



## 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/dm<sup>3</sup>

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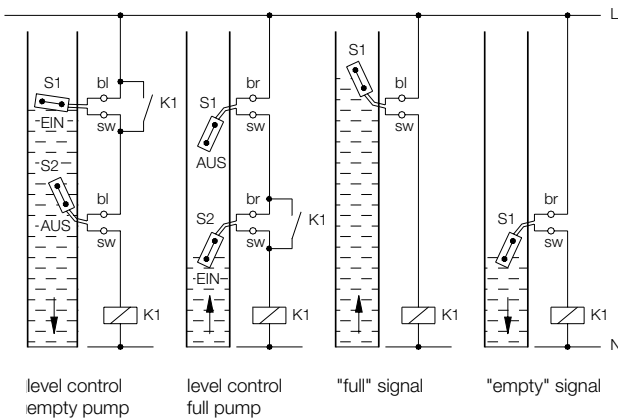
**Application**

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**

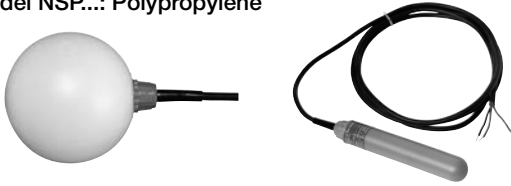
We recommend the use of contact protection relays with our float switches.

- 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 mm<sup>2</sup>, 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)

**Medium density:** Model NSP-S: >0.9 kg/dm<sup>3</sup>  
Model NSP-K: >0.6 kg/dm<sup>3</sup>

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

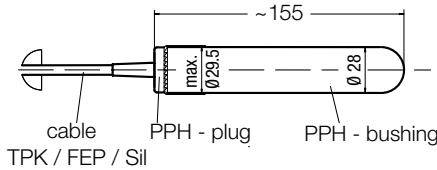
**Switch capacity:** max. 250 V<sub>AC</sub> / 150 V<sub>DC</sub>, 300 VA, 60 W  
1 mA... 1.5 A, 1 A at cos φ 0.7

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

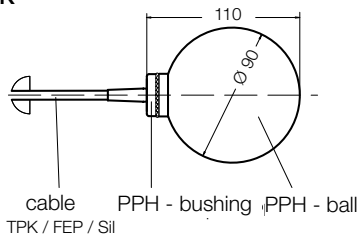
**Switch angle:** approx. +12°/+3°

**Protection:** IP 68

**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

**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

**Mediumsdichte:** >0.6 kg/dm<sup>3</sup>

**Contact:** microswitch,  
function changeover contact

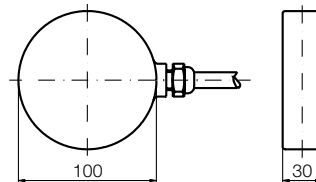
**Switch capacity:** max. 250 V<sub>AC</sub>, max. 6 A, min. 100 mA

**Protection:** IP 68

**Hysteresis:** min. 140 mm, max. 500 mm

**Switch angle:** ±45°

**Dimensions [mm]**  
**NSM**



**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



**Description**

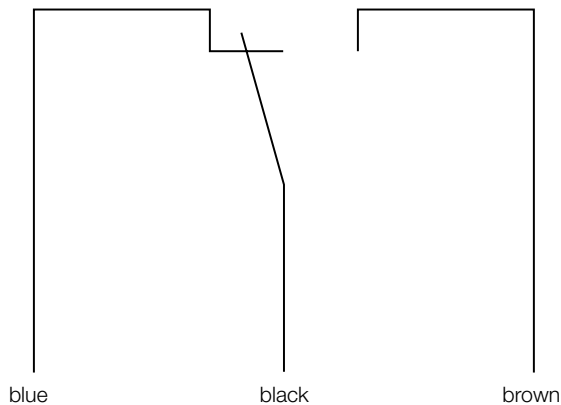
The KOBOLD level switch model NAB is ideally suited for the level monitoring of liquids and for direct pump control by means of a mechanical switch with very high switch capacity 20 (8) A at 250 V<sub>AC</sub>.

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

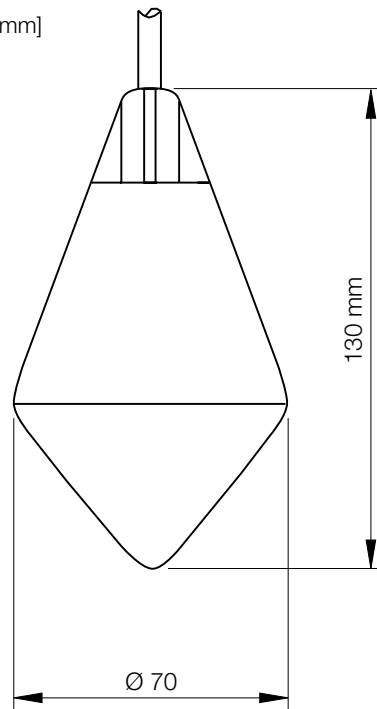
**Electrical Connection**



**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 <sup>3</sup>
Contact:	Microswitch, changeover contact
Switch capacity:	20 A at resistive load 8 A at inductive load
Power supply:	250 V <sub>AC</sub> , 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

