

Data Sheet

NK10

Fill Level Limiter



Application

The NK10 fill level limiter is used in thermotechnical and process plants as a safeguard against the fill level falling below the lowest permissible level. As a limiter the device conforms to the requirements of DIN 4754.

The devices in this series are...

- EN 61508 certified under no. Z10 11 04 27632 002 for SIL1 and SIL2 (SIL3 for redundant circuitry) by the German inspection authority TÜV Süd.
- DIN 32728 certified under the registration number 1D016/07. The conformity assessment was made by the DIN Certco company for conformity assessment
- certified under EC guideline 97/23/EC with certificate no. 07 202 5435 Z 0063/2/1. The EC-type examination test was carried out by the German inspection authority TÜV Nord Plant Engineering.
- GL 65 353 - 93 HH certified. The certification was made by Germanischer Lloyd.

Copies of the certificates and manufacturer's declarations can be found in the appendices to the operating manual.

Design and Mode of Operation

The swim system of the fill level limiter is contained in the fluid-filled reservoir (expansion tank). The swimming motions generated by changes in the fill level are transmitted directly to a microswitch by a swimmer rod sealed in stainless-steel bellows. The fulcrum of the swimmer rod is located outside of the pressure chamber.

There is a test button outside the pressure chamber with which a function check as per DIN 32728 can be made without lowering the fill level. When pressed, the body of the swimmer is moved against its buoyancy.

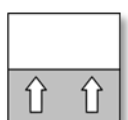
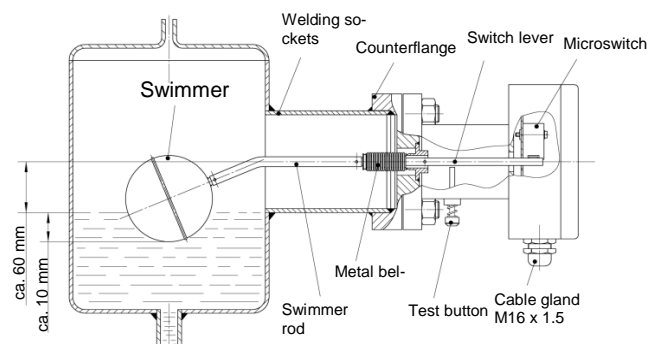
A locking and unlocking system as per DIN 32728 must be incorporated into the downstream electrical control if the device is used as a fill level limiter. This safety system must conform to DIN 57116 / VDDE 0116.



Main Features

- Temperature stability up to 400°C
- Parts that come into contact with media made of stainless steel
- Double-walled stainless-steel bellows
- Heat-resistant finish

Functional Schematic



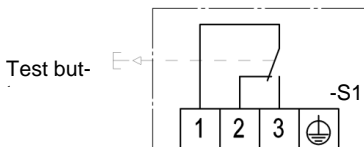
Technical Data

Variants	NK101	NK102	NK103	NK104	NK105	NK106	NK107	NK10A	NK10B
Max. operating pressure	20 bar	20bar	10bar	16bar	16bar	20bar	20bar	10bar	20bar
Max. temperature of medium	400°C	400°C	350°C	400°C	400°C	400°C	400°C	350°C	400°C
Permissible ambient temperature 70°C									
Variants	NK10F	NK10G	NK10H	NK10K	NK10M	NK10N	NK10P		
Max. operating pressure	20 bar	20 bar	20 bar	150lbs	300lbs	300lbs	300lbs		
Max. temperature of medium	400°C	400°C	400°C	400°C	400°C	400°C	400°C		
Permissible ambient temperature 70°C									

