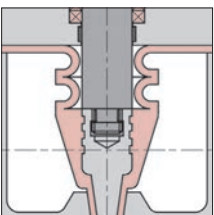
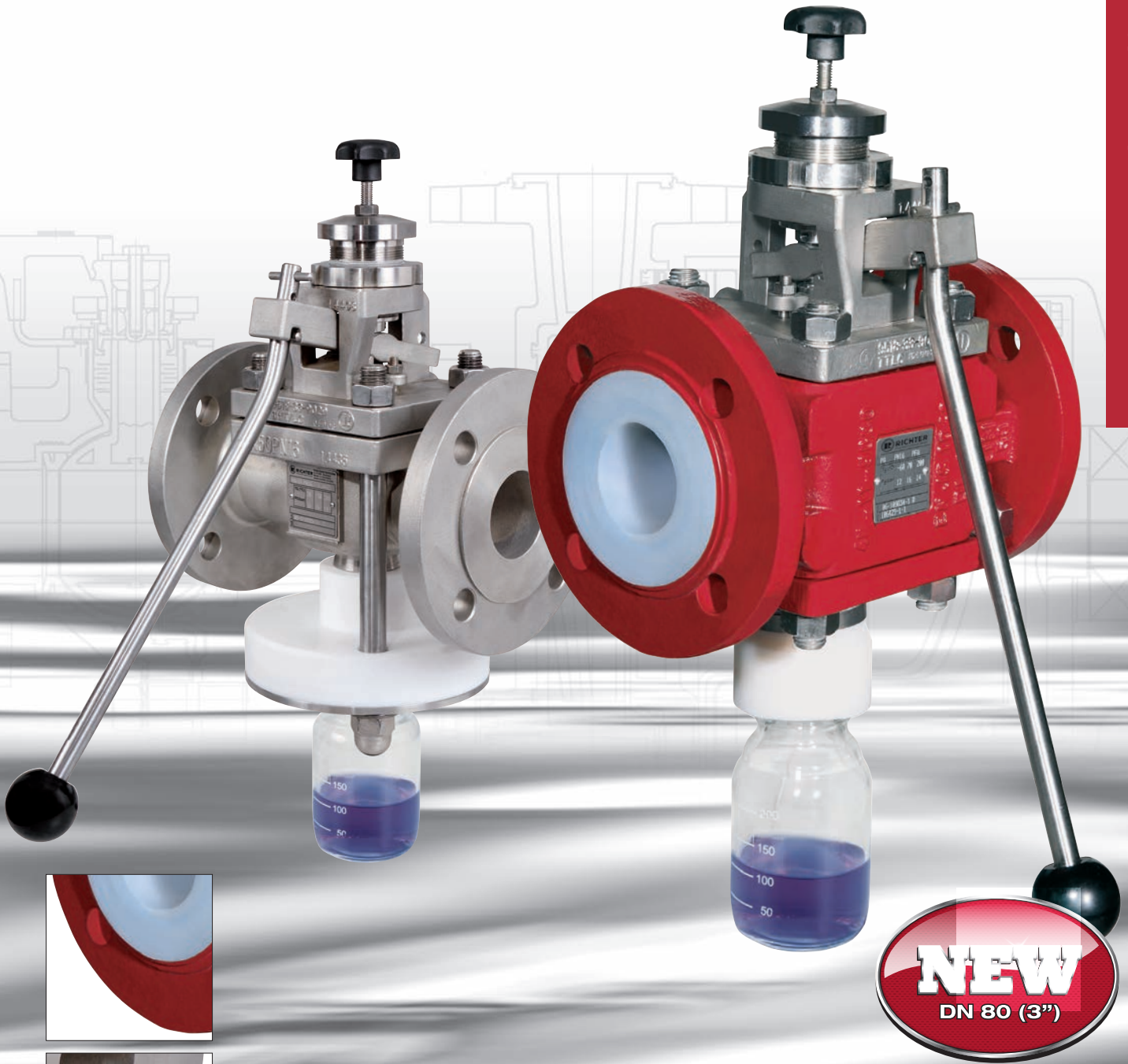


Richter Sampling Valves

PA/F, PA/S



Body ductile iron with PFA lining
or investment cast stainless steel

Bellows-sealed

Safety packing gland

Representative sampling



RICHTER
Process Pumps & Valves

IDEX
FLUID & METERING

Richter sampling valves

Fields of application

Representative and safe sampling of pure and slightly solids-laden media in the chemical, pharmaceutical and other industries.

