		F		L EN 558 Series	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
25	1	152	5.98	190	7.48	ca.200	ca.7.87	ca.235	ca.9.25	160	6.3
40	1½	156	6.14	250	9.84			ca.175	ca.6.89	200	7.87
50	2	160	6.29	195	7.68			ca.230	ca.9.06	230	9.06
80	3	202	7.95	310	12.2	ca. 211	ca.8.3	ca. 97	ca.3.81	310	12.2

10.14 Dimensional drawing PA/F with handwheel



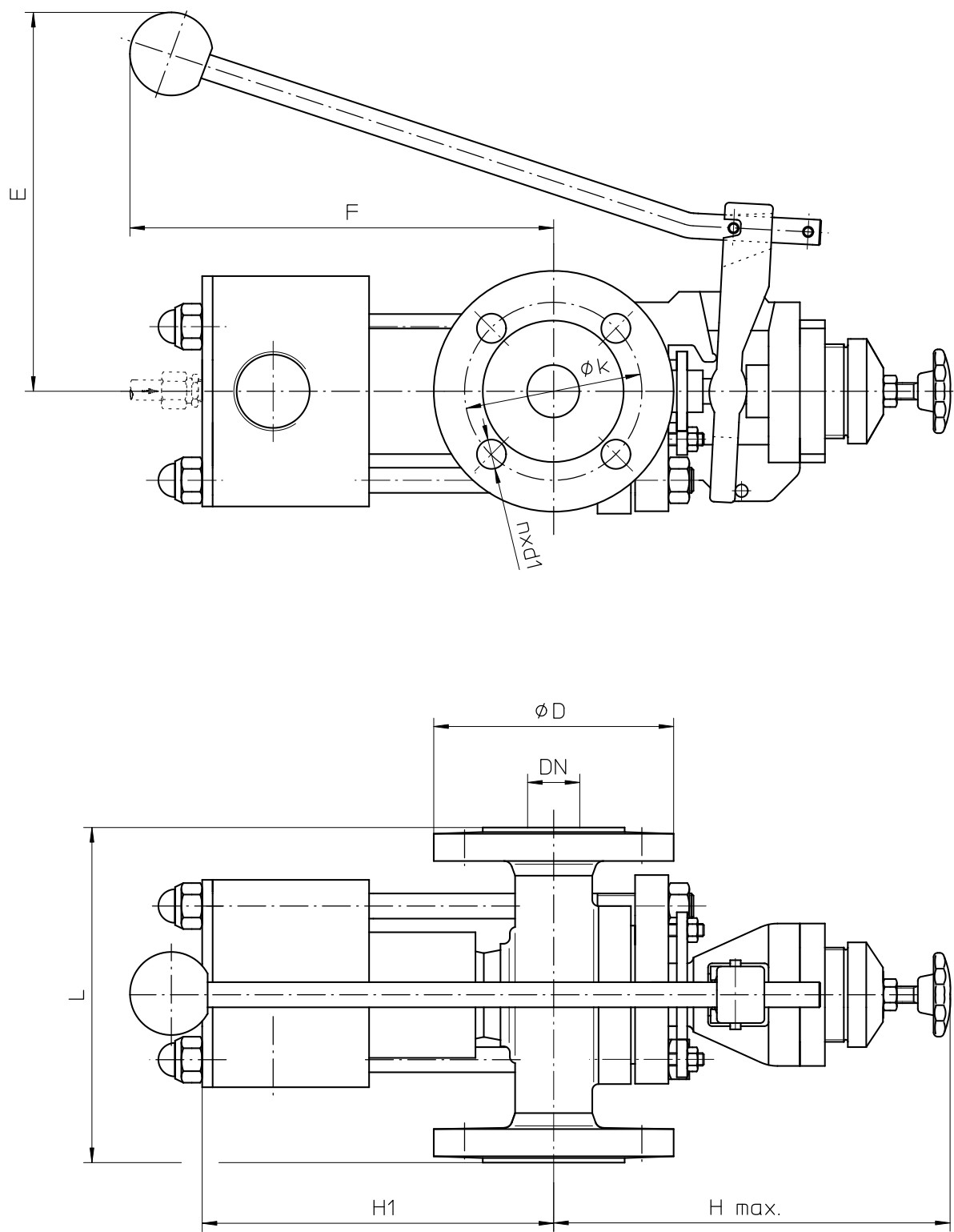
DN		H1		H max.		L EN 558 Series	
mm	inch	mm	inch	mm	inch	mm	inch
25	1	123	4.84	187	7.36	160	6.3
40*	1½	--	--	--	--	--	--
50*	2	--	--	--	--	--	--
80*	3	--	--	--	--	--	--

