# Over-Head Level Indicators



- Measuring length: max. 4000 mm
- Pressure: max. PN 16/150 lbs
- Temperature: max. 120°C
- Viscosity: max. 200 mm²/s

Connection:
DIN flange DN 50/65
ANSI flange 2"; 2½"

- Material: stainless steel 1.4571
- Roller indication
- Limit switch
- Analogue output



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**Model:**
NBK-04



01/1004/Ko/10

### Description

Kobold over-head level indicators are used for continuous measurement, display and monitoring of liquid levels. The float inside the tank is attached by means of a connecting rod to the magnet carrier in the over-head tube. The magnet fitted in the magnet carrier operates, in a non-contacting manner, the display and monitoring devices fitted outside tube.

### Magnetic roller indicator

As the float passes by, the red/white rollers are rotated in succession by 180° around their own axes. The rollers change from white to red as the level rises and from red to white as the level falls. The level in a tank or a mixer is continuously displayed as a red column, even when the power fails.

### Transmitter

To remotely transmit the level a transmitter with a chain of resistors or a magnetostrictive transducer can be mounted outside the bypass tube. A continuous standard signal of 4 to 20 mA is generated by means of a fitted transmitter. This standard signal can then be displayed with analogue or digital indicating devices.

### Limit contacts

One or more reed contacts for limit-value acquisition or also for level control can be secured to the bypass tube.

### Applications

- Storage tanks
- Mixing vessels
- Aggressive media
- Water tanks

### Technical Details

| | |
|---|---|
| Over-head tube: | Ø 60.3 x 2 mm |
| Tank tube: | Ø 60.3 x 2 mm or 76.1 x 2 mm |
| Initial measurement: | 270 mm from tube end |
| Material: | st. steel 1.4571 |
| Float: | titanium |
| Connecting rod: | Stange or tube from titanium or VA 1.4571 (depending on medium density and measuring length) |
| Flange nominal size: | DIN DN 50 or 65, PN 16<br>ANSI 2" or 2 1/2", 150 lbs |
| Max. operating pressure: | PN 16 |
| Max. operat. temperature: | to 120 °C |
| Viscosity: | max. 200 mm²/s |
| Measuring length: | min. 600 mm<br>max. 4000 mm |
| Total length: | depending on meas. length, see dimension drawing |
| Min. density: | 0.43 kg/dm³ |
| Roller indication: | aluminium section with polypropylene rollers |

### Limit contacts model: ...NBK-R, NBK-RD100

| | |
|---|---|
| Contact operation: | bistable changeover contact |
| Switching hysteresis: | approximately 15 mm |
| Housing: | polycarbonate |
| Protection: | IP 67 |
| Max. switch capacity: | 60 W/VA, 230 $V_{AC/DC}$, 1 A<br>80 VA; 220 V; 1 A (NBK-RD100) |
| Electrical connection: | 3 m PVC cable<br>clamp connection (NBK-RD100) |
| Ambient temperature: | max. 75 °C |
| Protection: | IP 67<br>IP 65 (NBK-RD100 |
| Protection category: | ⟨Ex⟩ II 2GD EEx d II c<br>(only NBK-RD100) |

### Transmitter type: ...T

| | |
|---|---|
| Principle of measurement: | magnetostrictive, with transducer |
| Supply voltage: | 24 $V_{DC}$, max. 150 mA |
| Output: | 4 - 20 mA, 4-wire |
| Load: | max. 500 Ω |
| Accuracy: | ±1 mm |
| Max. length: | 4000 mm |
| Medium temperature: | max. 120 °C |
| Ambient temperature: | max. 80 °C |
| Protection: | IP 65 |

### Transmitter type: ...W

| | |
|---|---|
| Principle of measurement: | reed contact chain of resistors |
| Total resistance: | approximately 5 kΩ |
| Measuring-circuit voltage: | max. 24 $V_{DC}$ |
| Measuring current: | max. 0.1 A |
| Medium temperature: | max. 120 °C |
| Ambient temperature: | max. 130 °C |
| Resolution: | 10 mm (ML < 2000 mm)<br>20 mm (ML ≥ 2000 mm) |
| Protection: | IP 65 |

### Transmitter type: ...M

Reed contact chain with 2-wire transmitter

| | |
|---|---|
| Output: | 4 - 20 mA |
| Supply voltage: | 16 - 32 $V_{DC}$ |
| Load: | ($U_B$ - 9 V) / 0.02 A [Ω] |
| Medium temperature: | max. 120 °C |
| Ambient temperature: | max. 80 °C |
| Resolution: | 10 mm (ML < 2000 mm)<br>20 mm (ML ≥ 2000 mm) |
| Protection: | IP 65 |





