

Stainless Steel Sampling Valve Series 27i / Series 27k

Application

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

- nominal diameters DN 25 to DN 80,
- nominal pressure PN 10/16 and PN 40
- temperatures -10°C to 200°C.

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

- sampling with a defined sample volume,
- diverse sample volumes
- in the case of liquid media, depressurised sampling and therefore sampling from pressures to 16 bar 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 27k** offers the following features:

- sampling with a variable sample volume,
- 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 (WN 1.4571),
- ball and stem one-piece in stainless steel (WN 1.4571),
- representative sampling due to the direct installation in the pipeline,
- 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



Fig. 1 - Sampling valve Series 27i / 27k with hand-lever

Sampling Valve Series 27i / 27k

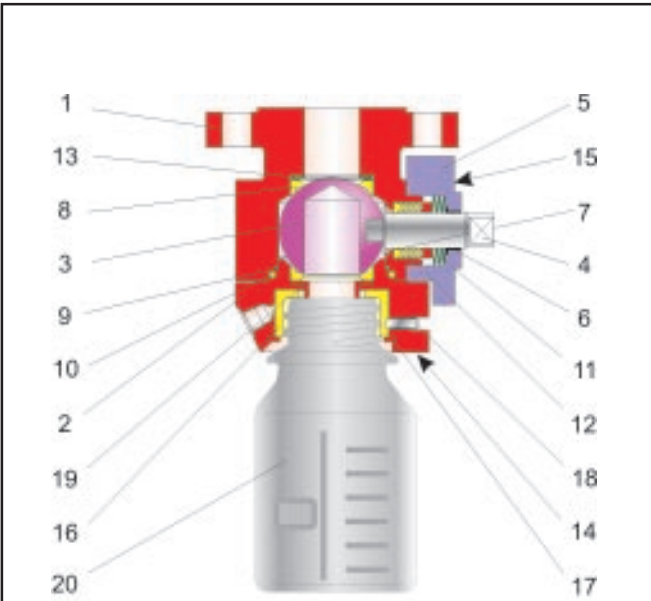


Fig. 2 - discontinuous Sampling valve Series 27i

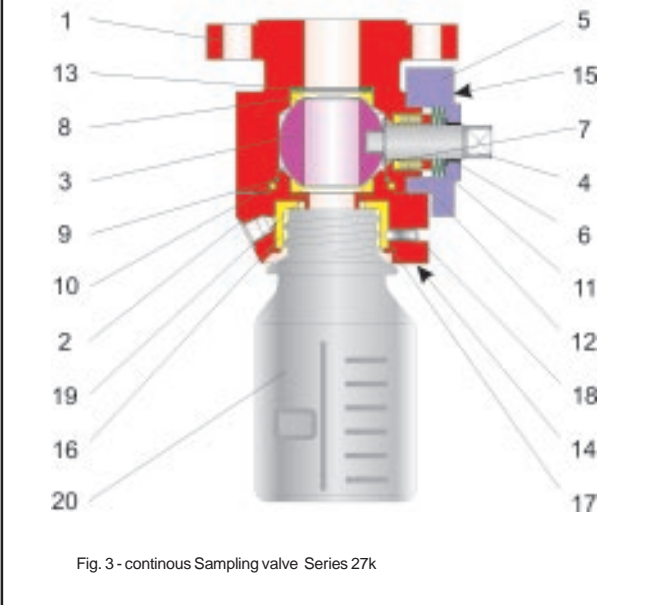


Fig. 3 - continuous Sampling valve Series 27k

Designs:

Sampling valve available in the following designs:

- with hand lever (BR 27i),
- automatic with 180° turn actuator (BR 27i),
- with dead man's handle (BR 27k),
- automatic with quarter-turn actuator (BR 27k), (for details see respective data sheet).

Special designs

- diverse materials for ball and sealing ring,
- heating jacket
- high pressure version
- high temperature version

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

General technical data:

Nominal size	DN 25 to DN 80
Nominal pressure	PN 10/16 or PN 40
Temperature range	-20°C up 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

Item	Description	Item	Description
1	Valve body	11	Set of spring washers
2	Bonnet	12	V-ring packing
3	Ball	13	Spring washer
4	Control shaft	14	Screw
5	Stuffing box flange	15	Screw
6	Bearing bushing	16	Insert
7	Bearing bushing	17	Retaining washer
8	Set of sealing rings	18	Set screw
9	PTFE - ring	19	Funnel
10	PTFE - ring	20	Sample bottle

Table 1 - Parts list

Materials:

Body	WN 1.4571
Ball with shaft	WN 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 (WN = Material code)

Description of the valve:

The sampling valves Series 27i / Series 27k are fitted to the product pipeline by means of the flange.

The ball is surrounded on all sides by tight-closing sealing (4) 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 (3) 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 (5).

The packing is maintenance-free pre-loaded via cup springs (8).

The sample bottle (14) 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 immedietly 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.