The Richter series PA/F (fluoroplastic lining PFA) and PA/S (stainless steel version) are specially suitable for taking samples

- of corrosive and pure media, also slightly solids-laden media
- during the ongoing process
- prior to filling into other containers/further transport
- prior to feeding into the process
- for the regular monitoring of stocks
- in the piping and from containers

Operating ranges

- from -75 to 400 °F (-60 to 200 °C)
- from vacuum to max. 235 psi (16 bar)

Product features

- Top-entry design for very easy maintenance, the valve body can remain installed in the system
- Valve actuation: safety hand lever, removable. Pneumatic or electric actuator on request.
- Long plug tip: Counteracts clogging, e.g. caking media.
- Anti-adhesive, wetted surfaces thanks to PFA/PTFE (PA/F), can be steam-sterilised (must be checked on a case-to-case basis)
- External corrosion protection: Epoxy coating (PA/F), stainless steel valve bonnet and screws
- On request with stainless steel protective cabinet (see page 5)

Type codes, materials

Sampling valve

- | | |
|-------------------------------|---------|
| • manual actuation | PA/... |
| • remote actuation | PAP/... |
| • perfluoroalkoxy (PFA) lined | .../F |
| • stainless steel version | .../S |

Differentiation to sampling ball valves

Conventional sampling ball valves

- are not cavity-free: Residues remain in the area between the ball and the body lining and therefore, before a representative sample can be taken, rinsing must be performed several times and troublesome disposal of the initial samples is necessary
- promote an undesirable increase in the sedimentation of solids in the dead leg above the ball
- are usually not self-closing, no “dead man’s handle”
- have a normal not self-adjusting packing gland seal, have no bellows sealing

