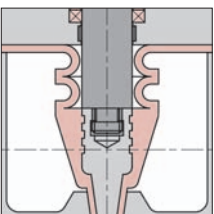


# Richter Sampling Valves

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 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

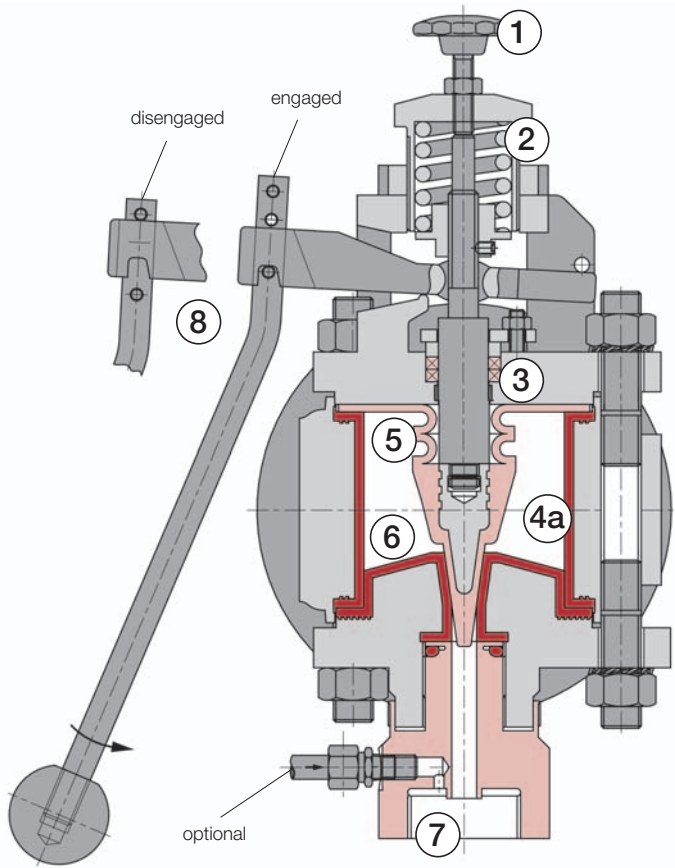
- ① **Travel stop, adjustable from outside**
  - finely metered sampling
  - closing force can be increased at any time if the sealing action in the seat/plug area is insufficient (e.g. if sealing surfaces damaged)
- ② **Safety spring return**

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

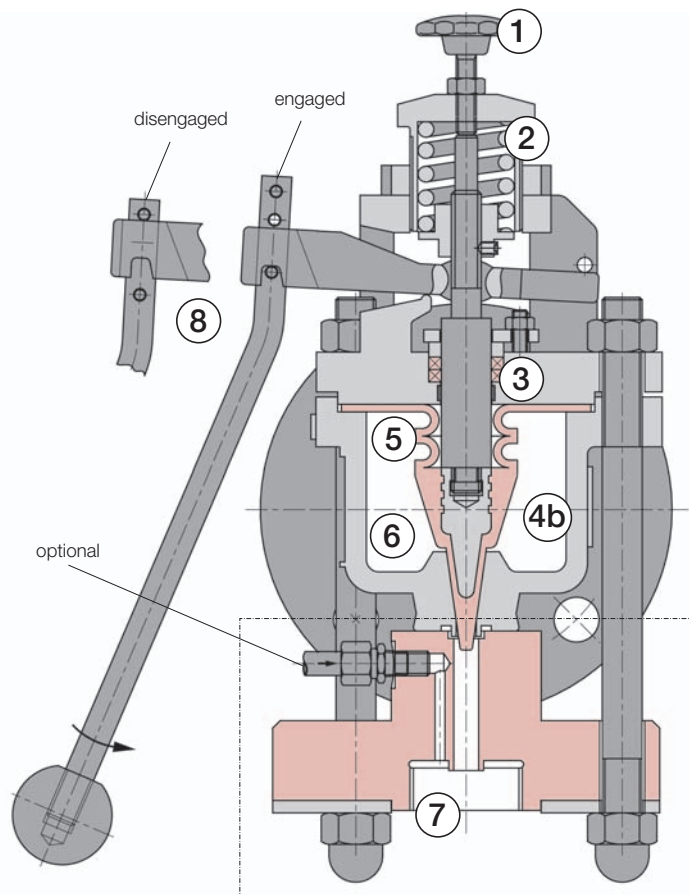
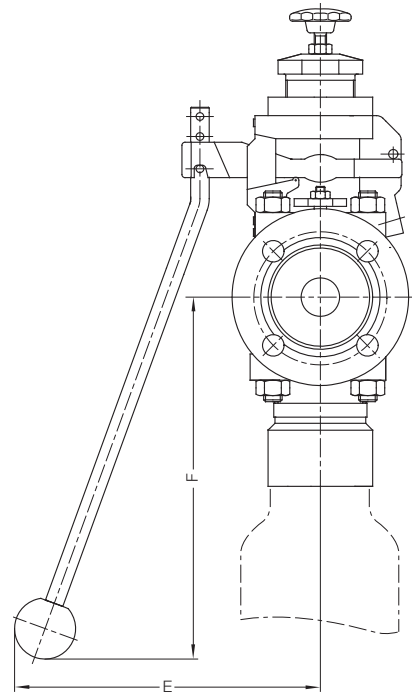
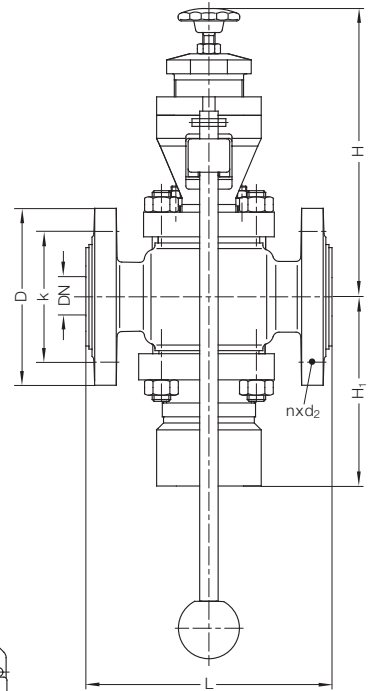
**b: Alternatively stainless steel 1.4435 (316 L) investment cast body without lining**
- ⑤ **Glandless due to heavy-duty PTFE bellows**
  - hermetic sealing of the product chamber
  - bellows wall 2.5 mm thick, can also be used for highly permeating media
- ⑥ **Cavity-free**
  - tapered valve bottom
  - 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:**

