INSTALLATION AND OPERATING MANUAL

Series BAV/F, BAVM/F

Bottom drain valve

Keep for future use!

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

9510-070-en Revision 10 Edition 10/2011

RICHTER
Process Pumps & Valves

List of Contents

Relevant documents

- Declaration of conformity in accordance with the EU Pressure Equipment Directive 97/23/EC
- Manufacturer's Declaration German Clean Air Act (TA-Luft)
- Form for Safety Information Concerning the Contamination QM 0912-16-2001_en

1 Technical data

Manufacturer :

Richter Chemie-Technik GmbH
Otto-Schott-Str. 2
D-47906 Kempen
Telephone: +49 (0) 2152 146-0
Fax: +49 (0) 2152 146-190
E-Mail: richter-info@richter-ct.com
Internet: www.richter-ct.com

Designation :

Bottom drain valve, shut-off plug and seat replaceable, plug opening into the vessel.

Series:
BAV/F with handwheel
BAVM/F with actuator

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:
similar to DIN 28140-1

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

Materials :

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

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

Temperature range :

DN 100/80, 150/100 – 60 °C bis + 180 °C
DN 80/50 – 60 °C bis + 160 °C
See pressure-temperature diagram in Section 1.4.

Operating pressure: from vacuum to max. 10 bar

See pressure-temperature diagram in Section 1.4.

Nominal Size : DN 80/50, 100/80, 150/100

Weight:

Nominal size	approx. kg
80/50	18
100/80	21
150/100	60

Installation position :

The installation position is normally vertical; observe direction of flow.

Dimensions and individual parts :

See sectional drawings in Section 10

Wear parts :

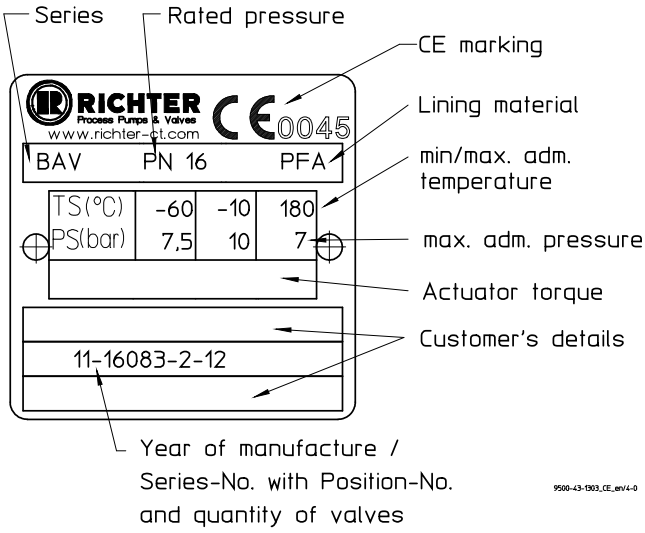
- Seat
- Cap
- Wing

1.2 Type plate, CE and housing markings

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

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

Example of name plate with 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
- Cast 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 torques are recommended:

Packing nut (50/80), packing gland follower

are to be tightened so that the stuffing box is subject to slight pre-tension.

Pipe screws, flanges ISO/DIN

Flange nominal size [mm]	Screws [ISO/DIN]	Tightening torque [Nm]
50	4 x M 16	26
80	8 x M 16	25
100	8 x M 16	35
150	8 x M 20	65

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

Flange nominal size		Screws	Tightening torque	
[mm]	[inch]	[ASME]	[in-lbs]	[Nm]
50	2"	4 x ⅝“	220	25
80	3"	4 x ⅝“	400	45
100	4"	8 x ⅝“	310	35
150	6"	8 x ¾“	710	80

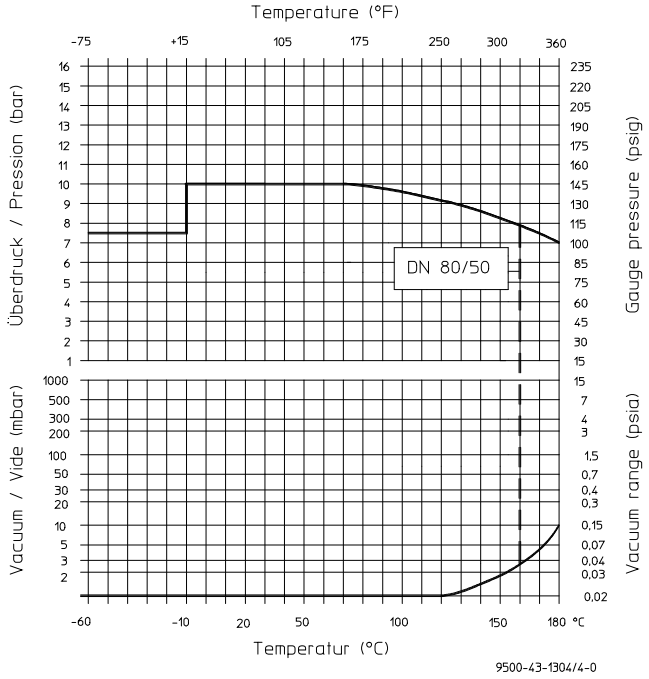
Cover screws

Nominal size [mm]	Screws [ISO/DIN]	Tightening torque [Nm]
80/50	4 x M 10	25
100/80	4 x M 12	25
150/100	4 x M 12	25

1.3 Flow rate value

Nominal size [mm]	Stroke [mm]	Kv100 [m3/h]
80/50	20	70
100/80	20	135
100/80	30	150
150/100	20	200
150/100	30	220

1.4 Pressure-temperature diagram



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

1.5 Closing forces (N)

BAVM/F	maximum Δp or p2 in bar										
	-1	1	2	3	4	5	6	7	8	9	10
80/50	542	342	684	1026	1368	1710	2052	2394	2736	3078	3420
100/80	1051	601	1202	1803	2404	3005	3606	4207	4808	5409	6010
150/100	1627	1227	2454	3681	4908	6135	7362	8589	9616	11043	12270

2 Notes on safety

This operating manual contains fundamental information which is to be observed during installation, operation and maintenance.
It must be read before installation and commissioning!

