

Stainless Steel Sampling Valve Series 27a / Series 27c

Application

Tight-closing cavity-free inline valve designed to sample liquids from flowing media without bypass. Particularly suitable for aggressive media in process plants:

- nominal diameters DN 25 to DN 100,
- nominal pressure PN 10/16 and PN 40,
- temperatures -20°C to 200°C.

The **discontinuous** sampling valve **Series 27a** has the following characteristics:

- sampling with a defined sample volume from a material flow,
- diverse sample volumes,
- in the case of liquid media, depressurised sampling and therefore sampling at high pressures and from vacuum permissible,
- no fore- and no after-running,
- no risk of overflow as the sample volume is determined per stroke,
- no direct connection to the environment,
- no false operation due to long opening times.

The **continuous** sampling valve **Series 27c** offers the following features:

- sampling with a variable sample volume from a material flow,
- sampling also possible under pressure to 16 bar,
- as standard with dead man's handle.

Both valves consist of a sampling valve and a pneumatic quarter-turn actuator or a hand-lever resp. dead man's handle.

This modular design has the following characteristics:

- body of stainless steel (1.4571),
- ball / shaft of stainless steel (1.4571),
- representative sampling due to the direct installation in the pipeline,
- no necking resp. abrasion of the pipeline during sampling,
- venting resp. control connection 1/8"
- sealing shells for a sampling without cavity,
- the sampling valve has a connection as per ISO 4796 DIN thread GL 45,
- ball stem sealing by means of a cup spring pre-loaded PTFE packing.
- connection as per DIN / ISO 5211
- face to face as per DIN EN 558-1, row 1