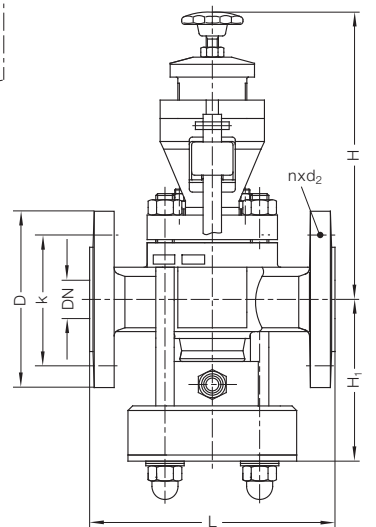
Inclined or vertical position of the valve and, as a result, possibly special bottle connection are recommended (see page 6).



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



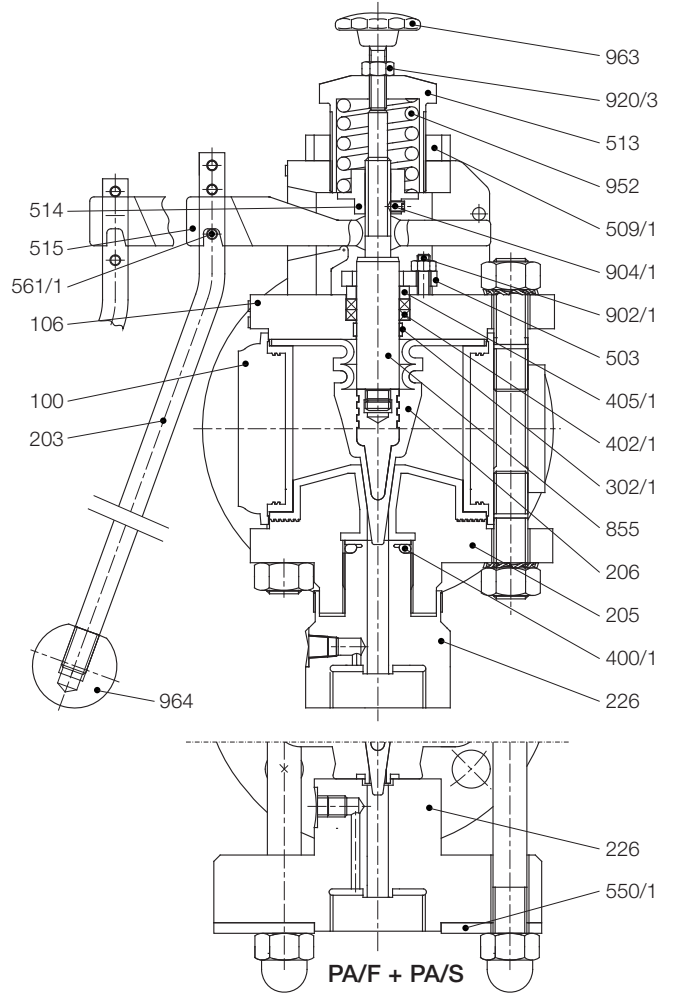
**Sampling valve PA/S  
of stainless steel design (without lining)**