Installation and operation are to be performed by qualified staff.

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

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

General hazard symbol!
People may be put at risk.

Safety symbol! The ball valve and its function may be put at risk if this safety symbol is not observed.

It is imperative to observe warnings and signs attached directly to the 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 bottom drain valves of the series BAV/F, BAVM/F are pressure containing components in accordance with the Pressure Equipment Directive (PED) for the passage and shut-off of fluids. The valves are suitable for liquids of group 1 in accordance with the PED and have a corrosion-resistant plastic lining.

The field of application covers boilers and vessels which are to be emptied.

A boiler nozzle to DIN 28140-1-B is required for application.

All three sizes function in the same way.

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

In case of the valve is intended for operating data other than those intended, the customer must carefully examine whether the design of the valve, accessories and materials are suitable for the new application (consult the manufacturer). Please consult the manufacturer.

2.2 For customer / operator

When using the valve, it must be ensured that

- hot or cold valve parts are protected by the customer against being touched
- the valve has been properly installed in the pipe system
- the usual flow rates are not exceeded in continuous operation.

This is not the manufacturer's responsibility.

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

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

2.3 Improper operation

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

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

3 Safety notes for applications in potentially explosive areas based on the Directive 94/9/ EC (ATEX)

The valves are intended for use in a potentially explosive area and are therefore subject to the conformity assessment procedure of the directive 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) can result from these inadmissible modes of operation; their occurrence can only be prevented by adhering to the intended use.

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

A difference is made between two cases for the use of chargeable liquids (conductivity $<10^{-8}$ 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 different measures e.g. a cable link.
- Attachments such as actuators, position controllers, limit switches etc. must satisfy the relevant safety regulations as regards explosion protection and, if required, be designed in compliance with Atex.
- Special attention must be paid to the appropriate safety and explosion protection notes in the respective operating manuals.
- Plastic-lined valves must not be operated with carbon disulphide

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

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 paint protection.

5.1 Storage

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

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

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

5.2 Return consignments

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

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

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

Safety precautions and decontamination 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 bottom drain 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.
- With the remotely actuated version, the clip in the seat must be removed prior to installation. It ensures that the seat is not enlarged by the drive forces.
- Mount the bottom drain valve with a closed shut-off cap in order to prevent the ingress of dirt and loose objects into the valve body.

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

6.1 Flange caps and gaskets

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

6.2 Direction of flow and installation position

The installation position is normally vertical; the direction of flow is from the boiler.

6.3 Grounding

The valve must be grounded. This can be achieved in the simplest way via the pipe screws using tooth lock washers.

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

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

6.4 Test pressure

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

During a pressure test, the test pressure must not be applied to the seat.

A pressure test is also possible at the manufacturer's.

7 Operation

7.1 Initial commissioning

Normally, the valves have been tested for leaks with air or water.

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. See **Section 1.2**.

7.2 Improper operation and their consequences

- Crystallisation must be prevented, e.g. by heating. Damage to the seat or cap would be unavoidable. 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.
- The valve is not to be operated in the wrong direction of flow.

7.3 Shutdown

- The local regulations are to be observed when dismantling the valve.
- Drain the valve on both sides.
- Prior to undoing the flange connection ensure, that the plant is depressurised and emptied.
- In the case of a diaphragm actuator make sure that there is no more compressed air in the actuator; the springs must be in the unstressed state.

Prior to the start of maintenance work, the valve must be thoroughly cleaned. Medium residue may be in the valve even if it has been properly drained and flushed.

- After dismantling, immediately protect the valve flanges against mechanical damage by using flange caps. See also **Section 5.1**.

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 does not remedy the leak, the recommended torques may be exceeded by 10%.

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

- Leak with the valve closed

  Remove valve.

  Replace wear parts.

  See **Section 9**.

- Packing is leaking

  First of all, the packing gland follower can be tightened.

  Then dismount the valve as quickly as possible and repair.

  Disadvantages:

  The medium can destroy the metallic internals relatively quickly.
  - Corrosion on the spindle may result in sluggishness and therefore impair the control behaviour.

  Replace bellows.

  Replace seat.

  Replace packing rings.

- Valve does not switch

  Is the actuator supplied with power?

9 Maintenance

- All repair work is to be performed by qualified personnel using the appropriate tools.
- For the arrangement, designation and item numbers of all parts of the valve, see **Section 10**.
- Spare parts are to be ordered with all the details in acc. with the valve identification.
- Only original spare parts may be installed.

Make sure that the bottom drain valve is empty when work is performed on it.
See also **Section 7.3**.

- To prevent leaks, a regular check of the connection screws should be made in line with the operating requirements.
  For tightening torques, see **Section 1.2**.
- The maintenance staff can decide whether the valve is dismantled from the pipe or not for maintenance work.
- In all cases **Section 7.3** must be observed analogously.
- It is up to the maintenance staff to decide whether the actuator or other accessories are dismantled for the maintenance work.
- **Section 7.3** is to be observed for re-assembly of the actuator.

9.1 Dismantling

9.1.1 BAV/F 80/50 with handwheel

- Open valve slightly.
- Dismantle handwheel **210** and travel stop **508**.
- Undo setscrews **904/1** in the cover **106**, undo packing nut **404**.
- Remove cover **106**, while doing so turn the spindle **802**. Remove the spindle **802** from the stem **855**.
- Hold stem **855** tight with water pump pliers and undo cap **207**.

The locking elements **930/1** are freely accessible in this state of dismantling and may be easily lost.

- Remove seat **205**.
- Pull bellows **206** with stem **855** out of the body **100**.
  - Pull bellows **206** off the stem **855**.

The cup spring **950/1** and thrust sleeve **411** are freely accessible in this state of dismantling and may be easily lost.

