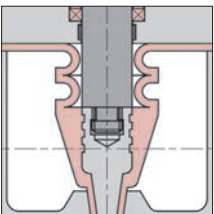


# Richter Sampling Valves

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

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

## 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
- Marking: to DIN EN 19
- 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 packing gland seal, are not self-adjusting, 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 3-3.5 mm
- high permeation resistance
- vacuum-proof anchored

**b: Alternatively stainless steel 1.4435 (316 L) investment cast body without lining**

#### ⑤ **Glandless due to heavy-duty PTFE bellows**

- hermetic sealing of the product chamber
- bellows wall 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 the 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 (page 6)

#### ⑧ **Removable safety hand lever**

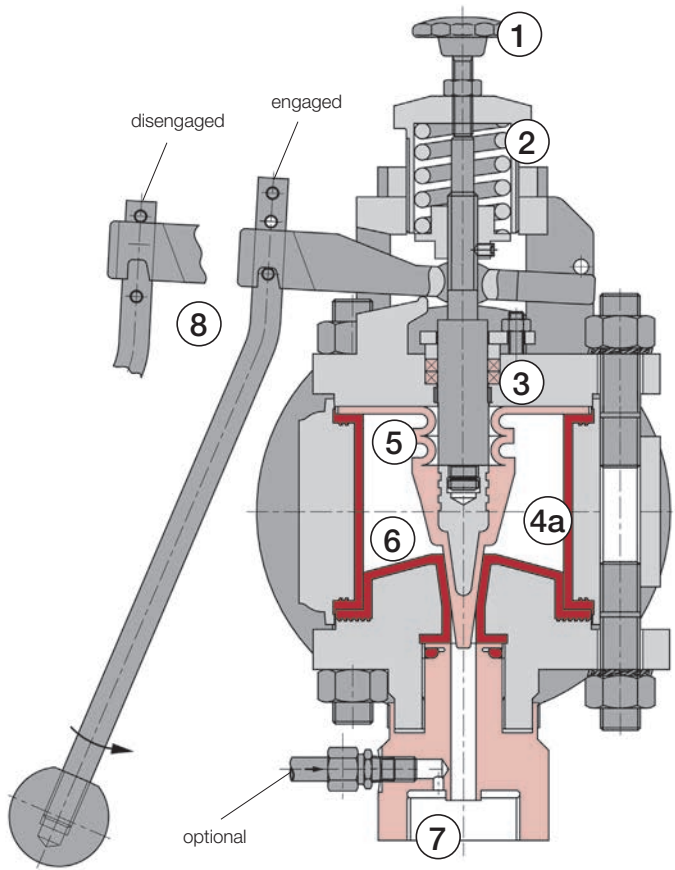
- disengages after actuation
- on request firmly installed with split pin in central bore
- lockable with lock or split pin
- alternative position: lever upwards