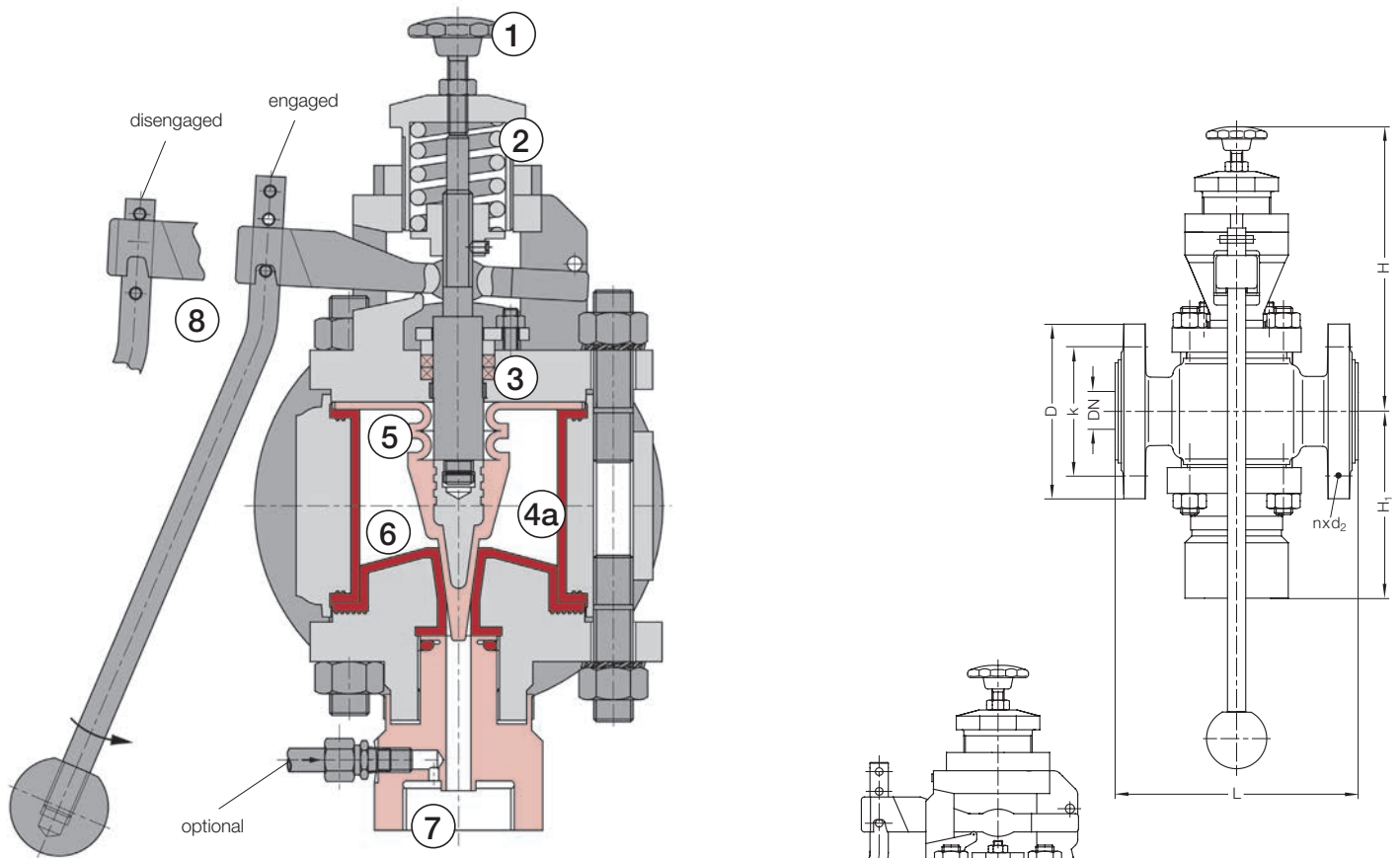
- ① **Travel stop, adjustable from outside**
 - finely metered sampling
 - closing force can be increased at any time if the sealing action in the seat/plug area is insufficient (e.g. if sealing surfaces damaged)
- ② **Safety spring return**

by means of a central spring suitable for all pressure ranges (“dead man’s handle”)
- ③ **Safety packing gland**
 - acts independently
 - re-adjustable from outside
- ④ **a: Lining virgin PFA**
 - wall thickness 0.12-0.14“ (3-3.5 mm)
 - high permeation resistance
 - vacuum-proof anchored