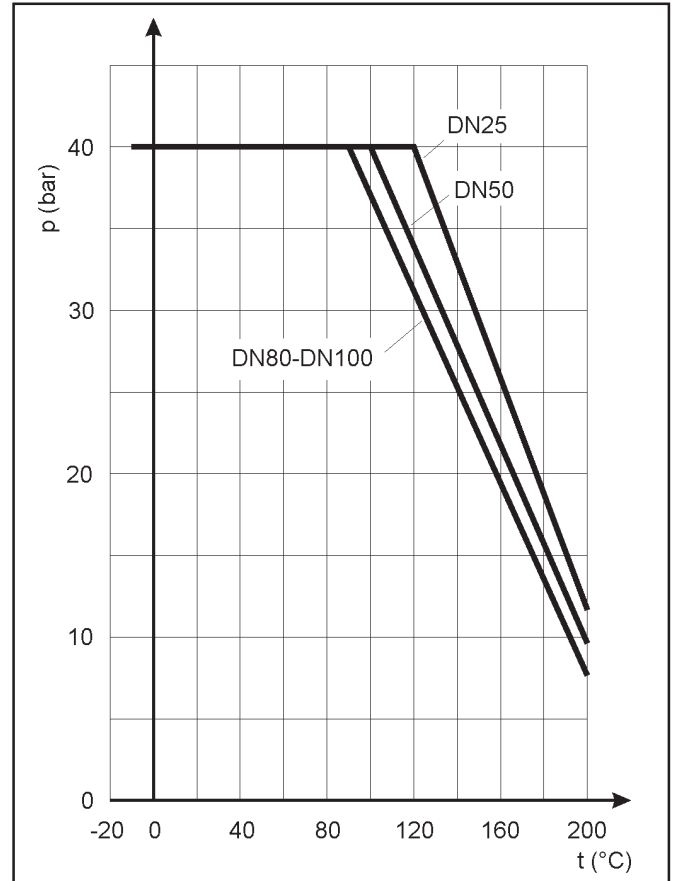


Fig. 4 - Pressure-Temperature-Diagram

Operating and breakaway torques:

Differential pressure Δp in bar		0 2 4 6 8 10 16 25 40										
		M _{dmax.} in Nm			M _d in Nm							
DN	1.4571	1.4542	M _d									
25	168	369	7	10	10	11	12	13	14	17	21	28
50	226	497	17	25	28	32	36	40	43	55	71	100
80	437	961	49	70	79	89	98	108	118	146	190	262

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:

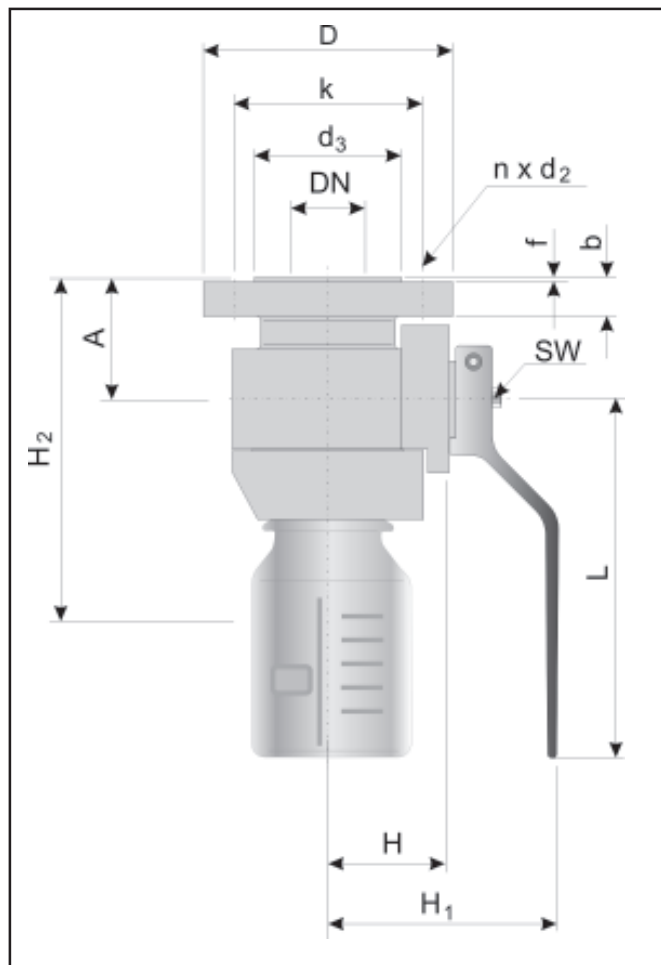


Fig. 5 – Sampling valve

DN	25	50	80	
A	56	65	72	
D	115	165	200	
k	85	125	160	
d3	64	98	132	
b	16	20	23	
f	2	3	3	
n x d2	4 x 14	4 x 18	8 x 18	
H	56	73	110	
H1	124	137	178	
H2	Sample bottle 100 ml	184	239	274
	Sample bottle 250 ml	224	279	314
	Sample bottle 500 ml	264	319	354
	Sample bottle 1000 ml	314	369	404
L	144	207	350	
SW	12	12	16	
DIN/ISO Connection	F05	F05	F07	
Weight in kg	5,5	13,5	25	

Table 5 - Dimensions in mm and weights in kg

Order text:

Sampling valve Series 271 or Series 27m

DN

PN

poss. special design

Possible sampling volumes.
Hand lever resp. dead man's handle
or automation,

Medium
temperature
viscosity
Property

sampling bottle connection
Additional equipment

Other

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.

For your special requirements please contact our technical sales department

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Specifications subject to change without notice