#### ⑨ **Highly viscous media or applications with low operating pressure:**

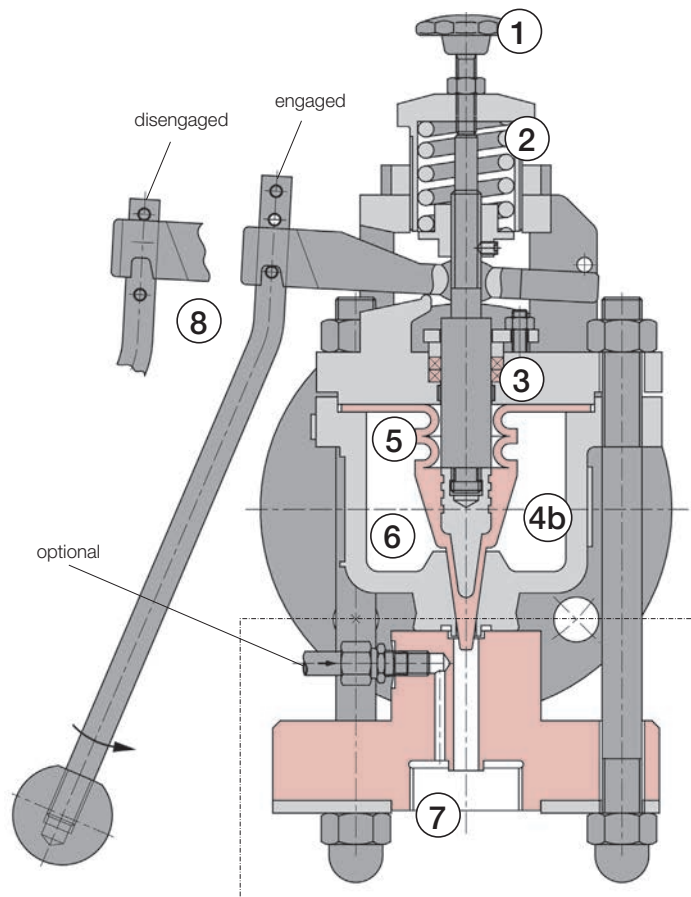
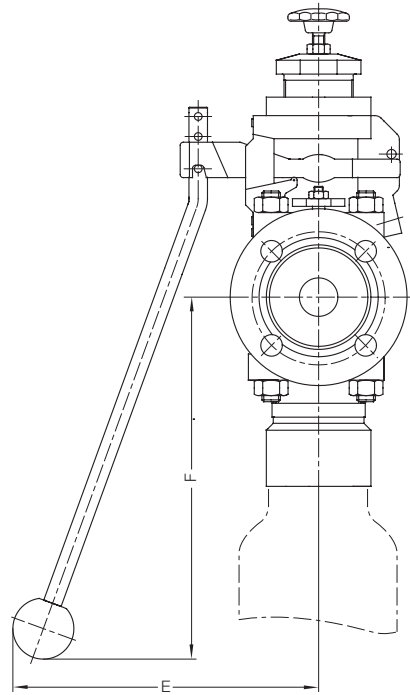
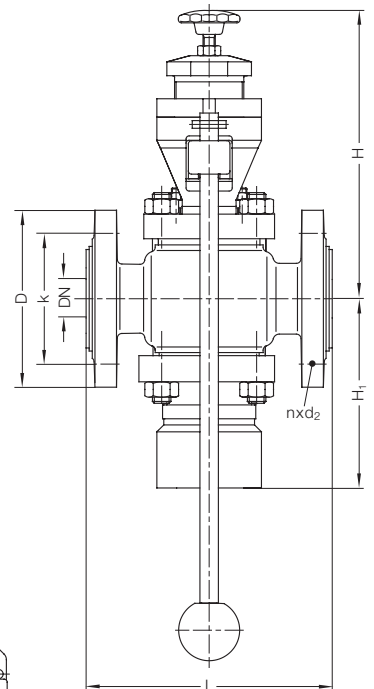
Special plug and seat option (see page 6).

#### ⑩ **For solids-laden media:**

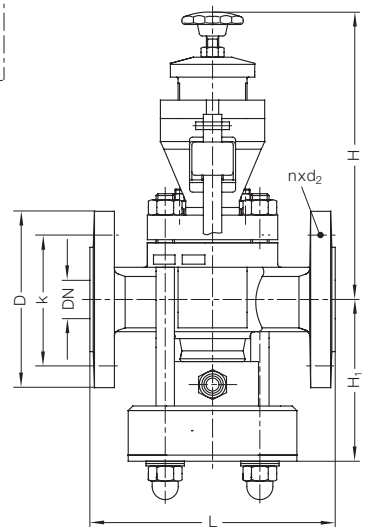
Inclined or vertical position of the valve and, as a result, possibly special bottle connection are recommended (see page 6).