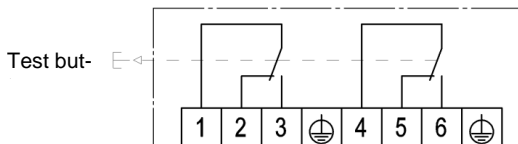
	General Data
Max. load data	250 VAC, 6A resistive load 250 VDC, 250mA resistive load
Electrical connection	Inner terminal strip
Protection class	IP55 as per DIN EN 60529
Specific minimum density	$\rho=0.6 \text{ kg/dm}^3$
Switch hysteresis	approx. 6 mm
Installation position	Horizontal
	All variants with 2 microswitches
Switching point differential	max. 30 mm
Switching point differential on the medium surface	dependent on medium density
	Materials
Swimmer system	Stainless steel 1.4301
Metal bellows	Stainless steel 1.4541
Welding sockets	St 35.8
Flange	1.0425 (H II) or 15Mo3 and 1.4571
	Functional Safety
Configuration 1001	SIL 1/2
Configuration 1002	SIL 3

Wiring Diagram

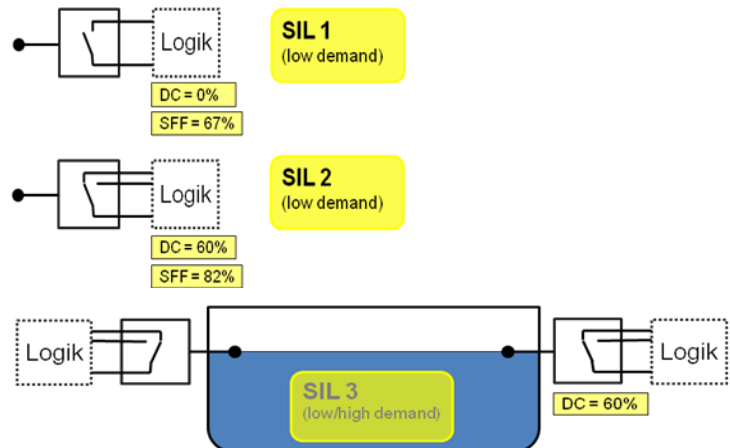
1 Switch (S1)



2 Switch (S1 with warn switch S2)

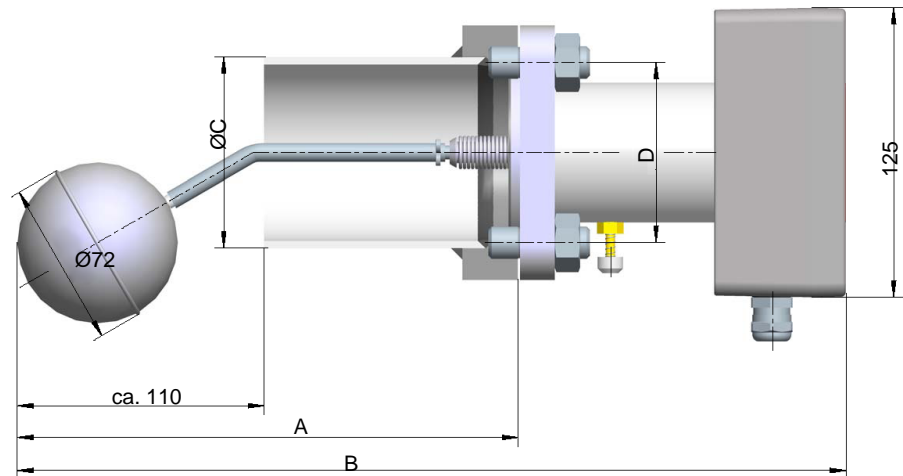


Connection Diagrams for SIL Applications:

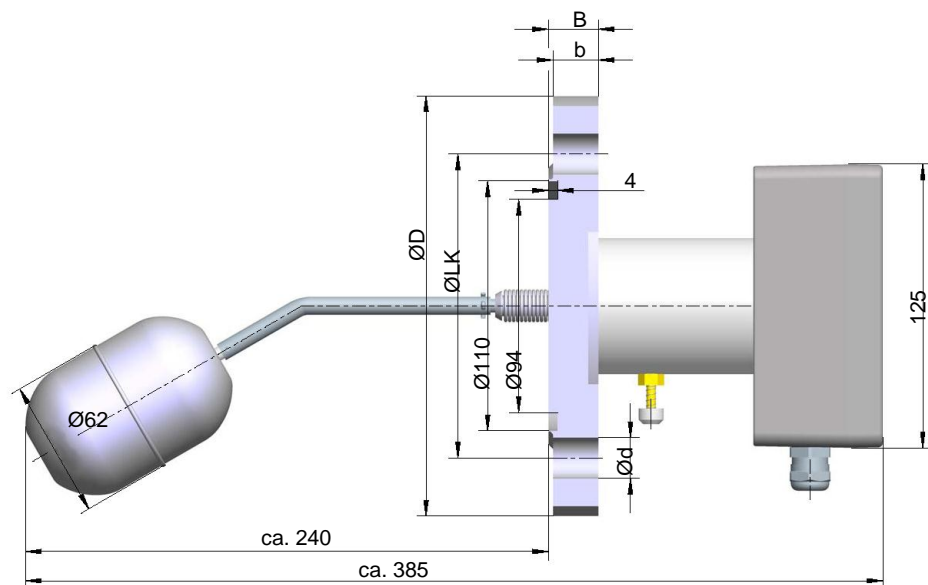


Dimensional Drawings

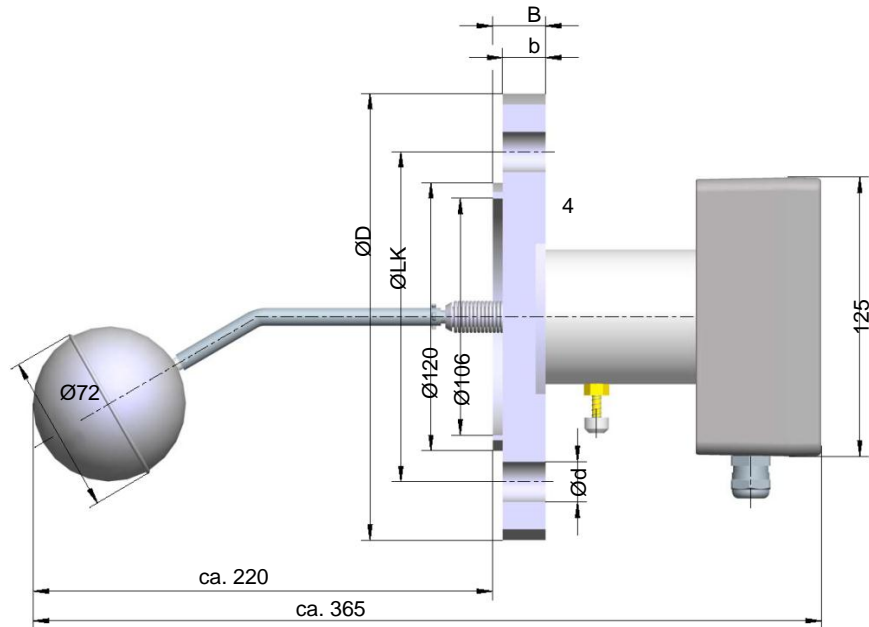
Variants	Flange material	A	B	C	D
NK104	1.0425	220	365	82.5	□ 77.8 x 77.8
NK105	1.0425	250	395	88.9	□ 90 x 90