10.15 Dimensional drawing PA/S horizontal installation



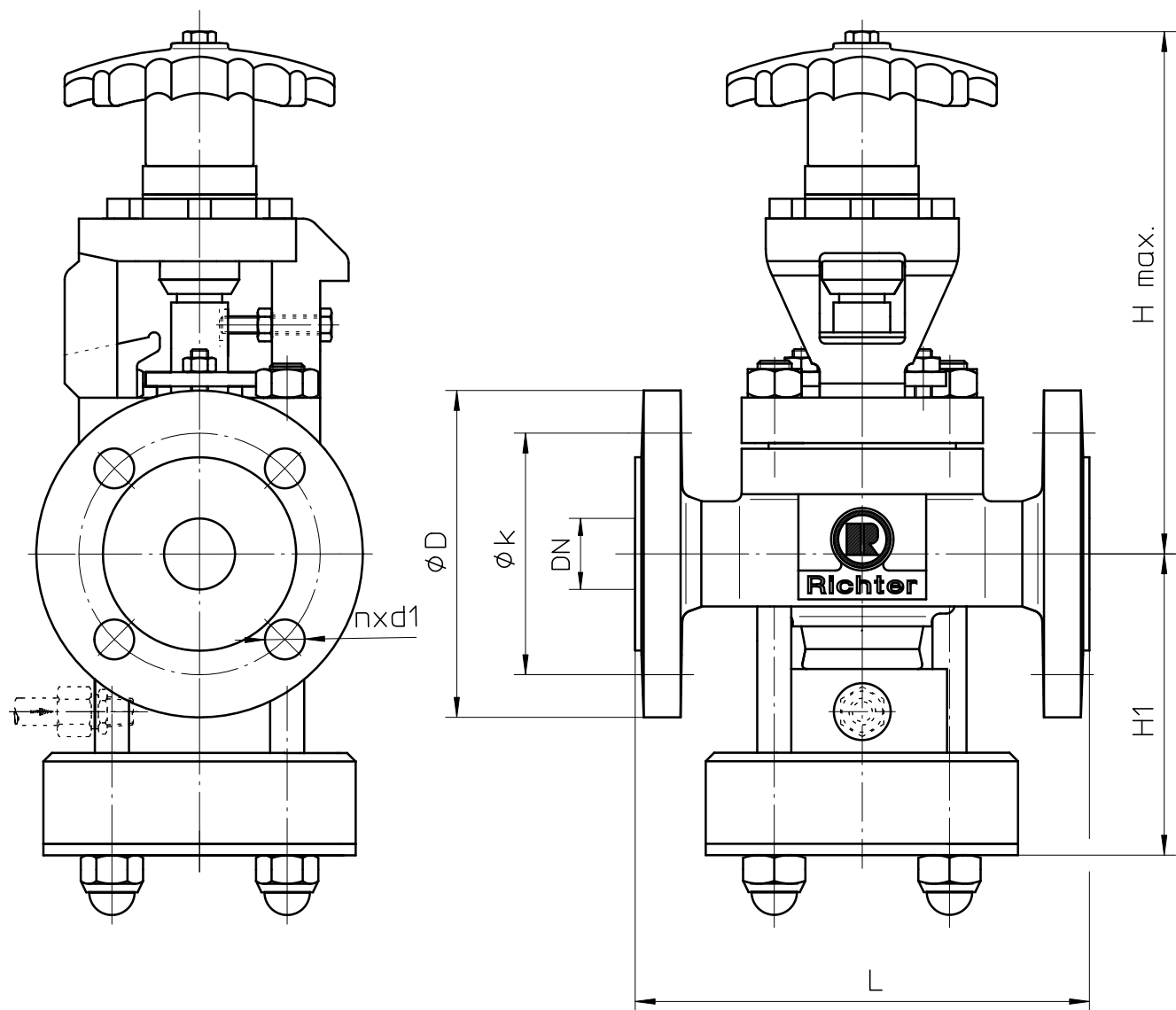
DN		H1		H max.		E		F		L EN 558 Series	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
25	1	106	4.17	190	7.48	ca.185	ca.7.28	ca.220	ca.8.66	160	6.3
50	2	122	4.80	195	7.68			ca.212	ca.8.34	230	9.06