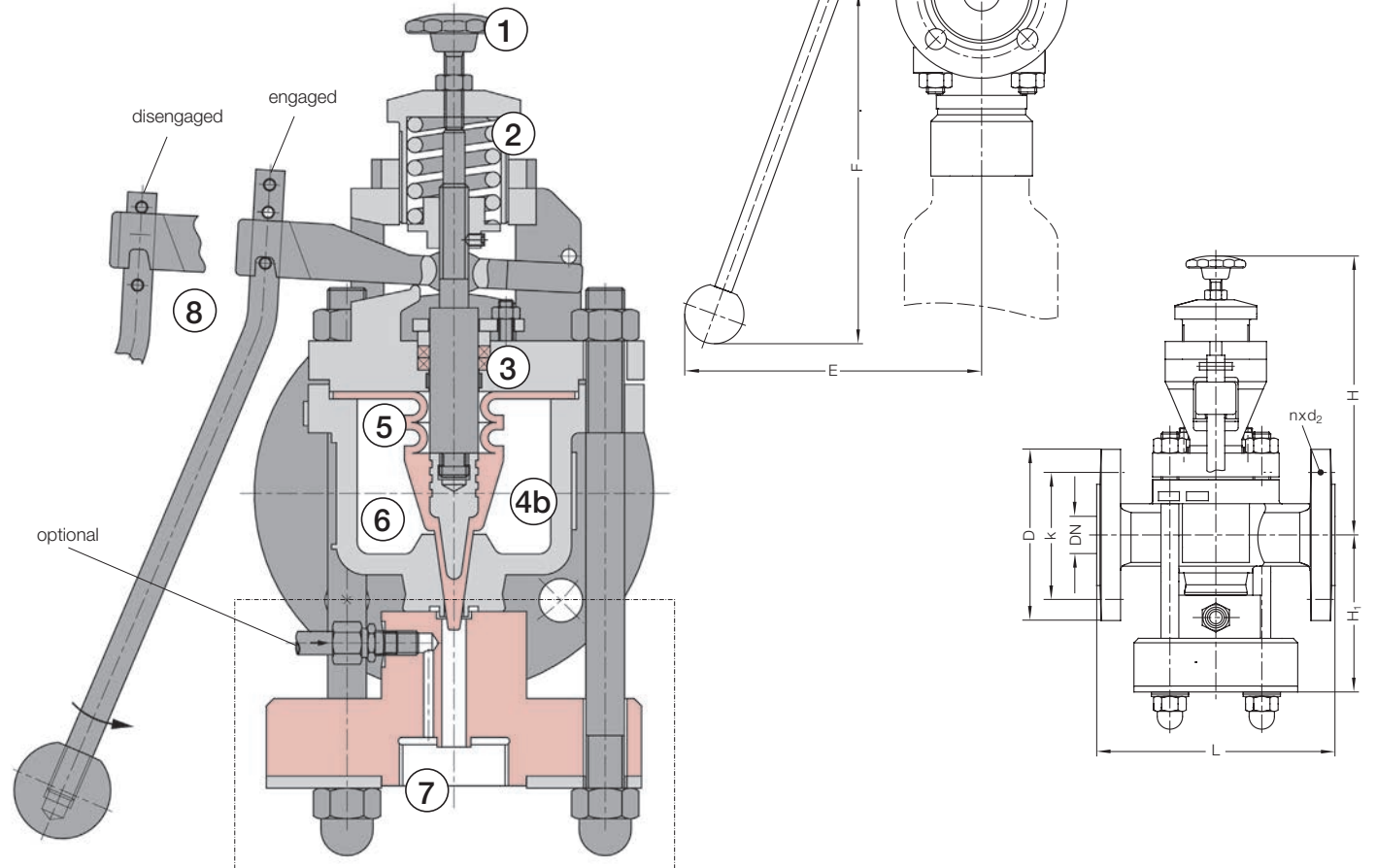
b: Alternatively stainless steel 316 L (1.4435) investment cast body without lining
- ⑤ **Glandless due to heavy-duty PTFE bellows**
 - hermetic sealing of the product chamber
 - bellows wall 0.1” (2.5 mm) thick, can also be used for highly permeating media
- ⑥ **Cavity-free**
 - tapered valve bottom
 - representative sampling: only fresh medium is taken
 - no prior rinsing necessary
 - no formation of residue in entire valve
- ⑦ **Standard bottle connection with thread GL to DIN 168**
 - modified pure PTFE
 - secured against turning
 - possibility of side connection for venting or overflow
 - for PA/F: integrated FKM O-ring (Viton® or equivalent) is not wetted
 - further connection possibilities (see page 6)
- ⑧ **Removable safety hand lever**
 - disengages after actuation
 - on request firmly installed with split pin in central bore
 - lockable with lock or split pin
 - alternative position: lever upwards
- ⑨ **Highly viscous media or applications with low operating pressure:**

Special plug and seat option (see page 6).
- ⑩ **For solids-laden media:**

Inclined or vertical position of the valve and, as a result, possibly special bottle connection is recommended (see page 6).