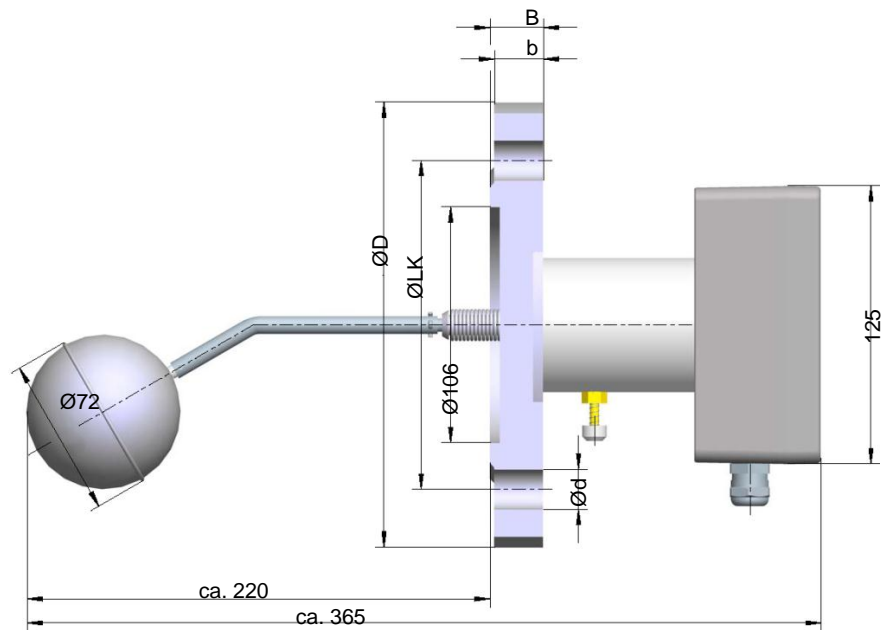
Variants	Flange material	Connecting dimensions	D	LK	B	b	d	Number of bore holes
NK10B	1.0425	DN62 PN40	185	145	22	20	18	8



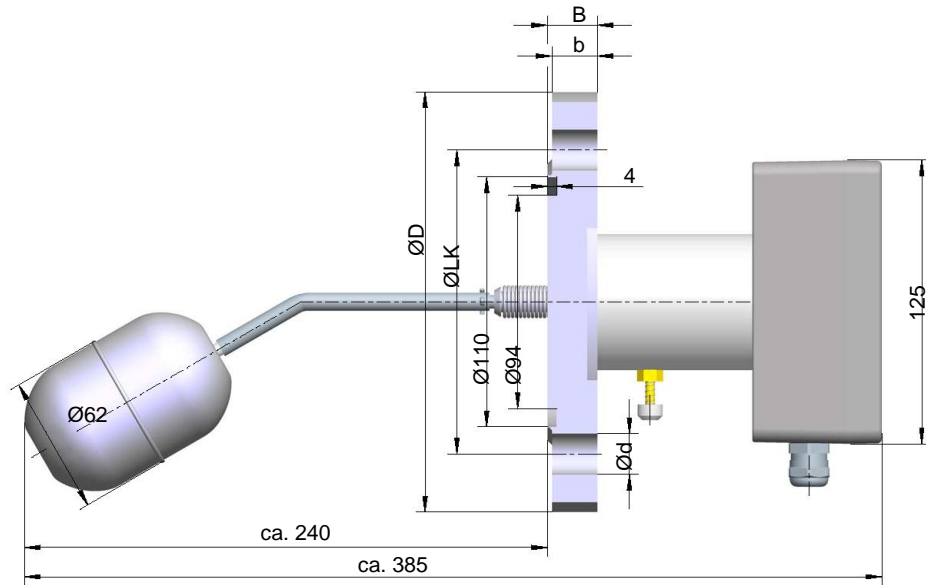
Variants	Flange material	Connecting dimensions	D	LK	B	b	d	Number of bore holes
NK10F	1.0425	Type C DN80 PN40	200	160	24	19.5	18	8



Variants	Flange material	Connecting dimensions	D	LK	B	b	d	Number of bore holes
NK10H	1.4571	Type G DN80 PN40	200	160	24	22	18	8



Variants	Flange material	Connecting dimensions	D	LK	B	b	d	Number of bore holes
NK10B	1.0425	DN65 PN40	185	145	22	20	18	8



Variants	Flange material	Connecting dimensions	D	LK	B	b	d	Number of bore holes
NK10P	1.0425	ANSI B16.5 300lbs	254	200.1	31.7	30.1	22.3	8
NK10N	1.0425	ANSI B16.5 300lbs	209.5	168.1	28.4	26.8	22.3	8
NK10M	1.0425	ANSI B16.5 300lbs	190.5	149.3	25.4	23.8	22.3	8
NK10K	1.0425	ANSI B16.5 150lbs	192.5	152.4	24	22.8	19.1	4