10.16 Dimensional drawing PA/S vertical installation



DN		H1		H max.		E		F		L EN 558 Series	
mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
25	1	168,5	6.63	190	7.48	ca.181	ca.7.12	ca.203	ca.8.00	160	6.3
50	2	178,5	7.02	195	7.68			ca.230	ca.9.06	230	9.06

10.17 Dimensional drawing PA/S with handwheel



DN		H1		H max.		L EN 558 Series	
mm	inch	mm	inch	mm	inch	mm	inch
25	1	106	4.17	187	7.36	160	6.3
50*	2	--	--	--	--	--	--

10.18 Flange connection

DN		EN 558 Reihe 1			ASME B16.5 Class 150			
		ØD	Øk	n x d1	Øk		n x d1	
mm	inch	mm	mm	mm	mm	inch	mm	inch
25	1	115	85	4x14	79,5	3.12	4x16	4 x 5/8"
40	1½	150	110	4x18	98,5	3.87	4x16	4 x 5/8"
50	2	165	125	4x18	120,5	4.74	4x19	4 x 3/4"
80	3	200	160	8x18	152,5	6.00	4x19	4 x 3/4"

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

Herstellererklärung *Declaration of the Manufacturer*

Produkt <i>Product</i>	Kunststoffausgekleidete Hubventile <i>Plastic lined sliding stem valves</i>
Bauart <i>Design</i>	Probenahmeventil <i>Sampling valve</i>
Baureihe <i>Series</i>	PA...
Nennweite <i>Size</i>	DN 25 bis DN 80, 1" bis 3" <i>DN 25 to DN 80, 1" to 3"</i>
Seriennummer <i>Series number</i>	ab/from 19.07.2016
Angewandte Technische Spezifikation <i>Applied Technical Specification</i>	DIN EN ISO 12100 AD 2000
Konformitätsbewertungs- verfahren 2014/68/EU <i>Conformity assessment procedure 2014/68/EU</i>	Modul H (keine CE-Kennzeichnung) <i>Module H (no CE certification)</i>

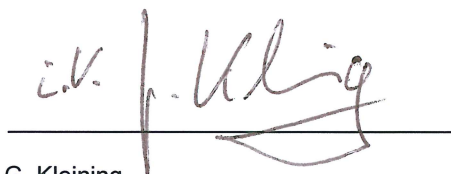
Das PA/F und PA/S ist nach 2014/68/EU für gefährliche Fluide Artikel 13, Absatz 1, Buchstabe a, Gruppe 1 und Buchstabe b, Gruppe 2 eingestuft und darf nur für Flüssigkeiten der Fluidgruppe 1 und 2 eingesetzt werden. Nach 2014/68/EU Diagramm 3 und 8 ist die Armatur als Art.4 Abs. 3 Armatur bewertet worden und darf somit nicht mit einem CE Kennzeichen gekennzeichnet werden.