# 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, 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
		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)		

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

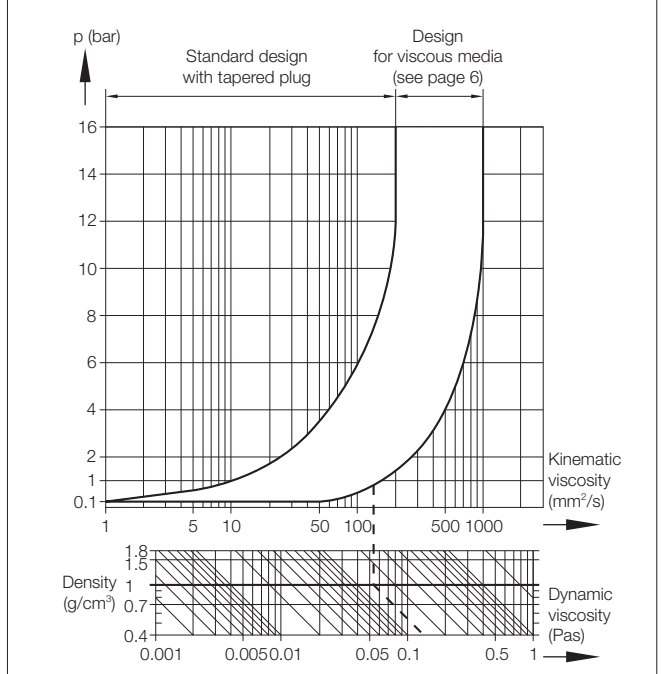
ISO 7005-1 PN 16 (DIN EN 1092-2, formerly DIN 2532/33), on request drilled to ASME/ANSI Cl. 150, BS, JIS

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

\* manually actuated, \*\* availability on request

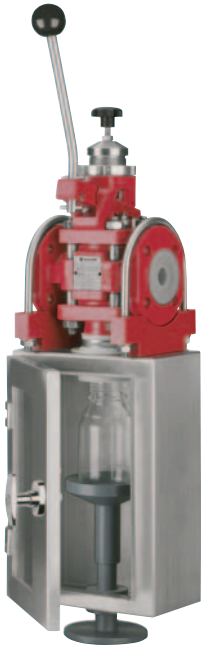
Other valve sizes on request

## Viscosity/operating pressure diagram



# 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



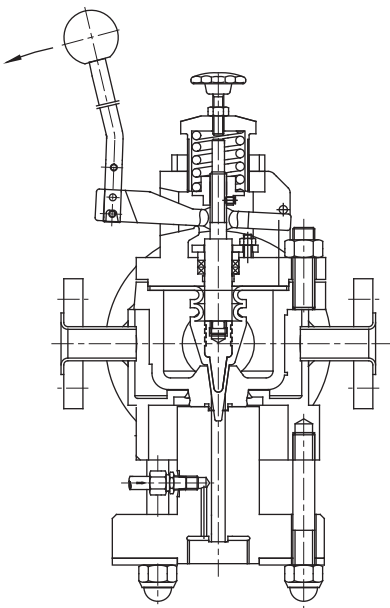
Pneumatic and electric actuators. Makes as per customer's choice.

Septum bottle adapter for high-purity media



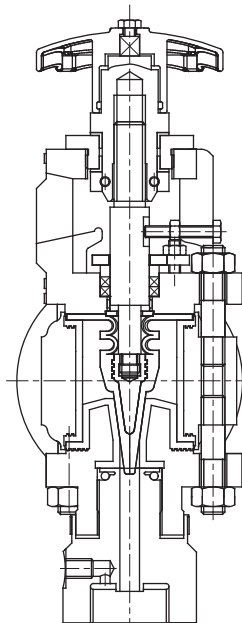
For design details, see page 6

Body heating



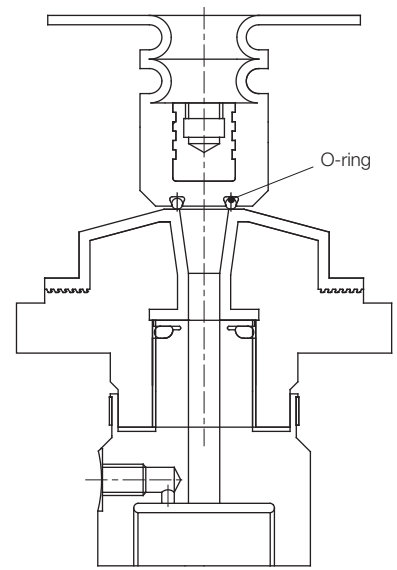
e.g. for crystallising media, heating jacket made of stainless steel, mounted (PA/F) or welded on (PA/S)

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.