- Remove pressure plate **524** from the cover **106**.
- The valve can now be cleaned and inspected. If required, the seat **205** and cap **207** can be replaced.

9.1.2 BAVM/F 80/50 with actuator

- Depending on the actuator, undo the connection between the stem **800** and actuator **850**.
- Undo clip **937/1** with protective bellows **687/1**.
- Remove travel stop **508** with lock nut **904/3** and groove nut **509**.
- Remove bracket **510** / yoke **516** with actuator **850**.
- Further dismantling is performed as described in **Section 9.1.1** BAV/F 80/50 with handwheel.

9.1.3 BAVM/F 150/100, 100/80 with handwheel

- The valve is dismantled in the open state.
- Pull out round cord **522**.
- Undo cap **207**.
- Lift off seat **205**.
- Pull out lower round cord **522**.
- Remove wing **984** with O-ring **400/1** and O-ring envelope **410**.
- Undo screws **901/1** from cover **106**.
- Pull cover **106** with the remaining individual components out of the body **100** downwards.
- Pull bellows **206** off the stem **855**.
- Remove circlip **932/1** and remove handwheel **210** with thrust ring **405/1** and plain bearing **300/1**.
- Undo hex. nut **920/1** of the spring gland follower **503**.
- Remove spring-type pin **939/2** and pull stem **855** out of the cover **106**.
- The valve can now be cleaned and inspected. If required, the seat **205** and cap **207** can be replaced.

9.1.4 BAVM/F 150/100, 100/80 with actuator

- Depending on the actuator, undo the connection between the stem **800** and actuator **850**.
- Undo clip **937/1** with protective bellows **687/1**.
- Remove travel stop **508** with lock nut **904/3** and groove nut **509**.
- Remove bracket **510** / yoke **516** with actuator **850**.
- Further dismantling is performed as described in **Section 9.1.3** BAV/F 150/100, 100/80 with handwheel.

9.2 Assembly

9.2.1 BAV/F 80/50 with handwheel

- Mount cup spring **950/1**, thrust sleeve **411** and locking unit **930** onto the stem **855**.
- Install bellows **206** onto stem **855;** make sure that the bellows **206** rests in the thrust sleeve **411**.
- Mount seat **205** onto the body **100** and insert cap **207**.
- Now screw the pre-assembled stem **855** with the bellows **206** through the body **100** into the cap **207** and tighten.
- Insert the pressure plate **524** into the cover **106**.
- Insert the spindle **802** into the slit of the stem **855**.
- Screw cover **106** onto the spindle **802**. Make sure that the round head grooved pin **980/1** of the stem **855** fits into the groove of the cover. Tighten screws **901/1** to a torque in accordance with **Section 1.2** in diametrically opposite sequence. Tighten setscrews **904/1** in the cover in diametrically opposite sequence.
- Tighten packing nut **404**.
- Screw travel stop **508** with hex. nut **920/3** onto the spindle **802**.
- Mount handwheel **210**.

- Set travel stop:
  - Close BAV/F.
  - Set the distance between the travel stop **508** and cover **106** as per **Section 1.3** (stroke) and lock with the hex. nut **920/3**.
  - Mount protective bellows **687/1** over the travel stop **508** onto the groove nut **509/1** and secure with the clip **937/1**.

9.2.2 BAVM/F80/50 with actuator

- Assembly same as with the BAV/F 80/50 with handwheel.
- Tighten packing nut **404**.
- Install bracket **510** / yoke **516** with washer **550** and groove nut **509/1**.
- Screw travel stop **508** with hex. nut **920/3** and protective bellows **687/1** onto the valve stem **800**.
- Mount actuator **850** with coupling **804**.
- Set travel stop:
  - Close valve.
  - Set distance between travel stop **508** and cover **106** as per **Section 1.3** (stroke) and lock with the hex. nut **920/3**.
  - Place the protective bellows **687/1** over the travel stop **508** onto the groove nut **509/1** and secure with the clip **937/1**.

9.2.3 BAV/F 150/100, 100/80 with handwheel

- Insert bellows **206** and stem **855** into the body **100**.
- Mount cover **106** loosely with the hex. screw **901/1**.
- Mount wing **984** and O-ring **400/1** onto the stem **855**.
- Mount lower round cord **522**.
- Install seat **205** and screw on cap **207**, mount upper round cord **522**.
- Undo cover **106** and force spring-type pin **939/2** into the stem **855**.
- Mount circlip **932/1**, thrust ring **405/2** and plain bearing **300/1** onto the stem **855**.
- Secure cover **106** on the body **100;** make sure that the seat **205** rests uniformly on the body **100**.
- Insert plain bearing **300/1** at the bottom into the cover **106** and screw the handwheel **210** onto the stem **855**.
- Insert plain bearing **300** at the top into the cover **106**, place thrust ring **405/2** onto the plain bearing **300/1** and secure circlip **932/1** on the handwheel **210**.
- Tighten hex. nuts **920/1** so that the spring gland follower **503** has slight pre-tension.

9.2.4 BAVM/F 150/100, 100/80 with actuator

- The BAVM/F is assembled in the same way as the version with handwheel.
- The installation of the actuator is just the same as with the BAVM/F 80/50 with actuator.