Fig. 1 - Sampling valve with hand-lever



Fig. 2 - Sampling valve with AT-Actuator

Sampling Valve Series 27a / 27c

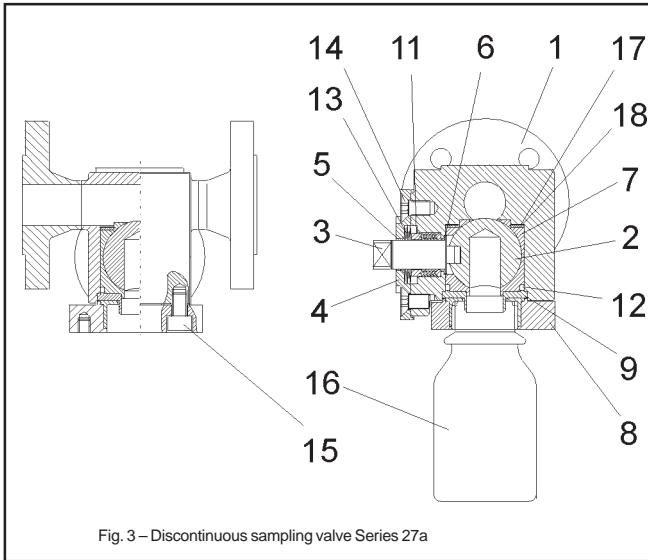


Fig. 3 – Discontinuous sampling valve Series 27a

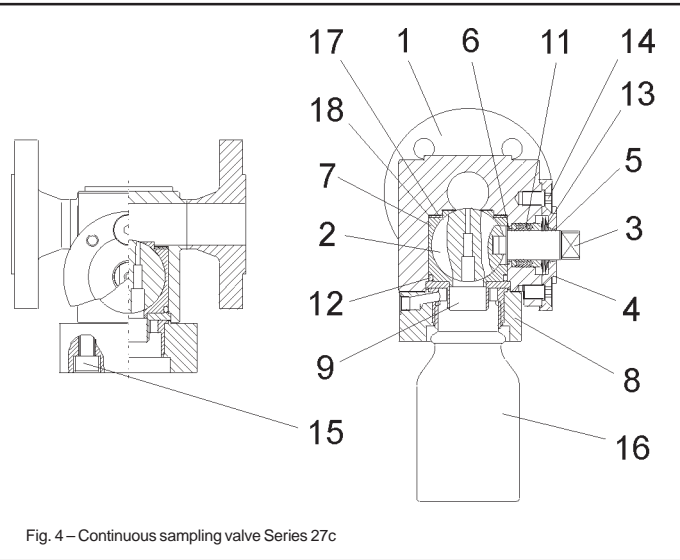


Fig. 4 – Continuous sampling valve Series 27c

Item	Description	Item	Description
1	Valve body	11	V-ring packing
2	Ball	12	O-ring
3	Control shaft	13	Set of spring washers
4	Stuffing box flange	14	Screw
5	Bearing bushing	15	Screw
6	Bearing bushing	16	Sample bottle
7	Sealing ring	17	Washer
8	Bonnet	18	Spring washer
9	Funnel		

Table 1 – List of parts

Designs:

Stainless steel sampling valve available in the following designs:

- with hand lever (Series 27a),
- automatic with 180° quarter-turn actuator (Series 27a),
- with dead man's handle (Series 27c),
- automatic with 90° quarter-turn actuator (Series 27c), (for details see respective data sheet).

Options and add-on components:

For the sampling valve, the following accessories are available individually or in combinations:

- protective box in stainless steel,
- special gas chamber exhaust,
- pneumatic switchbox for automation,
- support in protective box for an easy change of bottles,
- pneumatic timer,
- counter
- special flushing devices,
- pneumatic overflow control,
- adapter for locally employed sample containers,

other add-on parts are available as per specification on request

Special designs

- body and ball of special materials (e. g. Hastelloy),
- special face to face sizes
- heating jacket,
- high pressure version
- high temperature version

General technical data:

Nominal size	DN 25 to DN 100
Nominal pressure	PN 10/16 or PN 40
Temperature range	-20°C to 200°C
Leakage rate	Leakage rate A acc. to DIN EN 12266-1, P12 (Leakage rate 1 BO acc. to DIN 3230 Part 3)
Flange connections	all DIN - Versions
Bottle connection	GL 45 acc. ISO 4796

Table 2 – Technical data

Materials:

Body	1.4571
Ball with shaft	1.4571
Sealing ring	TFM (PTFE)
Sealing ring inlet	TFM (PTFE)
Stuffing box packing	PTFE - V-ring-packing with cup springs of WN 1.8159, Delta Tone
Lower bearing bushing	PTFE with glass
Upper bearing bushing	PTFE with carbon
Body sealing	Viton O-ring
Sample bottle	Glass

Table 3 - Materials

Description of the valve:

The sampling valve is installed in the product pipeline by means of flanges and permits bi-directional flow.

Due to the concave milling-out of the ball (2), there is no necking in the area of the medium flow.

The ball is surrounded on all sides by tight-closing sealing (7) elements.

The sealing of the ball is by means of an exchangeable PTFE sealing ring. This can also be specially adapted to the medium.

The ball (2) is bearing-mounted and rotatable around the shaft.

The outward-leading stem is fitted as standard with a hand lever resp. dead man's handle.

The connection according to DIN-ISO 5211 permits the fitting of an actuator.

The sealing of the stem is ensured by means of a PTFE packing (11). The packing is maintenance-free pre-loaded via cup springs (13).

The glass vessel (16) has a connection in accordance with ISO 4796 thread GL 45.

Customer-specific adapters for other connections can also be offered.



Caution: Particular attention must be paid to the fact that only temperature-adapted vessels are employed for sampling!



Caution: In case of media temperatures above 60°C, safety precautions are to be taken due to the risk of scalding.



Note: The generally valid regulations for prevention of accidents when taking samples are to be strictly observed!



Note: Please, pay attention to the usability acc. to the ATEX 94/9/EG in correspondance to the maintenance sheet before using the ball valve in hazardous area!



Note: Due to the fact of continuous sampling there is a risk to overfill the sample bottle. This demands the use of death man's handle to operate the valve. This secures to stop flow off product immediately with end off manual operation.