The PA/F and PA / S is classified according to 2014/68/EU for dangerous fluids article 13, paragraph 1, letter a, group 1 and letter b, group 2 and can be used only for fluids of fluid group 1 and 2. According to 2014/68/EU chart 3 and 8 is the valve as art. 4 para 3 valves have been assessed and are may thus not marked, with a CE mark.

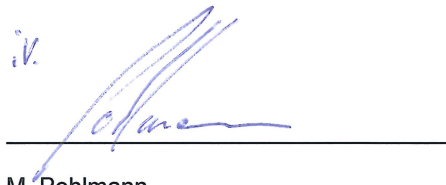
Das Unternehmen Richter Chemie-Technik GmbH bescheinigt hiermit, dass die o.a. Baureihen die grundsätzlichen Anforderungen der aufgeführten Richtlinien und Normen erfüllt.

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

Kempen, 04.07.2016



G. Kleining
Leiter Forschung & Entwicklung
Manager Research & Development



M. Pohlmann
Leiter Qualitätsmanagement
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, 20.04.2016

Richter Chemie-Technik GmbH


M. Böhm

Leiter Qualitätsmanagement
Quality Manager

Herstellererklärung / *Manufacturer's Declaration*

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

Richter Probenahme-Ventil / *Richter Sampling Valve*

Hiermit erklären wir, dass die Probenahme-Ventile der Baureihen
Hereby we declare, that the Sampling Valves of the series

PA/F, PA/S

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.

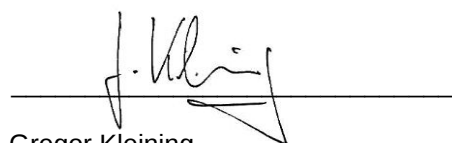
meets the requirement relating to the equivalence according to Section 5.2.6.4 of the German Clean Air Act (Clean Air Act dated 01.10.2002 / VDI 2440 Section 3.3.1.3).

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.

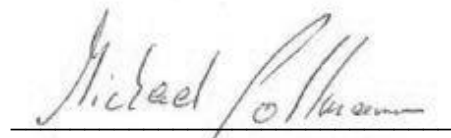
Additionally, the manufacture's declaration contains the suitability verification of a stem seal and internal flange connection in accordance to VDI 2440 with regard to tightness and the observance of the specific leakage rate according to the German Clean Air Act $\lambda \leq 10^{-4} \frac{\text{mbar} \cdot \text{l}}{\text{s} \cdot \text{m}}$ 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, 14.03.2013



Gregor Kleining
Leiter Forschung & Entwicklung
Manager Research & Development



Michael Pohlmann
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

RICHTER
Process Pumps & Valves

Every aggregate has to have it's own declaration.

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

Contractor/dep./institute :		Reason for transmitting ☒ Please mark the applicable	
Street :		Repair: ☐ subject to fee ☐ Warranty	
Postcode, city:		Exchange: ☐ subject to fee ☐ Warranty	
Contact person:		☐ Exchange/ Replacement already initiated/received	
Phone : Fax :		Return: ☐ Leasing ☐ Loan ☐ for credit note	
End user :			
A. Details of Richter-product:		Failure description:	
Classification:			
Article number:			
Serial number:			
B. Condition of the Richter-product:		Contamination :	
Was it in operation ?	no ¹⁾ ☐	yes ☐	no ☐
Drained (product/operating supply item) ?	☐	☐	toxic ☐
All openings hermetically locked!	☐	☐	caustic ☐
Cleaned ?	☐	☐	inflammable ☐
If yes, with which cleaning agent:			explosive ²⁾ ☐
and with which cleaning method:			mikrobiological ²⁾ ☐
		radioactive ³⁾ ☐	
		other pollutant ☐	
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 ?			
3. Dangerous decomposition products during thermal load ?			
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

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