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



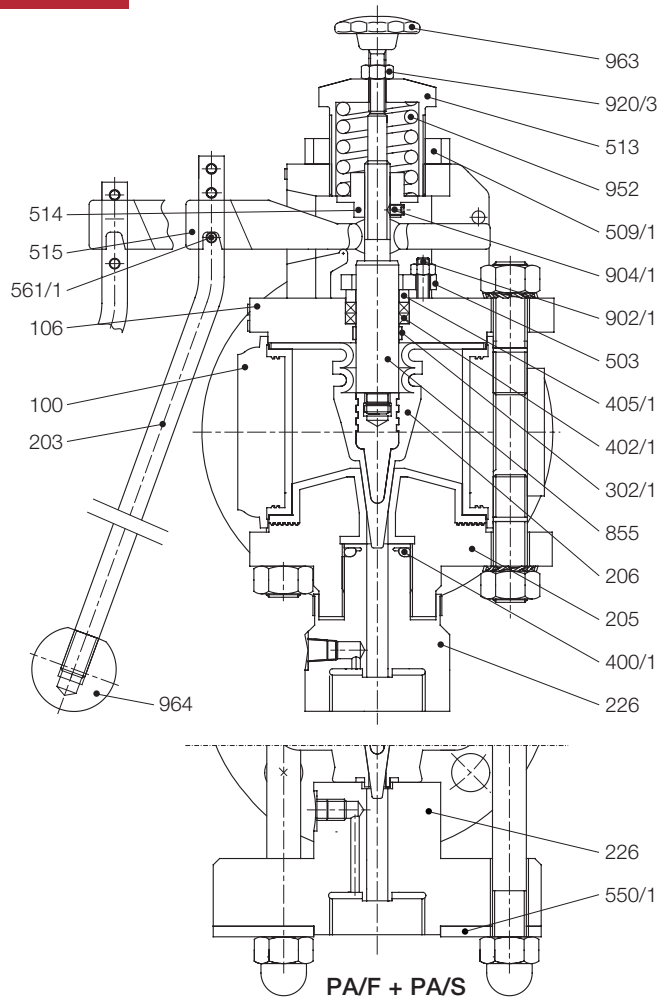
**Sampling valve PA/S  
of stainless steel design (without lining)**



# Richter sampling valves

## Components and materials

Item	Designation	Material
100	Body	PA/F: ductile cast iron EN-JS 1049/ ASTM A395 with PFA lining
		PA/S: investm. cast stainl. steel 1.4435 (316 L)
104	Transition flange	stainless steel (only DN 40+80, not shown)
106	Cover	stainless steel
203	Lever	stainless steel
205	Seat	PA/F: ductile cast iron EN-JS 1049/ ASTM A395 with PFA lining DN 40+80: stainless steel
		PA/S: investm. cast stainl. steel 1.4435 (316 L)
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 °C (°F)	20 (70)	150 (300)	200 (400)
Pressure bar (psi)	16 (235)	15 (220)	14 (205)

## k<sub>v100</sub> values (m<sup>3</sup>/h), Cv values (US gpm)

DN	inch	k <sub>v100</sub> (Cv) Valve flow rate	k <sub>v100</sub> (Cv) Sampling flow rate at max. stroke	
			Tapered plug	Flat plug
25	1"	15 (17.5)	0.385 (0.448)	2.56 (2.98)
40	1 1/2"	47 (54.8)		
50	2"	65 (75.7)		
80	3"	200 (233)		

Other valve sizes on request

## Installation and connecting dimensions (mm) and weights

### • Face-to-face PA/F and PA/S

ISO 5752 series 1 (DIN EN 558-1 series 1, formerly DIN 3202/F1)