Viton® = Trademark of DuPont  
Richter = Trademark of Richter Chemie-Technik GmbH

# Plug and adapter versions

## 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 3 mm, producing an angular gap of 0.5 mm over a length of 20 mm.

However, taking samples of

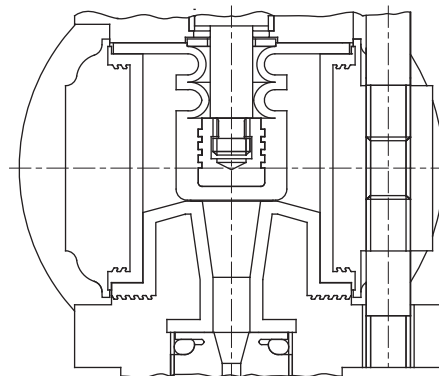
- higher viscous media and
- media with a low operating pressure

requires an enlarged passage cross section.

With a travel of 3 mm the special flat plug produces a full cross section of the outlet opening of 10 mm.

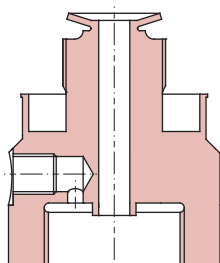
The suitable valve plug is selected according to the viscosity/operating pressure diagram (see page 4).

Richter should be consulted in case of different application parameters.

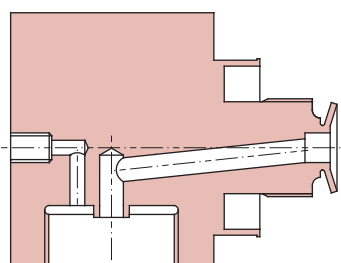


Flat plug

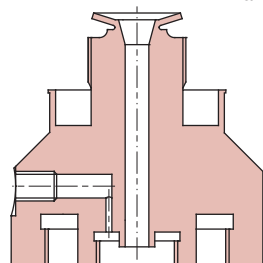
## Choice of connection possibilities for sampling bottles



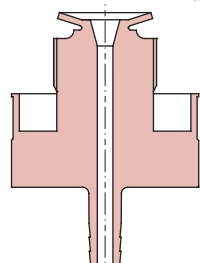
Adapter for standard horizontal valve installation



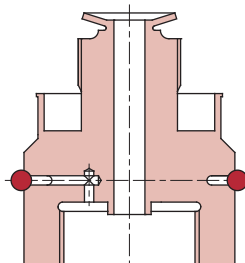
Adapter for vertical valve installation



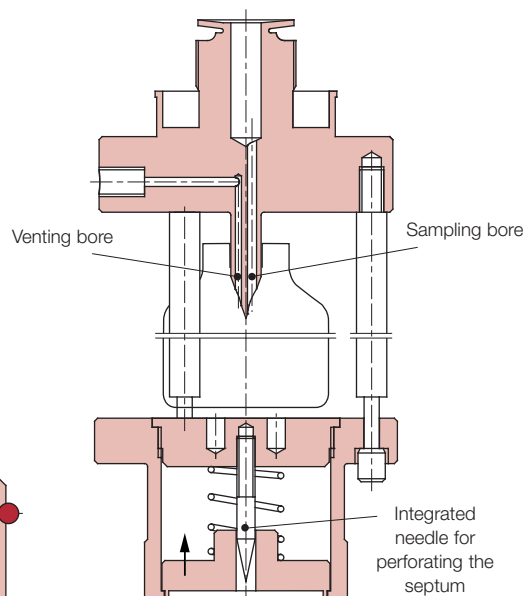
Twin adapter for two different bottle sizes



Adapter for hose nozzle



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

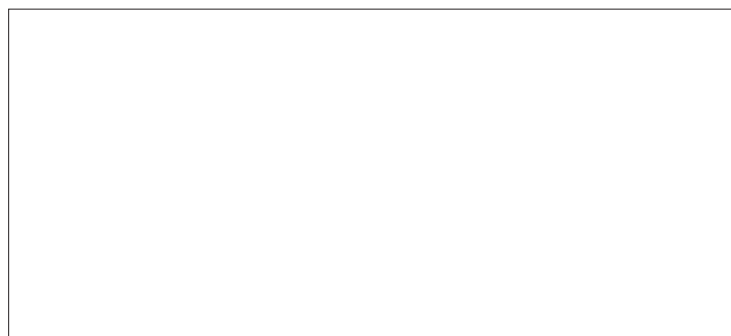


Adapter for septum bottle (see picture page 5)

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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