**Sampling valve PA/F
with thick-walled PFA lining**

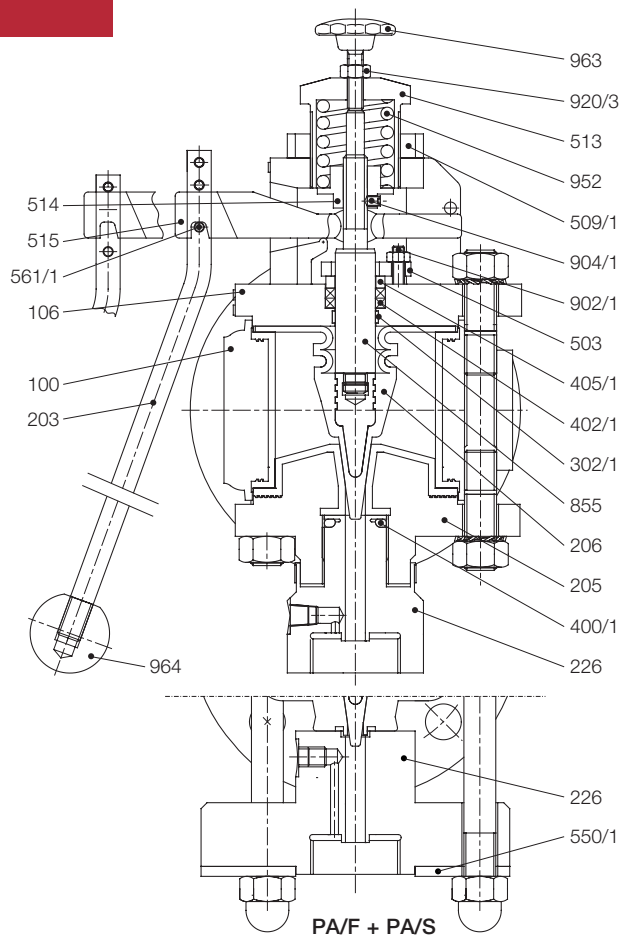


**Sampling valve PA/S
of stainless steel design (without lining)**

Richter sampling valves

Components and materials

| Item | Designation | Material |
|-------|------------------------|--|
| 100 | Body | PA/F: ductile cast iron ASTM A395/ EN-JS 1049 with PFA lining |
| | | PA/S: investm. cast stainl. steel 316 L/1.4435 |
| 104 | Transition flange | stainless steel (only DN 1 1/2"+3" /40+80, not shown) |
| 106 | Cover | stainless steel |
| 203 | Lever | stainless steel |
| 205 | Seat | PA/F: ductile cast iron ASTM A395/ EN-JS 1049 with PFA lining |
| | | DN 1 1/2"+3" /40+80: stainless steel |
| | | PA/S: investm. cast stainl. steel 316 L/1.4435 |
| 206 | Bellows w. plug | modified pure PTFE |
| 226 | Bottle connection | modified pure PTFE |
| 302/1 | Guide ring | PTFE carbon |
| 400/1 | O-ring, not wetted | FKM (Viton® or equivalent) |
| 402/1 | Packing ring | PTFE |
| 405/1 | Thrust ring | stainless steel |
| 503 | Packing gland follower | stainless steel |
| 509/1 | Groove nut | stainless steel |
| 513 | Spring bonnet | stainless steel |
| 514 | Spring bush | stainless steel |
| 515 | Actuation | stainless steel |
| 550/1 | Disc | stainless steel |
| 561/1 | Grooved pin | stainless steel |
| 855 | Stem | stainless steel |
| 902/1 | Stud screw | stainless steel |
| 904/1 | Setscrew | stainless steel |
| 920/3 | Hex. check nut | stainless steel |
| 952 | Pressure spring | stainless steel |
| 963 | Star knob | plastic/stainless steel |
| 964 | Ball head | plastic |