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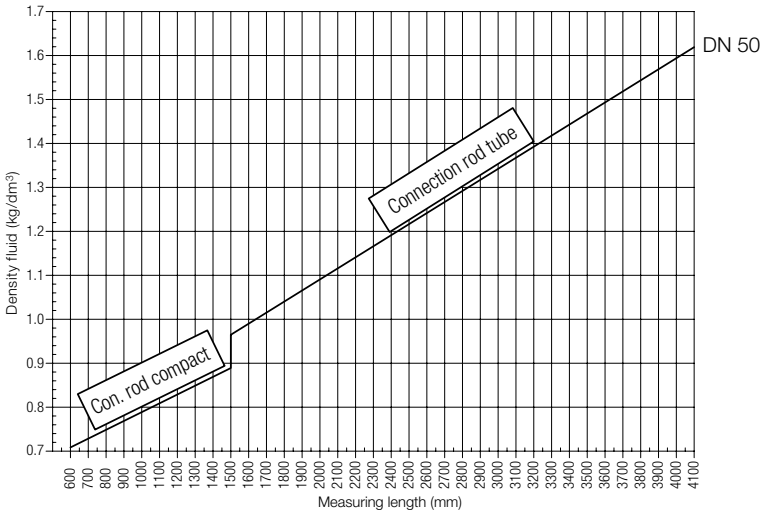
## Density/length of measuring tube diagram*

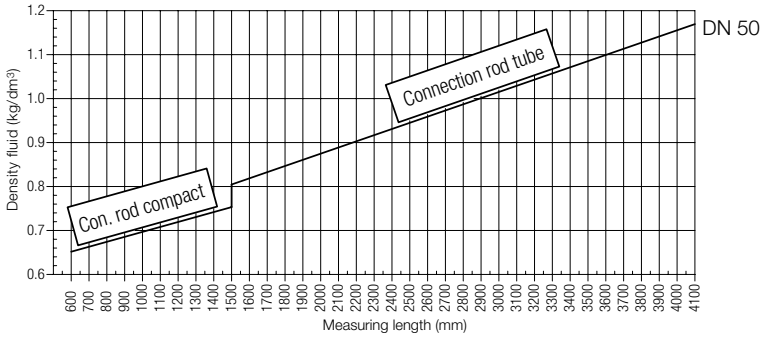
### NBK-04...8, diagram 8




**NBK-04...8**

| | |
|---|---|
| Float: | titanium |
| Connection rod: | st. st., 1.4571 |
| Process connection: | DIN flange, DN 50 ANSI flange, 2" |
| Overhead and tank tube: | Ø 60.3 mm |
| Min. medium density: | 0.71 kg/dm³ |

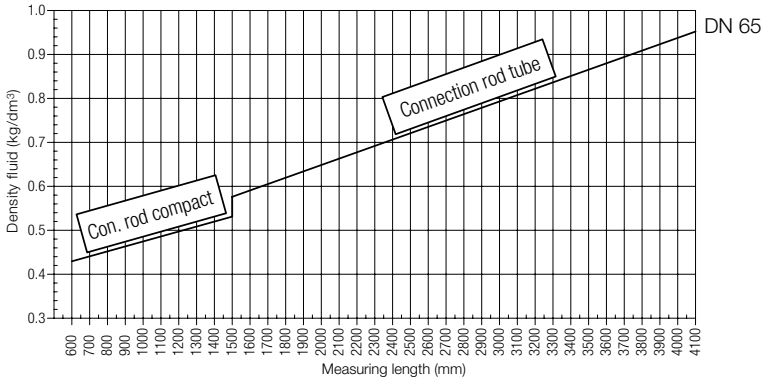
### NBK-04...6, diagram 6




**NBK-04...6**

| | |
|---|---|
| Float: | titanium |
| Connection rod: | titanium |
| Process connection: | DIN flange, DN 50 ANSI flange, 2” |
| Overhead and tank tube: | Ø 60.3 mm |
| Min. medium density: | 0.65 kg/dm³ |

### NBK-04...4, diagram 4




**NBK-04...4**

| | |
|---|---|
| Float: | titanium |
| Connection rod: | st. st., 1.4571 |
| Process connection: | DIN flange, DN 65 ANSI flange, 2 1/2" |
| Overhead tube: | Ø 60.3 mm |
| Tank tube: | Ø 76,1 mm |
| Min. medium density: | 0.43 kg/dm³ |