10 Sectional drawings and options

10.1 Legend

BAV/F 80/50

100 body
106 cover
205 seat
includes:
- **501** ring, 2-piece

206 bellows
207 cap
210 handwheel
400/3 O-ring
402/1 packing ring
404 packing nut
405 thrust ring
408/1 flat gasket
508 travel stop
524 pressure plate
565/1 round head rivets
687 protective bellows
includes:
- **509/1** groove nut
- **937/1** clip
- **954/1** snap ring

801 guide
includes:
- **411** thrust sleeve
- **930/1** locking unit
- **950/1** cup spring

802 spindle
901/1 hex. screw
904/1 setscrew
920/x hex. nut
936/x tooth lock washer
- **937/1** clip

939/1 spring-type pin

Only BAVM/F

106 cover
includes:
- **302/x** guide ring

411 thrust sleeve
510 bracket
516 yoke
524 pressure plate
543 cable outlet
800 valve stem
804 coupling
850 actuator
930/1 locking unit
950/1 cup spring

BAV/F, 100/80, 150/100

100 body
106 cover
205 seat
206 bellows
207 cap
210 handwheel
includes:
- **230** handwheel hub
- **901/2** hex. screw

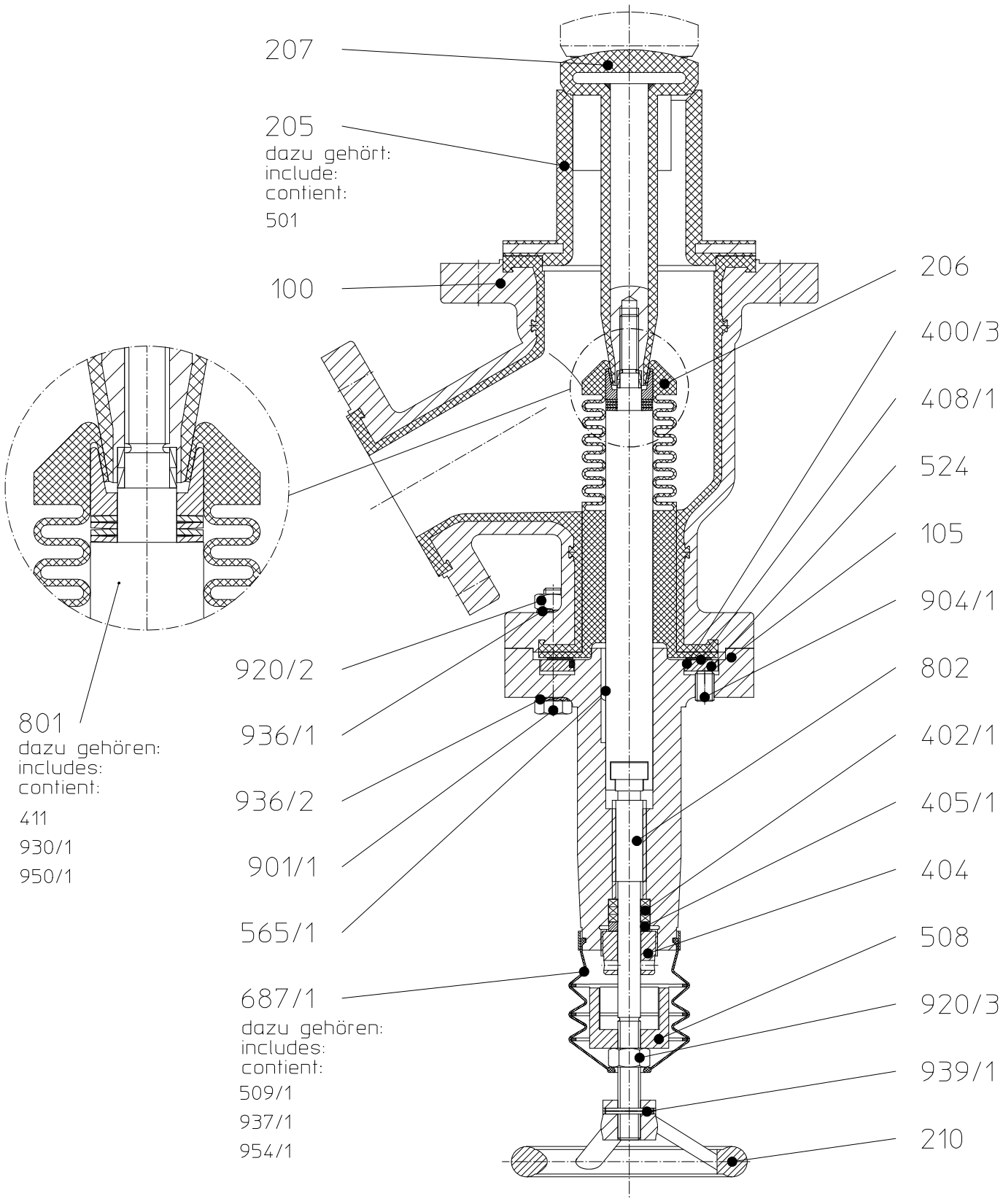
300/1 plain bearing
302/1 guide ring
400/x O-ring
402/1 packing ring
405/x thrust ring
410 O-ring envelope
503 spring gland follower
522 round cord
523 stroke index
554/1 washer
855 stem
901/1 hex. screw
902/1 stud screw
920/x hex. nut
932/1 circlip
936/x tooth lock washer
939/2 spring-type pin
984 wing