Temperature/pressure ranges

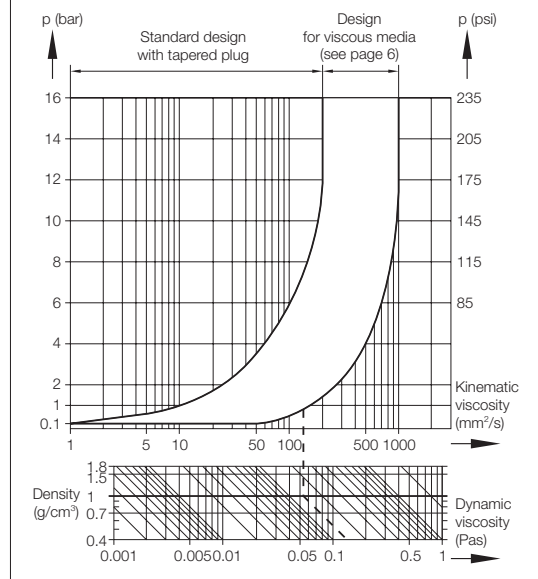
| | | | |
|---------------------|----------|-----------|-----------|
| Temperature °F (°C) | 70 (20) | 300 (150) | 400 (200) |
| Pressure psi (bar) | 235 (16) | 220 (15) | 205 (14) |

Cv values (US gpm), kv100 values (m³/h)

| inch | DN | Cv (kv100) Valve flow rate | Cv (kv100) Sampling flow rate at max. stroke | |
|--------|----|----------------------------------|---|-------------|
| | | | Tapered plug | Flat plug |
| 1" | 25 | 17.5 (15) | 0.448 (0.385) | 2.98 (2.56) |
| 1 1/2" | 40 | 54.8 (47) | | |
| 2" | 50 | 75.7 (65) | | |
| 3" | 80 | 233 (200) | | |

Other valve sizes on request

Viscosity/operating pressure diagram



Installation and connecting dimensions and weights for series PA/F and PA/S

- **Face-to-face** ISO 5752 series 1 (DIN EN 558-1 series 1, formerly DIN 3202/F1)
- **Flanges** drilled to ASME/ANSI B 16.5 Cl.150, on request to ISO 7005-1 PN16 (formerly DIN 2532/33), JIS 10 K

| DN | | D | | k | | n x d ₂ | | H | | H ₁ | | E | | L | | F (appr.) | | approx. weight | | | | | |
|--------|----|------|-----|------|-----|--------------------|------|------|-----|----------------|-----|------|-----|------|-----|-----------|-----|----------------|-----|-----|----|----|----|
| inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | inch | mm | lbs | kg | lbs | kg | | |
| 1" | 25 | 4.52 | 115 | 3.35 | 85 | 4x5/8 | 4x14 | 7.48 | 190 | 4.84 | 123 | 4.17 | 106 | 7.87 | 200 | 6.3 | 160 | 9.25 | 235 | 22 | 10 | 20 | 9 |
| 1 1/2" | 40 | 5.9 | 150 | 4.33 | 110 | 4x5/8 | 4x19 | 9.84 | 250 | 5 | 127 | - | - | 7.87 | 200 | 7.87 | 200 | 6.89 | 175 | 40 | 18 | - | - |
| 2" | 50 | 6.5 | 165 | 4.92 | 125 | 4x3/4 | 4x19 | 7.68 | 195 | 5.16 | 131 | 4.8 | 122 | 7.87 | 200 | 9.05 | 230 | 9.06 | 230 | 40 | 18 | 31 | 14 |
| 3" | 80 | 7.9 | 200 | 6.3 | 160 | 8x3/4 | 8x19 | 12.2 | 310 | 6.8 | 173 | - | - | 8.3 | 211 | 12.2 | 310 | 3.8 | 97 | 40 | 18 | - | - |

* manually actuated

Other valve sizes on request

Options

Sampling valves with stainless steel protective cabinet



The protective cabinets are produced in standard sizes and with various accessories, also custom-made.

Fig.: Option with spring-loaded bottle holder.