*The floats could be adjusted to the densities above the graph

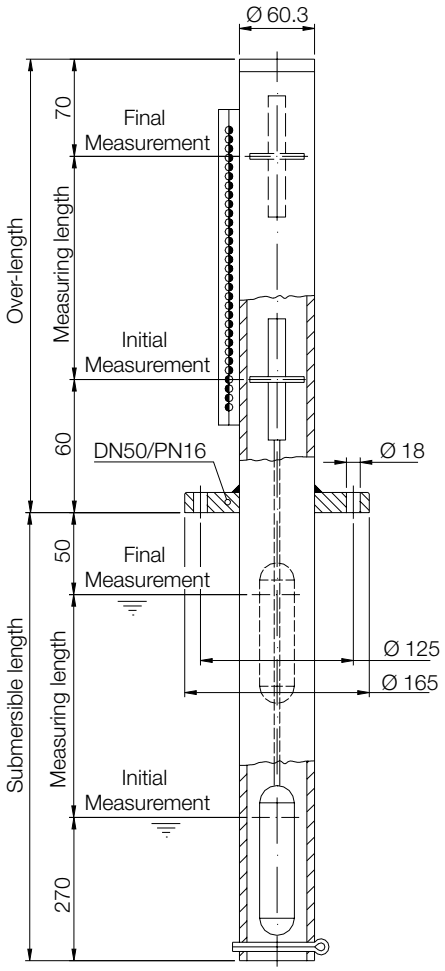
## **Order Details** (Example: **NBK-04 F50 00 0 8**)

| Model | Material | Connection and nominal size | Roller indication | Transmitter | Medium density and meas. length |
|---|---|---|---|---|---|
| **NBK-04...** | Stainless steel 1.4571 | **F50**=DIN flange DN 50<br>**A50**=ANSI flange 2" | **00** =without<br>**RP**=PP (poly-propylene) rollers | **0**= without<br>**W**=reed contact chain<br>**M**=reed contact chain with head mounted transmitter<br>**T**= magnetostrictive<br>**6***=without transmitter, ATEX-II 2G EEx d<br>**7***=without transmitter, ATEX-II 1G EEx d<br>**8***=with chain of resistors, ATEX-II 1G EEx ia IIC<br>**9***=with chain of resistors, ATEX-II 1G EEx ia IIC (transmitter)<br>ATEX-II 1G EEx d (Bypass tube inside)<br>NBK-01 only | **8**=see diagram 8<br>**6**=see diagram 6 |
| | | **F65**=DIN flange DN 65<br>**A65**=ANSI flange 2 1/2" | **00** =without<br>**RP**=PP (poly-propylene) rollers | | **4**=see diagram 4 |
| **NBK-R** | Standard limit contact (bistable changeover contact) | | | | |
| **NBK-RD-100** | ATEX limit contact | | | | |

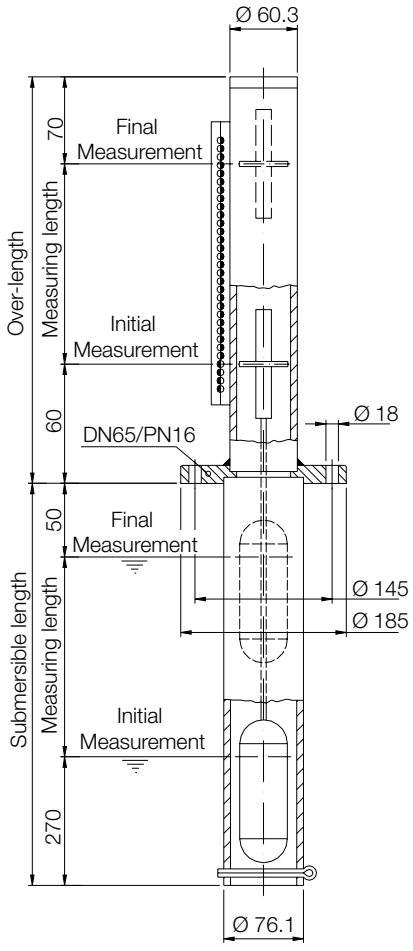
* ATEX-approval in preparation, not in conjunction with PP roller indication
Please specify measuring length L, density, pressure and temperature in writing!

## Dimensions

NBK-04...F50...




NBK-04...F65...




Submersible length = measuring length + 320 mm.



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