Only BAVM/F

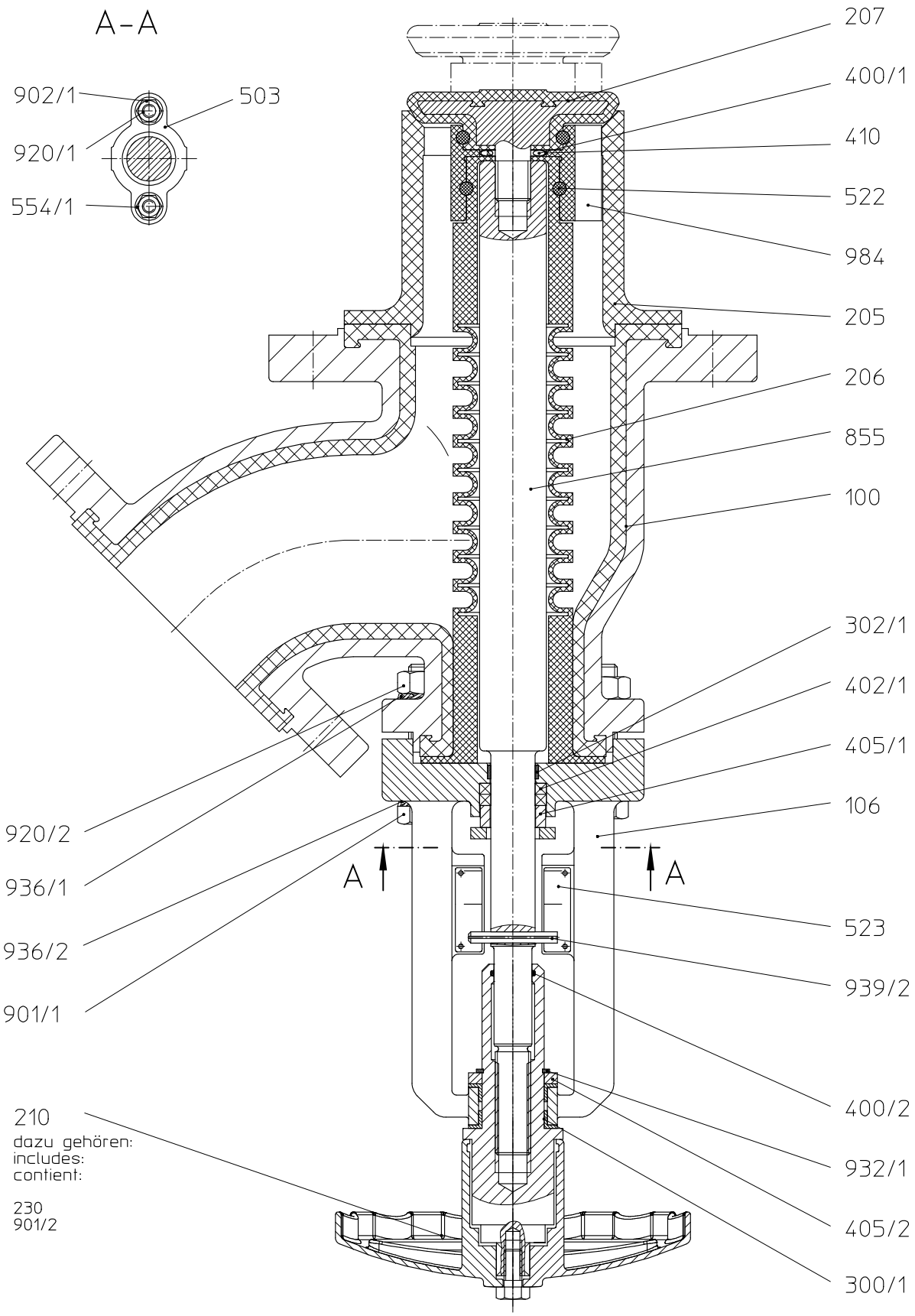
106 cover
includes:
- **302/x** guide ring

510 bracket
516 yoke
524 pressure plate
543 cable outlet
800 valve stem
804 coupling
850 actuator

