



Float Switches for liquids



measuring
•
monitoring
•
analysing

NSM, NSP, NAB,
NEC, NST, NSE



- Easy to install
- Suited for universal use
- p_{\max} : 15 bar; t_{\max} : 150 °C
- Material:
PP, PTFE, stainless steel
- From density 0.5 kg/dm³

N



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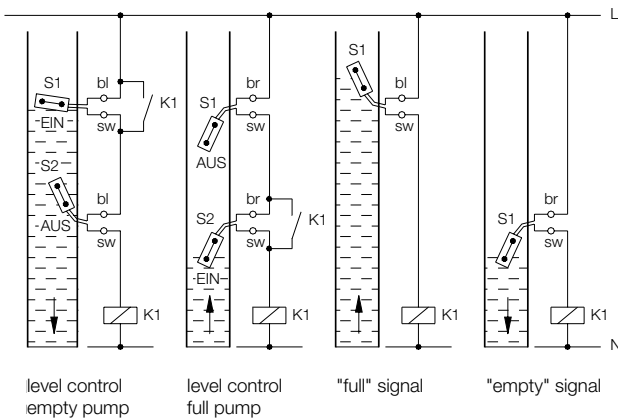
Application

Liquid levels can be easily monitored with the following float switch types.

Level control schemes can be implemented with at least two floats, whereby one operates as minimum contactor, and the other as maximum contactor. The switches are suited for applications where magnetic level switches are unsuitable due to the danger of the float jamming with dirt particles or deposits.

Depending on the shape of the float and the material used, extremely aggressive, hot, soiled or pasty media can also be monitored with float switches.

Application Examples



Description

The float comprises a hollow cylinder or a ball with integrated Reed contact or microswitch.

The switch is supplied as a changeover contact; it can be connected as a N/O contact or N/C contact as an option.

The contact switches when the liquid passes above or below the horizontal float position.

The switch point is set either by the side installation at the desired height, clamping at the desired level or when installed from the top weights attached to the cable.

Model Summary

Model NSM

Reasonably-priced design

Material: polypropylene
 Contact: microswitch
 Cable: Neoprene, silicone
 Max. temperature: 95 °C
 Max. pressure: 3 bar

Model NSP

Ball or cylinder shape

Material: polypropylene
 Contact: microswitch
 Cable: TPK, silicone, FEP
 Max. temperature: 85 °C
 Max. pressure: 2 bar

Model NAB

Reasonably-priced design

Material: polypropylene
 Contact: microswitch
 Cable: Neoprene
 Max. temperature: 85 °C
 Max. pressure: 3.5 bar

Model NEC

Multichamber, practically unsinkable

Material: polypropylene, option Hypalon® coating
 Contact: microswitch
 Cable: Hypalon® coating
 Max. temperature: 85 °C
 Max. pressure: NEC: 3.5 bar
 NEC-HY: 4 bar

Model NST...:

For hot, aggressive media

Material: PTFE
 Contact: Reed contact
 Cable: PTFE or silicone with PTFE bellows
 Max. temperature: 150 °C
 Max. pressure: 1 bar

Model NSE

For hot, aggressive media

Material: stainless steel 1.4571
 Contact: Reed contact
 Cable: silicone with stainless steel armour
 Max. temperature: 150 °C
 Max. pressure: 15 bar

Contact protection relais

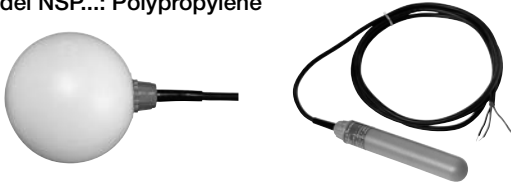
We recommend the use of contact protection relays with our float switches.

- isolates float switch from high voltages
- interval control for automatic filling or emptying of tanks

Model MSR 10: 1 changeover contact
 Model MSR 20: 2 changeover contacts
 Model MSR 11: 1 changeover contact, bi-stable



Model NSP...: Polypropylene



Application: for liquids of all types; for example: soiled water, oil, weak acids or alkalis

Installation: External, using a G 1 cable gland. The float can be introduced into open vessels from the top. The switch point is set using a weight.