**Dimensions [mm]**



**Order Details** (Example: NAB-W03)

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

**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

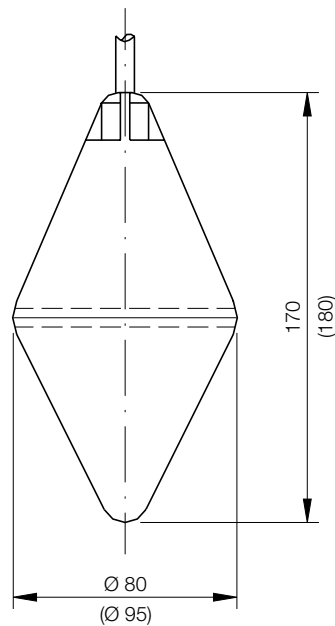


**Technical Details**

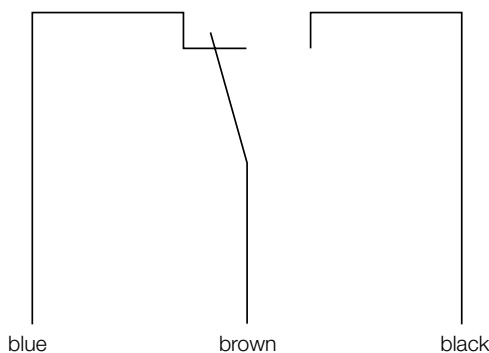
- Float: Double cone
- Float material (standard model): Polypropylene (PP)
- Float material (HY model): PP with Hypalon®-coating
- Cable: 3 x 1 mm<sup>2</sup>, Hypalon®
- Contact: microswitch, changeover contact  
250 V<sub>AC</sub>, 16 A resistive load,  
6 A inductive load
- Actuating angle: ±25° from the horizontal
- Medium density: NEC: 0,7-1,15 kg/dm<sup>3</sup>  
NEC-HY: 0,8-1,10 kg/dm<sup>3</sup>
- 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-	<b>930</b> = PP/5 m Hypalon® cable
	<b>930N10</b> = PP/10 m Hypalon® cable
	<b>HY930</b> = PP Hypalon® coated / 5 m Hypalon® cable

**Model NST...: PTFE**



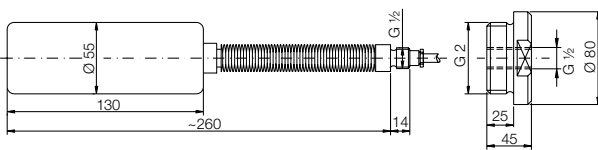
Application: for hot, extremely aggressive or dirty liquids  
 Installation: From inside with G 1/2 connection (model NST-B only) or from outside with G 2 connection  
 Float material: PTFE  
 Bellows: PTFE (model NST-B only)  
 Cable: Model NST-A: 2 m FEP cable  
 Model NST-B: 2 m silicone or FEP cable  
 Max. pressure: 1 bar  
 Max. temperature: 150 °C  
 Medium density: 0.79 kg/dm<sup>3</sup>  
 Contact: Reed contact, connectable as N/O or N/C  
 Switch capacity: 4 ... 250 V<sub>AC/DC</sub>  
 1 mA ... 1 A, 60 VA  
 Switch. Hysteresis: approx. 100 mm  
 Switch angle: +20° / -20°  
 Protection: IP 68

**Model NSE...: Stainless steel**

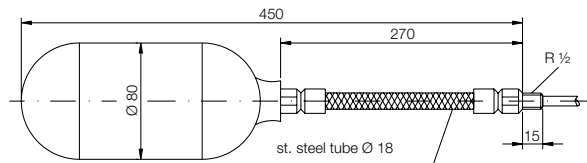


Application: for very aggressive, pasty or hot liquids  
 Installation: from inside with G 1/2 connection or from outside with flange  
 Material: Float: stainless steel 1.4571  
 Armour: stainless steel 1.4404  
 Wire mesh: stainless steel 1.4301  
 Screwed fitting: stainless steel 1.4571  
 Cable: 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/dm<sup>3</sup>  
 Contact: Reed contact change-over connectable as N/O or N/C  
 Switch capacity: 4 ... 250 V<sub>AC/DC</sub>  
 1 mA ... 1 A, 60 VA  
 Switch. Hysteresis: approx. 100 mm  
 Switch angle: +20° / -20°  
 Protection: IP 68

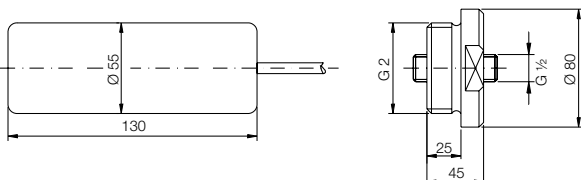
**Dimensions [mm]  
NST-B**



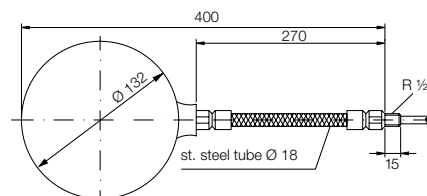
**Dimensions [mm]  
NSE-D**



**NST-A**



**NSE-K**



**Order Details (Example: NST-AW 02 FEP)**

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

**Order Details (Example: NSE-DW 02 SIL)**

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