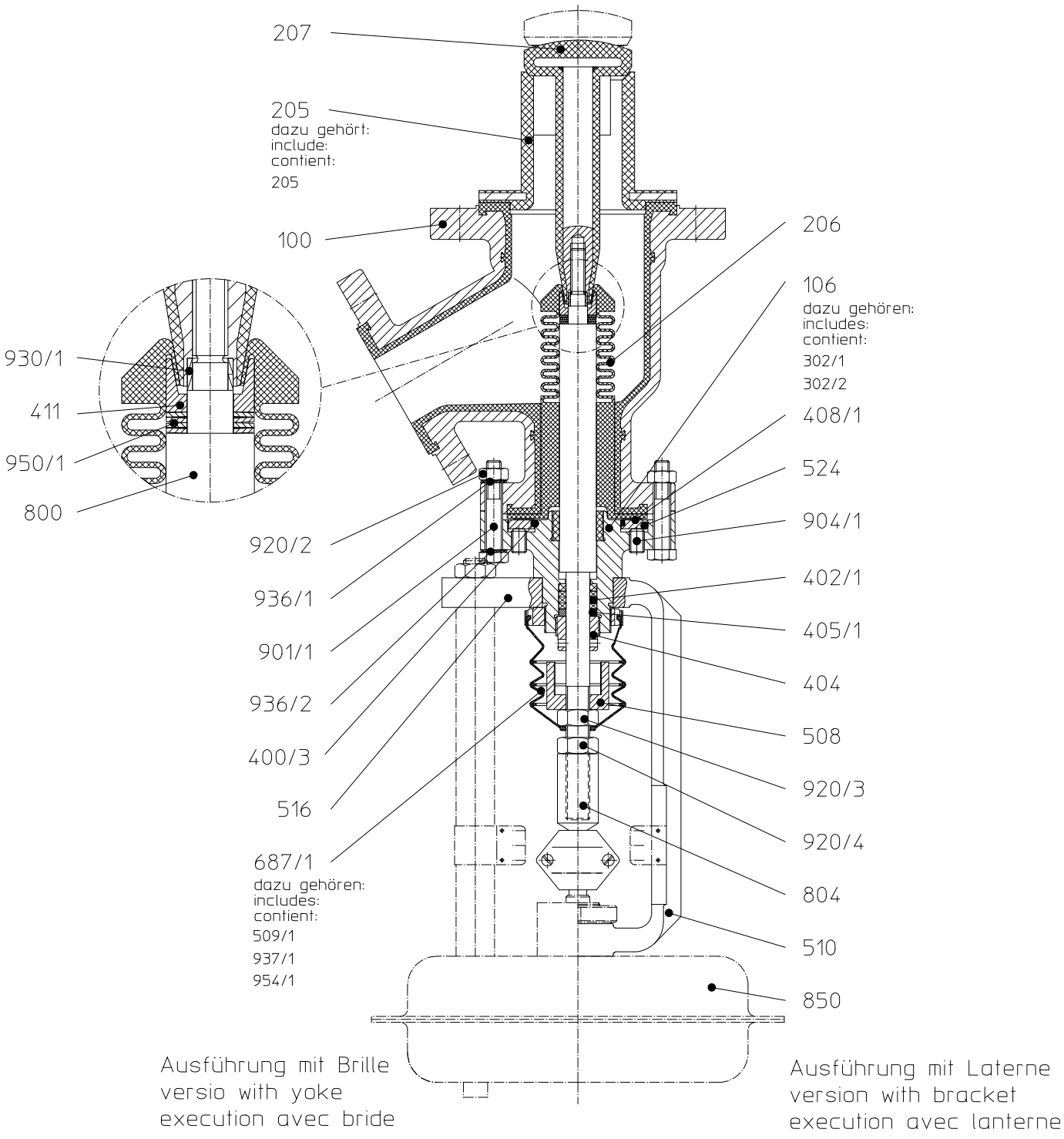
10.2 BAV/F 80/50 Sectional drawing



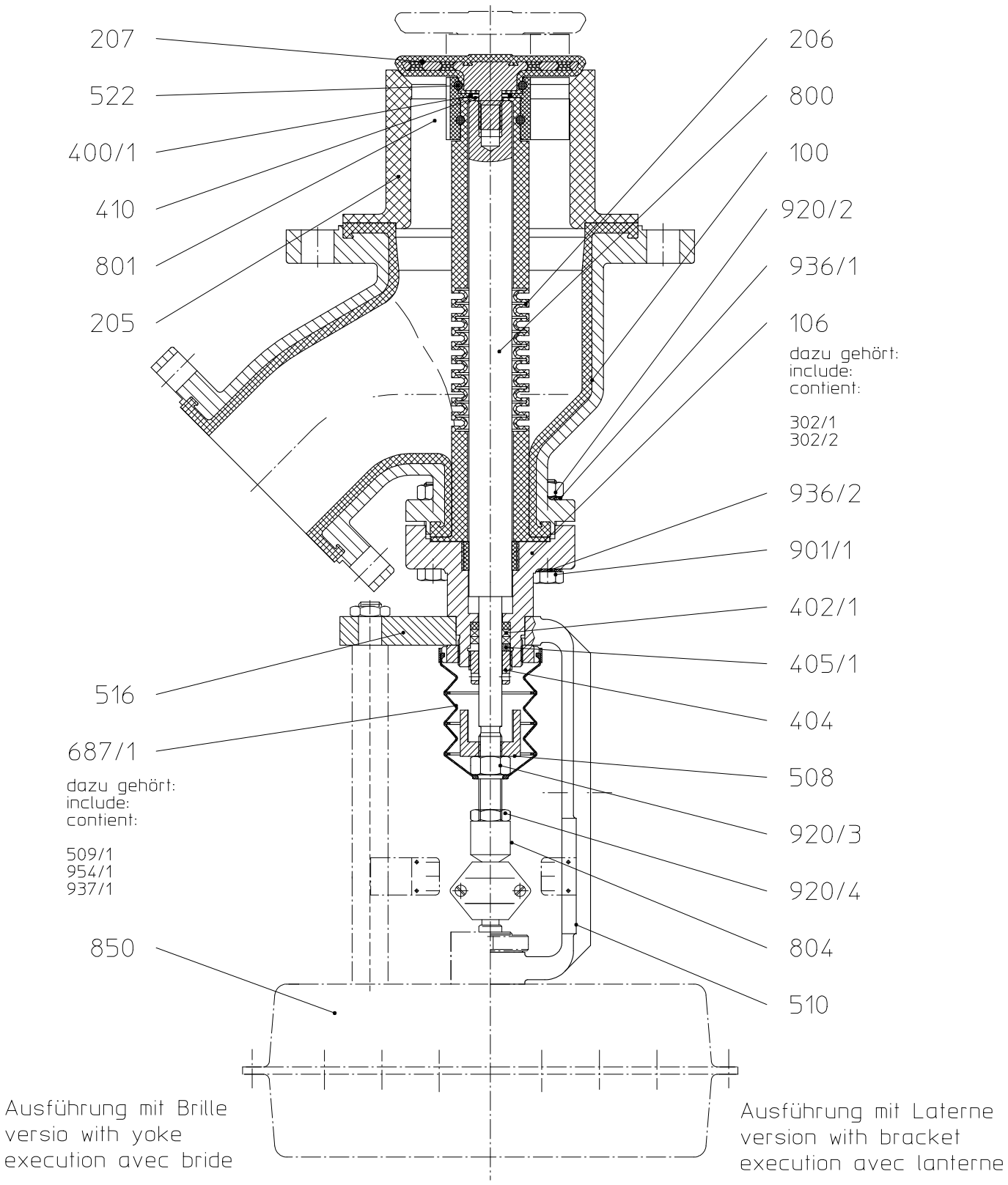
10.3 BAV/F/F 150/100, 100/80 Sectional drawing