Float material: polypropylene

Cable: standard 4 m TPK cable (3 x 0.75 mm², thermoplastic rubber) optional: silicone, FEP cable

Max. pressure: Model NSP-S: 1 bar
Model NSP-K: 2 bar

Max. temperature: 5... 60 °C (TPK cable)
5... 85 °C (silicone/FEP cable)

Density of medium: Model NSP-S: >0.9 kg/dm³
Model NSP-K: >0.6 kg/dm³

Contact: changeover contact, connectable as N/C or N/O contact

Switch capacity: max. 250 V_{AC} / 150 V_{DC}, 300 VA, 60 W
1 mA... 1.5 A, 1 A at cos φ 0.7

Switch. Hysteresis: approx. 25 mm (TPK),
approx. 35 mm (FEP)

Switch angle: approx. +12°/+3°

Protection: IP68

Model NSM...: Polypropylene



Application: reasonably-priced float switch for liquids such as greases, solvents, weak acids and alkalis

Installation: from the top in open vessels

Material: float: polypropylene
cable gland: polyamide

Cable: standard: 2 m neoprene
option: silicone

Max. pressure: 3 bar

Max. temperature: 60 °C neoprene
95 °C silicone cable

Density of medium: >0.6 kg/dm³

Contact: microswitch,
function changeover contact

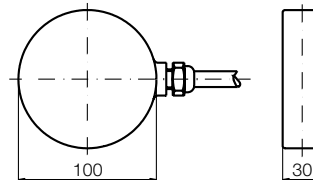
Switch capacity: max. 250 V_{AC}, max. 6 A, min. 100 mA

Protection: IP68

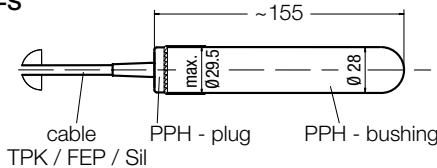
Hysteresis: min. 140 mm, max. 500 mm

Switch angle: ± 45°

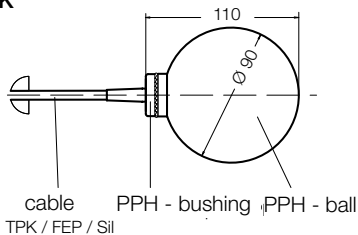
Dimensions [mm]
NSM



Dimensions [mm]
NSP-S



NSP-K



Minimum cable length*	
Cable type	Dimension X
TPK	70 mm
SIL	80 mm
FEP	110 mm

* Minimum cable length from the last fixing point

Order Details (Example: NSM-02 NEO)

Model	Description
NSM-02 NEO	Standard: 2 m neoprene cable
NSM-YY SIL	Option: silicone cable

(Please specify cable length in writing)

Order Details (Example: NSP-S W 04TPK)

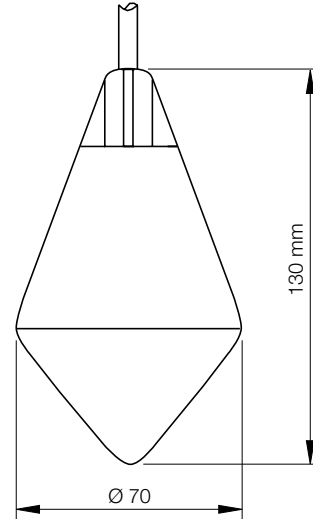
Model	Design	Contact	Cable
NSP-	S = Stem form K = Ball form	W = changeover contact	04TPK = 4 m TPK cable
			YYTPK = TPK cable, min. 2 m
			YYSIL = Silicone cable, min. 2 m
			YYFEP = FEP cable, min. 2 m

Order Details (Example: NSP-weights)

Model	Description
NSP-Beschwer	Bading weights
NSP-Ansch1PVC	PVC cable gland G 1
NSP-Ansch2PVC	PVC cable gland G 2
NSP-Ansch1MS	Brass cable gland G 1
NSP-Ansch1VA	St. steel cable gland G 1



Dimensions [mm]



Description

The KOBOLD level switch model NAB is ideally suited for the level monitoring of liquids and for direct pump control by means of a mechanical switch with very high switch capacity 20 (8) A at 250 V_{AC}.

The NAB comprises a stable plastic housing made of polypropylene (PP) with neoprene cable of optional 3 or 10 m of length.