Sampling valves with actuator



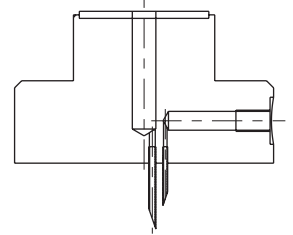
Pneumatic and electric actuators. Makes as per customer's choice.

Septum bottle adapter for high-purity media



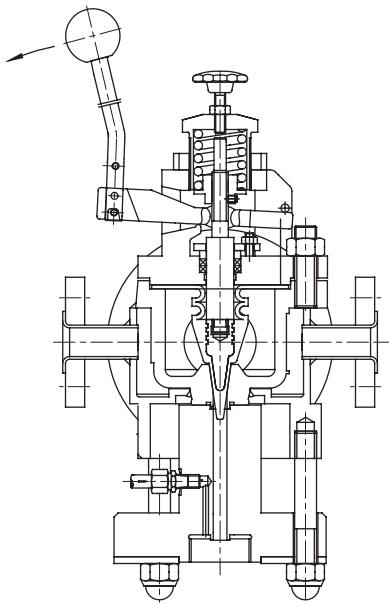
For design details, see page 6

NEW:
Needle and adapter made of stainless steel



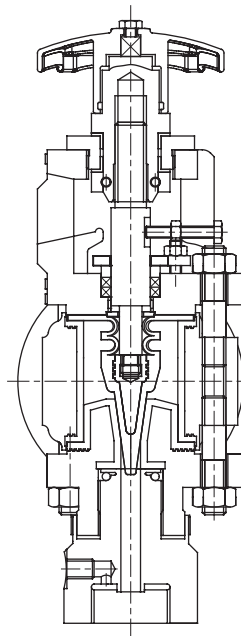
With this new option sampling in a septum bottle is even possible with the stainless steel series PA/S.

Body heating



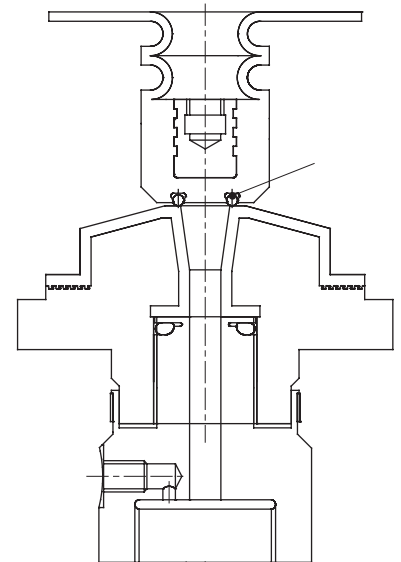
e.g. for crystallising media, heating jacket made of stainless steel, mounted (PA/F) or welded on (PA/S)

Handwheel instead of lever actuation



Permits particularly finely metered sampling over the entire flow range of the valve. No automatic spring return.

Flat plug for slightly solids-laden media



The integrated FFKM O-ring still seals if small solid particles are jammed in the sealing surface area.

Special versions of the models PA/F and PA/S

Special design for highly viscous media or applications with low operating pressure

The standard version of the PA valve with a tapered plug has a travel of 0.12" (3 mm), producing an angular gap of 0.02" (0.5 mm) over a length of 3/4" (20 mm).

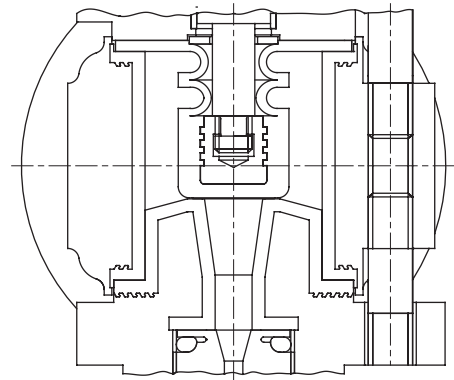
However, taking samples of

- higher viscous media and
- media with a low operating pressure requires an enlarged passage cross section.