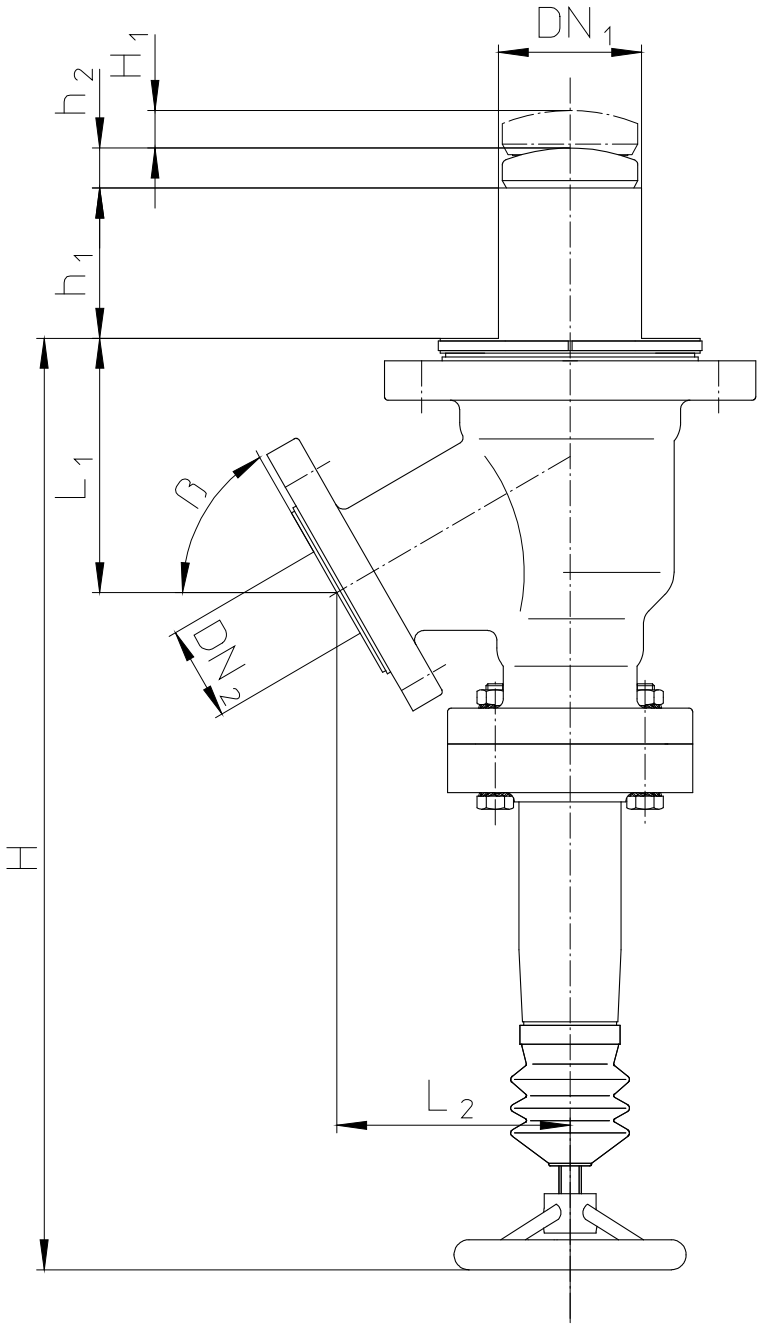
10.4 BAVM/F 80/50 Sectional drawing



10.5 BAVM/F 150/100, 100/80 Sectional drawing

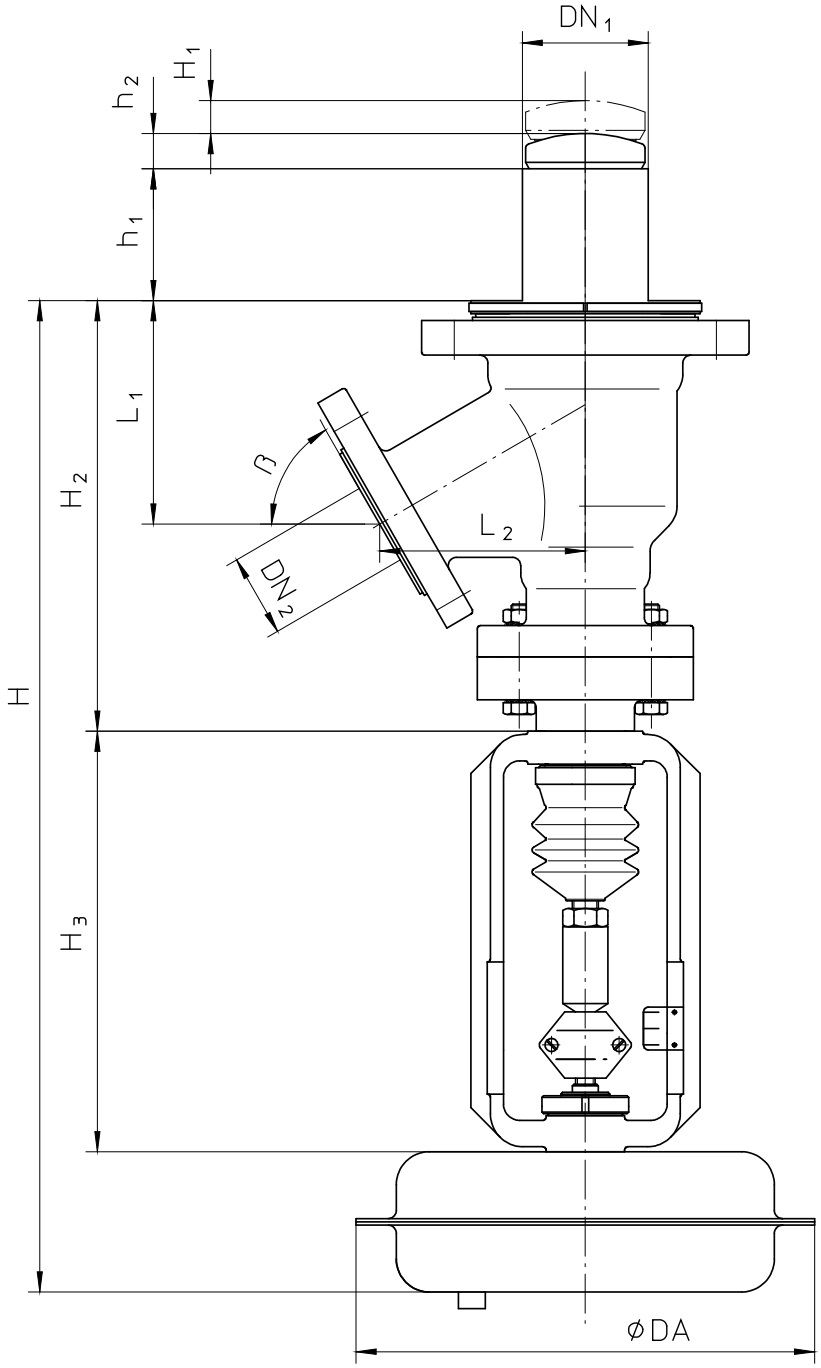


10.6 BAV/F Dimensional drawing



	DN_1	DN_2	L_1	L2	H	h_1	h_2	β	H_1 stroke
	[mm] [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[Grad]** [degree]	**[mm]** [inch]
80/50	80 3.15	50 2	135.5 5.33	125.5 4.94	496 19.53	80 3.15	21 0.83	60°	20 0.79
100/80	100 3.94	80 3.15	143 5.63	152 5.98	446 17.56	90 3.54	11 0.43	45°	30 1.18
150/100	150 5.91	100 3.94	188 7.4	162 6.37	470 18.5	100 3.94	10 0.39	45°	30 1.18