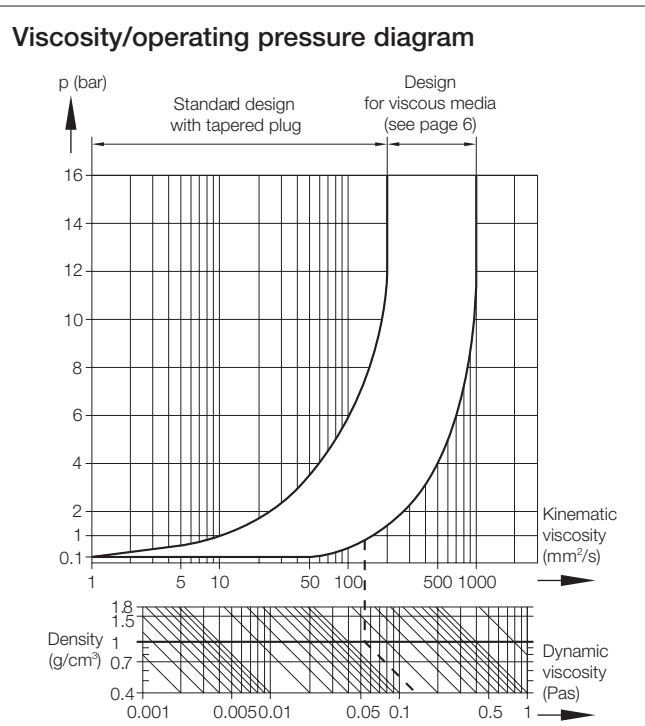
### • Flanges PA/F and PA/S

ISO 7005-1 PN 16 (DIN EN 1092-2, formerly DIN 2532/33), on request drilled to ASME/ANSI Cl. 150, BS, JIS

DN mm	inch	D	k	nxd <sub>2</sub>	H	H <sub>1</sub>		E	L	F	approx. weight (kg)	
						PA/F	PA/S				PA/F*	PA/S*
25	1"	115	85	4 x 14	190	123	106	200	160	ca. 235	10	9
40	1 1/2"	150	110	4 x 19	250	127	-	200	200	ca. 175	18	-
50	2"	165	125	4 x 19	195	131	122	200	230	ca. 230	18	14
80	3"	200	160	8 x 19	310	173	-	211	310	97	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



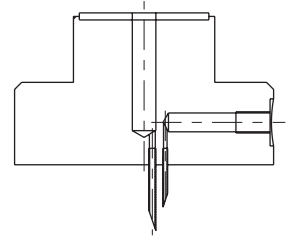
Pneumatic and electric actuators. Makes as per customer's choice.

Septum bottle adapter for high-purity media



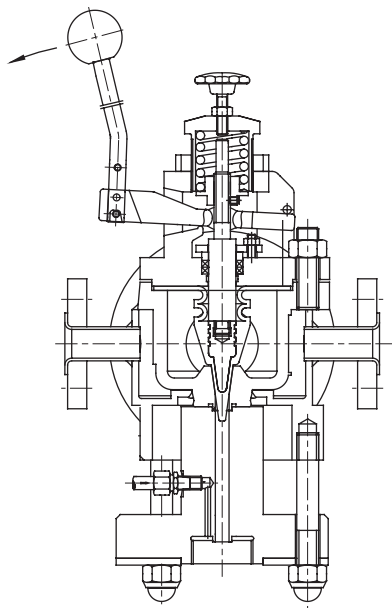
For design details, see page 6

**NEW:** Needle and adapter made of stainless steel



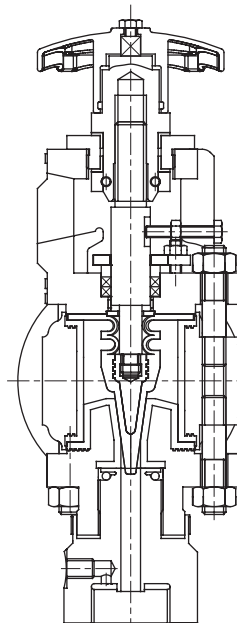
With this new option sampling in a septum bottle is even possible with the stainless steel series PA/S.

Body heating



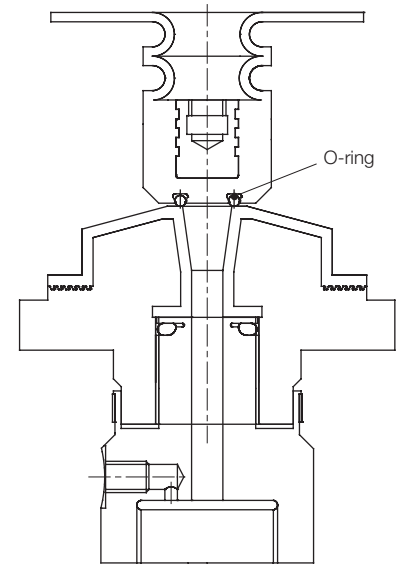
e.g. for crystallising media, heating jacket made of stainless steel, mounted (PA/F) or welded on (PA/S)

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.