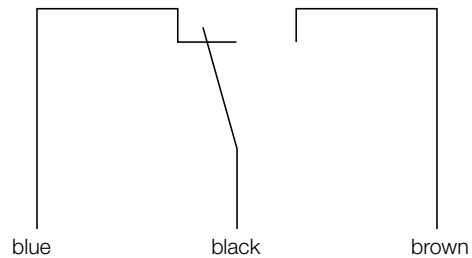
Areas of Application

- Level control of liquids
- Empty monitoring
- Feed monitoring
- Direct pump control
- Low-cost version for OEM applications

Technical Details

Float material:	Polypropylene (PP)
Cable material:	Neoprene
Length of cable:	3 and 10 m
Max. temperature:	85 °C
Max. pressure:	3.5 bar
Medium density:	0.5 ... 1.15 kg/dm ³
Contact:	Microswitch, changeover contact
Switch capacity:	20 A at resistive load 8 A at inductive load
Power supply:	250 V _{AC} , 50 / 60 Hz
Weight:	approx. 1200 g for 10 m cable
Actuating angle:	110° (55° from the horizontal plane in both directions)
Protection:	IP 68 (cable ends may not be immersed under water at any time)
Optional:	Ballast weight: Loaded resin, 175 g or 250 g

Electrical Connection



NKF



Do not use a cable tie that could damage the cable and damage the device. The NKF (cable clamp) is an accessory that allows you to properly attach the electric cable to the desired height without hurting the cable.

Order Details (Example: NAB-W03)

Model	Description
NAB-W03	Changeover contact, 3 m cable
NAB-W10	Changeover contact, 10 m cable

Accessories NAS/NAB

Model	Description	Image
NAB-Beschwer	Ballast weight, loaded resin, 175 g	
NAS-NAB-BG250	Ballast weight, loaded resin, 250 g	
NKF	Cable clamp	

Description

The KOBOLD level switches of model NEC have been developed for level monitoring of liquids and for direct pump control for all industrial applications.

The float is supplied with a mechanical microswitch with very large switching capacity.

The NEC comprises a stable plastic housing made of polypropylene with a total of five cavities sealed back-to-back. The instruments are thus practically unsinkable even when physically damaged.

The level switches are available in following basic designs:

- NEC-930: polypropylene float with mechanical contact, 5 m Hypalon® cable
- NEC-HY930: float hypalon coated for aggressive media with mechanical contact, 5 m Hypalon® cable
- NEC-930N10: polypropylene float, with mechanical contact, 10 m Hypalon® cable

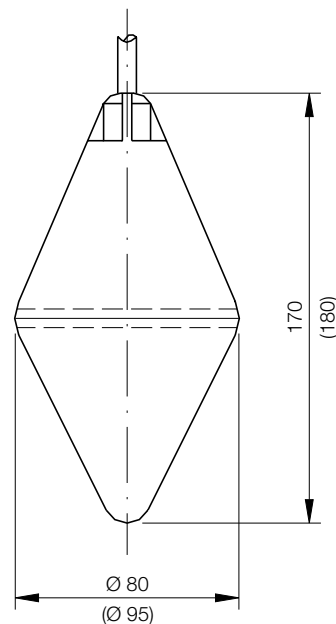


Technical Details

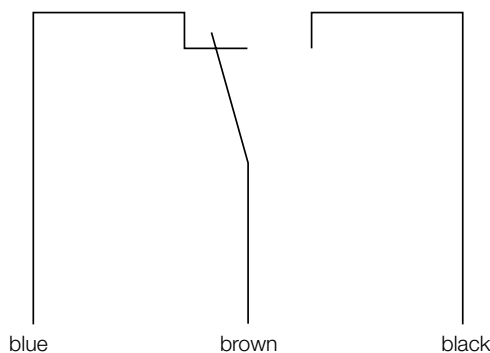
Float:	Double cone
Float material (standard model):	Polypropylene (PP)
Float material (HY model):	PP with Hypalon®-coating
Cable:	3 x 1 mm ² , Hypalon®
Contact:	microswitch, changeover contact 250 V _{AC} , 16 A resistive load, 6 A inductive load
Actuating angle:	±25° from the horizontal
Medium density:	NEC: 0,7-1,15 kg/dm ³ NEC-HY: 0,8-1,10 kg/dm ³
Max. pressure:	NEC: 3.5 bar; NEC-HY: 4 bar
Max. temperature:	85 °C
Protection:	IP 68 (cable ends may not be immersed under water at any time)

All level switches of model NEC are supplied complete with ballast weight.