10.7 BAVM/F Dimensional drawing BAVM/F



	DN_1	DN_2	L_1	L2	H	H_2	H_3	h_1	h_2	Ø DA	β	H_1 stroke
	[mm] [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[mm]** [inch]	**[Grad]** [degree]	**[mm]** [inch]
80/50	80 3.15	50 2	135.5 5.33	125.5 4.94		261 10.26		80 3.15	21 0.83		60°	20 0.79
100/80	100 3.94	80 3.15	143 5.63	152 5.98		256 10.08		90 3.54	11 0.43		45°	30 1.18
150/100	150 5.91	100 3.94	188 7.4	162 6.37		279 10.98		100 3.94	10 0.39		45°	30 1.18

Richter Chemie-Technik GmbH
Otto-Schott-Straße 2
D-47906 Kempen
www.richter-ct.com

RICHTER Process Pumps & Valves
A Unit of IDEX Corporation

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

Produkt *Product*	Kunststoffausgekleidete Hubventile *Plastic lined glove control valves*
Bauart *Design*	Membranabsperrventil, Probenahmeventil, Bodenauslaufventil *Diaphragm shut-off or control valve, sampling valve, drain valve*
Baureihe *Series*	BAV…, MV…, PA…
Nennweite *Size*	DN 15 bis DN 150, ½“ bis 6“ *DN 15 to DN 150, ½“ to 6“*
Seriennummer *Series number*	ab/*from* 29.12.2009
EU-Richtlinie *EU-Directive*	97/23/EG Druckgeräterichtlinie 2006/42/EG [2)] Maschinenrichtlinie 97/23/EC *Pressure Equipment* *2006/42/EC* [2)] *Directive Machinery*
Angewandte Technische Spezifikation *Applied Technical Specification*	DIN EN ISO 12100-2 AD 2000
Überwachungsverfahren *Surveillance Procedure*	97/23/EG Zertifizierungsstelle für Druckgeräte der TÜV Nord Systems GmbH & Co. KG Notified Body 0045
Konformitätsbewertungs-verfahren 97/23/EG *Conformity assessment procedure 97/23/EC*	Modul H
Kennzeichnung *Marking*	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

RICHTER
Process Pumps & Valves
A Unit of IDEX Corporation

Herstellererklärung / *Manufacturer´s Declaration*

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

Richter Bodenauslaufventil / *Richter Drain Valve*

Hiermit erklären wir, dass die Bodenauslaufventile der Baureihen
Hereby we declare, that the Drain Valves of the series

BAV, BAVM

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 $\lambda \leq 10^{-4} \frac{mbar \cdot l}{s \cdot m}$ 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 certificate 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 $\lambda \leq 10^{-4} \frac{mbar \cdot l}{s \cdot m}$ *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

Erstellt/Compiled:	CRM/GK	am/on : 23.02.2010	Seite/Page :1	QM-Nr.: 0905-40-1022_BAV/4-04
Genehmigt/Approved:	CRQ/AI	am/on: 23.02.2010	von/of :1	

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 ☒ Please mark the applicable
	Repair: ☐ subject to fee ☐ Warranty
Street :	**Exchange:** ☐ subject to fee ☐ Warranty
Postcode, city:	☐ Exchange/ Replacement already initiated/received
Contact person:	**Return**: ☐ Leasing ☐ Loan ☐ for credit note
Phone : Fax :	
End user :	

A. Details of Richter-product:

Classification:	**Failure description:**
Article number:	
Serial number:	**Equipment:**
	Application tool:
	Application process:

B. Condition of the Richter-product:	**no**[1]	**yes**	**no**
Was it in operation ?	☐	☐	
Drained (product/operating supply item) ?		☐	☐
All openings hermetically locked!		☐	
Cleaned ?		☐	☐
If yes, with which cleaning agent:			
and with which cleaning method:			

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

Contamination :	**no**[1]	**yes**
toxic	☐	☐
caustic	☐	☐
inflammable	☐	☐
explosive[2]	☐	☐
mikrobiological[2]	☐	☐
radioactive [3]		
other pollutant	☐	☐

[2] Aggregates, which are contaminated with microbiological or explosive substances, are only accepted with documented evidence of an approved cleaning.
[3] Aggregates, which are contaminated with radioactive substances, are not accepted in principle.

C. Details of the discharged materials (must be filled out imperatively)

1. **With which materials did the aggregate come into contact ?** Trade name and/or chemical designation of operational funds and discharged materials, material properties, e.g. as per safety data sheet (e.g. toxic, inflammable, caustic)

X Trade name:	Chemical designation:
a)	
b)	
c)	
d)	

	no	**yes**
2. **Are the materials specified above harmful to health ?**	☐	☐
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

FAX

Richter Chemie-Technik GmbH
Otto-Schott-Straße 2
D-47906 Kempen
Telefon +49 (0) 21 52 / 146 - 0
Telefax +49 (0) 21 52 / 146 - 190
richter-info@richter-ct.com
www.richter-ct.com

Fax No. ()

Pages (incl. cover sheet) ()

To:

()

Contact 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 GMBH

Enclosures

()