Pressure - Temperature - Diagram:

The operating range is determined by the pressure - temperature - diagram. Process data and media can influence the values of the diagram. For process data outside the limits of application, please consult us.

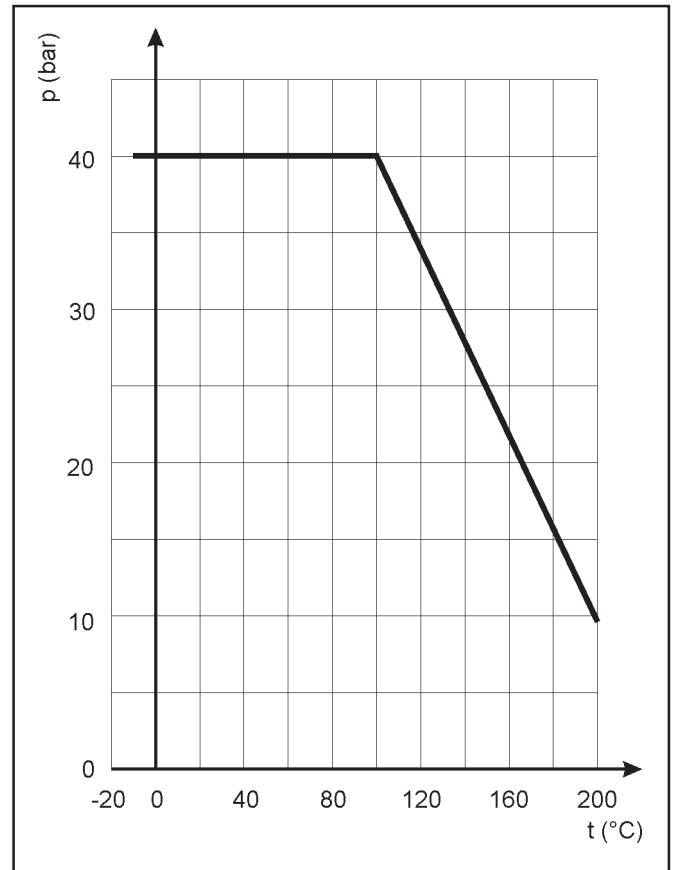


Fig. 5 - Pressure-Temperature-Diagram

Operating and breakaway torques:

Differential pressure Δp in bar		0	5	10	15	20	25	30	40
DN	perm. operating torque M_{dmax} in Nm	breakaway torque M_{d1} in Nm							
	25 up to 100	226	15	22	29	36	43	50	56

Table 4 - Max. permissible operating torque, required operating torques and breakaway torques.

The breakaway torques indicated are average values which were measured at the appropriate differential pressures with air at 20°C. Operating temperature, medium as well as longer periods of operation can lead to a notable change in breakaway and operating torques.

The listed max. permissible operating torques are valid for the standard materials in table 3.

Dimensions and weights:

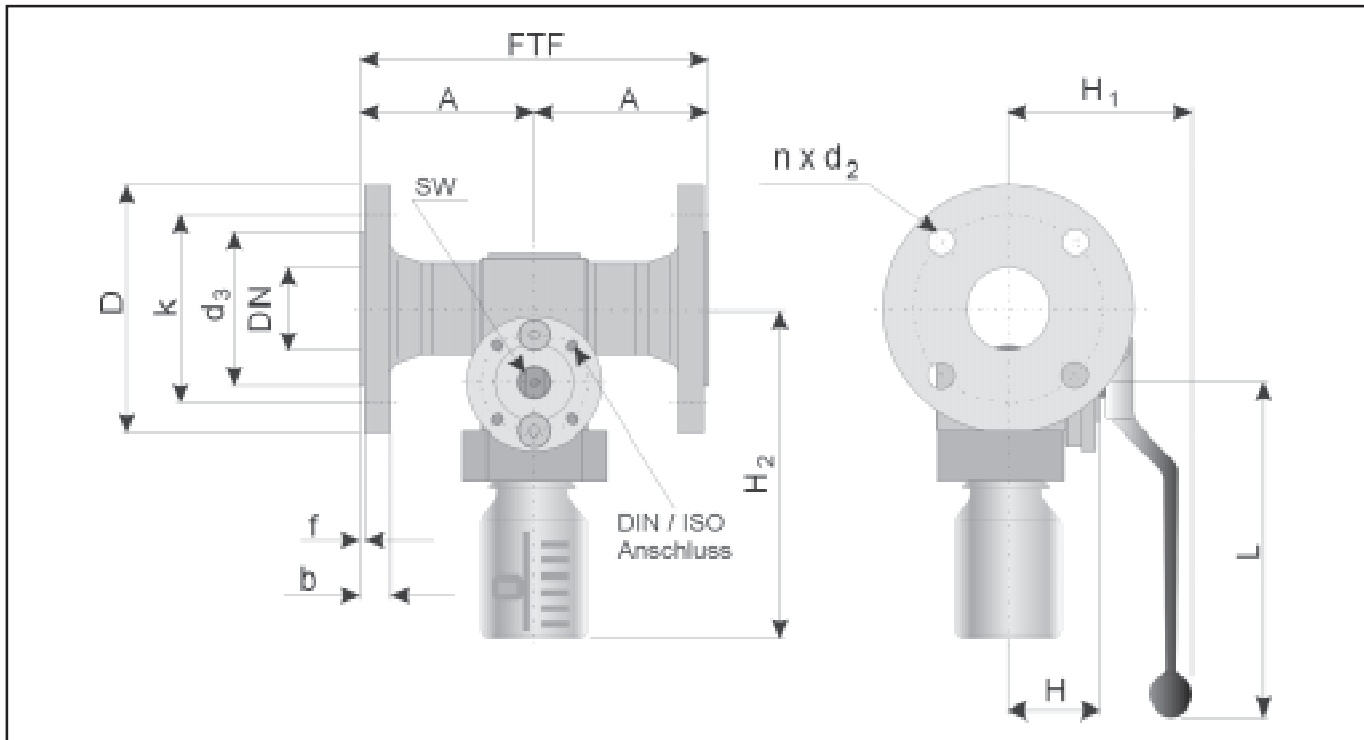


Fig. 6 – Sampling valve

DN	25	50	80	100	
FTF	160	230	310	350	
A	80	115	155	175	
D	115	165	200	220	
k	85	125	160	180	
d3	68	102	138	158	
b	18	20	24	24	
f	2	3	3	3	
n x d2	4 x 14	4 x 18	8 x 18	8x18	
H	60,5	60,5	60,5	60,5	
H1	136	136	136	136	
H2	Sample bottle 100 ml	171	184	198	198
	Sample bottle 250 ml	211	224	238	238
	Sample bottle 500 ml	251	264	278	278
	Sample bottle 1000 ml	301	314	328	328
L	220	220	220	220	
SW	12	12	12	12	
DIN ISO Connection	F07	F07	F07	F07	
Weight in kg	8	12	17	28	

Table 5 - Dimensions in mm and weights in kg

Selection and sizing of the ball valve:

1. Determination of the required nominal diameter
2. Selection of the valve in accordance with table 2, table 3 and the pressure-temperature-diagram.
3. Choice of the appropriate actuator in accordance with table 4.
4. Additional equipment.

Order text:

Sampling valve Series 27a / Series 27c
 DN / PN poss. special design
 Possible sampling volumes.,
 Hand lever resp. dead man's handle or automation,
 Medium, temperature, viscosity,
 Property, sampling vessel connection,
 Additional equipment,
 Other,

For your special requirements please contact our technical sales department

Pfeiffer Chemie-Armaturenbau GmbH

Hooghe Weg 41 • 47906 Kempen
 Telefon: 02152 / 2005-0 • Telefax: 02152 / 1580
 E-Mail: vertrieb@pfeiffer-armaturen.com • Internet: www.pfeiffer-armaturen.com

Specifications subject to change without notice