With a travel of 0.12" (3 mm) the special flat plug produces a full cross section of the outlet opening of 0.4" (10 mm).

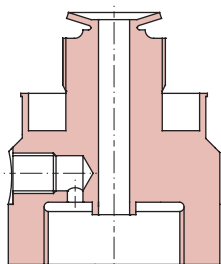
The suitable valve plug is selected according to the viscosity/operating pressure diagram (see page 4).

Richter should be consulted in the case of different application parameters.

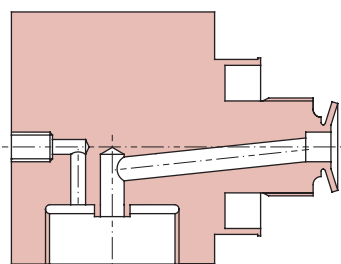


Flat plug

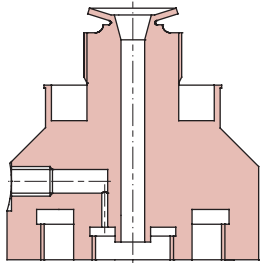
Choice of connection possibilities for sampling bottles



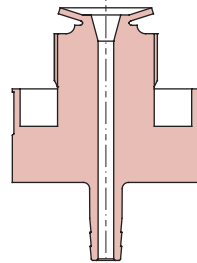
Adapter for standard horizontal valve installation



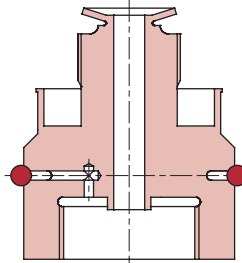
Adapter for vertical valve installation



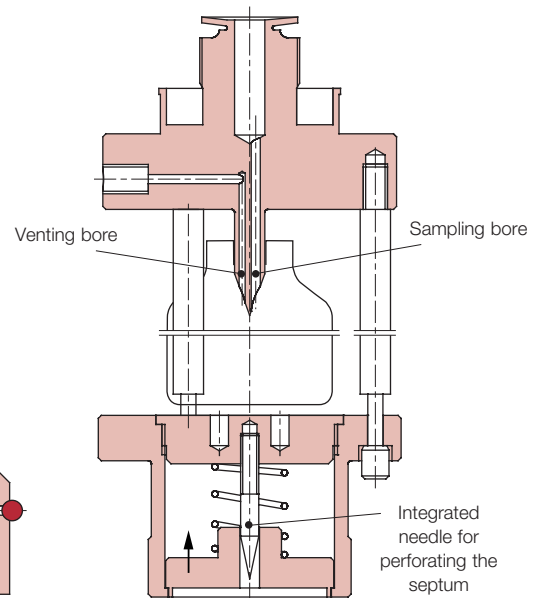
Twin adapter for two different bottle sizes



Adapter for hose nozzle



Adapter with O-ring, prevents the ingress of ambient atmosphere



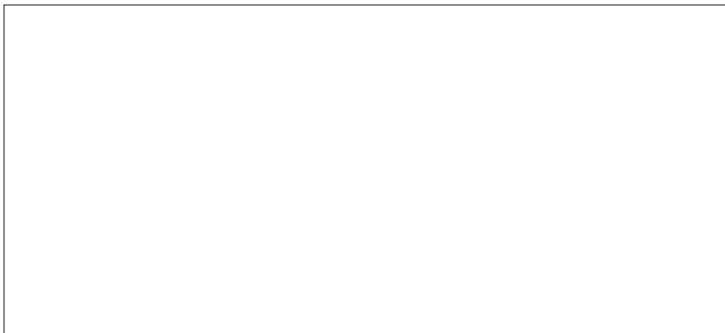
Adapter for septum bottle (see picture page 5)

A spring-loaded threadless bottle clamping feature can also be provided in conjunction with a protective cabinet; see page 5.

Bottle connections: Standard GL to DIN 168 and customised special versions.



Presented by:



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