Dimensions [mm]



Electrical Connection



Order Details (Example: NEC-930)

Model	Float material / cable
NEC-	930 = PP / 5 m Hypalon® cable
	930N10 = PP / 10 m Hypalon® cable
	HY930 = PP Hypalon® coated / 5 m Hypalon® cable

Accessories NEC

Model	Description	Image
NKF	Cable clamp	

Model NST...: PTFE



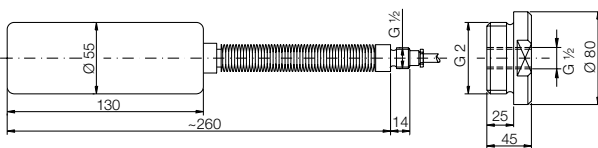
Application: for hot, extremely aggressive or dirty liquids
 Installation: From inside with G 1/2 connection (model NST-B only) or from outside with G 2 connection
 Float material: PTFE
 Bellows: PTFE (model NST-B only)
 Cable: Model NST-A: 2 m FEP cable
 Model NST-B: 2 m silicone or FEP cable
 Max. pressure: 1 bar
 Max. temperature: 150 °C
 Medium density: 0.79 kg/dm³
 Contact: Reed contact, connectable as N/O or N/C
 Switch capacity: 4 ... 250 V_{AC/DC}
 1 mA ... 1 A, 60 VA
 Switch. Hysteresis: approx. 100 mm
 Switch angle: +20° / -20°
 Protection: IP 68

Model NSE...: Stainless steel

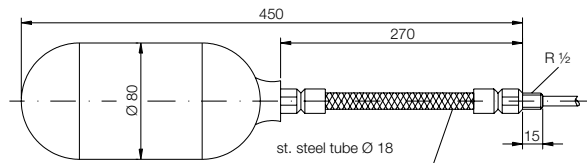


Application: for very aggressive, pasty or hot liquids
 Installation: from inside with G 1/2 connection or from outside with flange
 Material: Float: stainless steel 1.4571
 Armour: stainless steel 1.4404
 Wire mesh: stainless steel 1.4301
 Screwed fitting: stainless steel 1.4571
 Cable: 2 m silicone cable, 270 mm of which with st. steel armour, 1.4541
 Max. pressure: NSE-D: 6 bar
 NSE-K: 15 bar
 Max. temperature: 150 °C
 Medium density: > 0.8 kg/dm³
 Contact: Reed contact change-over connectable as N/O or N/C
 Switch capacity: 4 ... 250 V_{AC/DC}
 1 mA ... 1 A, 60 VA
 Switch. Hysteresis: approx. 100 mm
 Switch angle: +20° / -20°
 Protection: IP 68

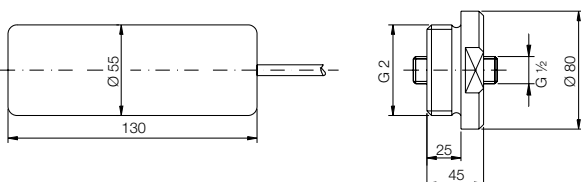
Dimensions [mm]
NST-B



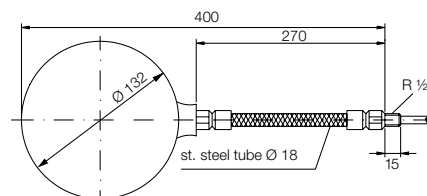
Dimensions [mm]
NSE-D



NST-A



NSE-K



Order Details (Example: NST-AW 02 FEP)

Model	Description
NST-	AW 02 FEP = standard-design, 2 m FEP cable
	BW 02 FEP = PTFE bellows, 2 m FEP cable
	BW 02 SIL = PTFE bellows, 2 m SIL cable
NST-Anschl. R50A	PTFE cable gland, G 2, for standard design
NST-Anschl. R50B	PTFE cable gland, G 2, for bellows

Order Details (Example: NSE-DW 02 SIL)

Model	Description
NSE-DW 02 SIL	Cylindrical float, 2 m silicone cable
NSE-KW 02 SIL	Ball float, 2 m silicone cable