



ATEX Over-Head Level Indicators



measuring
•
monitoring
•
analysing



- ATEX approval
 ⊕ II 1G/2G D
- 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"; 2 1/2"
- Material:
 stainless steel 1.4571
- Roller indication
- Limit contacts
- Analogue output

N2



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Model:
NBK-04
ATEX



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 end of tank tube
Material:	stainless steel 1.4571
Float:	titanium
Connecting rod:	Stange or tube from titanium or stainless steel 1.4571 (depending on medium density and measuring length)
Flange nominal size:	DIN DN 50 or 65, PN 16 ANSI 2" or 2 1/2", 150 lbs
Max. operating pressure:	PN 16
Operating temperature:	-50°C... 120°C
Viscosity:	max. 200 mm ² /s
Measuring length:	min. 600 mm max. 4000 mm
Total length:	see dimension drawing
Min. density:	0.43 kg/dm ³
Roller indication:	aluminium section with polypropylene rollers, protection IP54

Technical Details ATEX approval

ATEX limit contact type NBK-RA

Contact operation:	bistable changeover contact encapsulated
Switching hysteresis:	approximately 15 mm
Max. Switch capacity:	45 VA, 230 V _{AC/DC} , 0.6 A
Temperature class:	T6 / T5
Max. ambient temperaturat.:	70 °C / 85 °C
Electrical connection:	3 m PVC cable
Housing:	metallic, cast (GD-ZN Al 4 Cu1)
Protection:	IP 67
ATEX marking:	Ex II 2G EEx m II T6/T5 Ex II 2D IP67 T 105 °C

Limit contacts high temperature

type NBK-RT200

in conjunction with an external, intrinsically safe Isolated Switch Amplifier as »Simple Operator«

Contact operation:	bistable changeover contact
Switching hysteresis:	approximately 15 mm
Max. Switch capacity:	80 VA, 250 V _{AC/DC} , 1 A
Resistance:	< 20 mΩ
Medium temperature:	max. 200 °C / 400 °C
Ambient temperature:	max. 145 °C / 350 °C
Housing:	Aluminum pressure-cast housing, terminal connection
Protection:	IP 65

ATEX Reed contact resistance chain type: ...5...

In protection type intrinsically safe EEx ia IIC / IIB only for connection to a certified intrinsically safe current loop with the following maximum values:

Max. voltage:	U _i = 24 V
Max. current:	I _i = 100 mA
Max. capacity:	P _i = see prototype verification certificate
Temperature class:	T1...T6 (see prototype verification certificate)
Resolution:	10 mm (ML < 2000 mm) 20 mm (ML ≥ 2000 mm)
Housing:	Aluminum pressure-cast
Protection:	IP 65

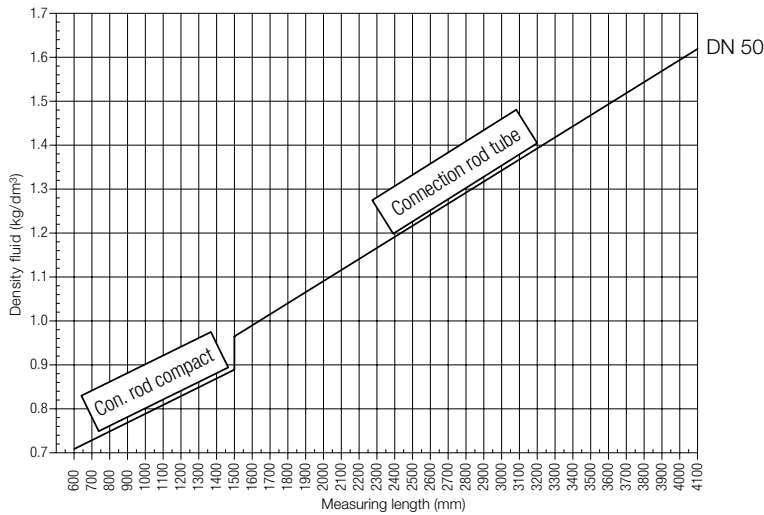
Options for ATEX NBK-04

- M1 Measuring scale until 120 °C, aluminium backum, engraved scale
- P radiographic examination DIN 54 111 T1
- Q dye penetration test DIN EN 571-1
- X pressure test with water 1.5 x PN
- Z 3.1 certificate according to EN 10204



Density/length of measuring tube diagram*

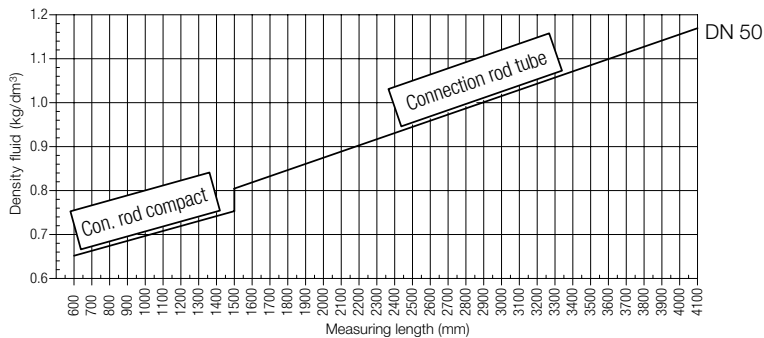
NBK-04...8, diagram 8



NBK-04...8

Float: titanium
 Connection rod: st. steel, 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 at
 ML= 600 mm

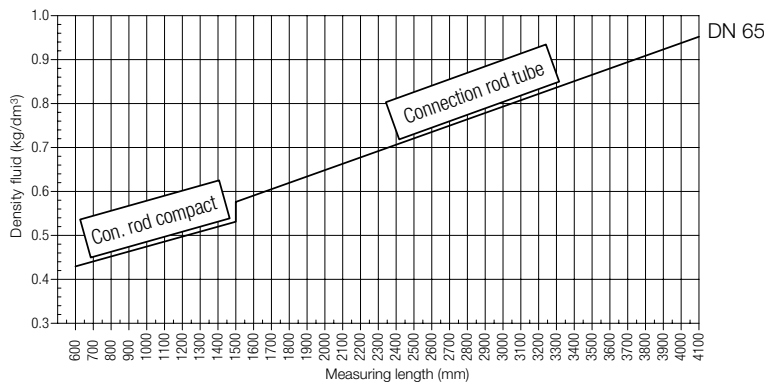
NBK-04...6, diagram 6



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 at
 ML= 600 mm

NBK-04...4, diagram 4



NBK-04...4

Float: titanium
 Connection rod: st. steel, 1.4571
 Process connection: DIN flange, DN 65
 ANSI flange, 2½"
 Overhead tube: Ø 60.3 mm
 Tank tube: Ø 76.1 mm
 Min. medium density: 0.43 kg/dm³ at
 ML= 600 mm

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



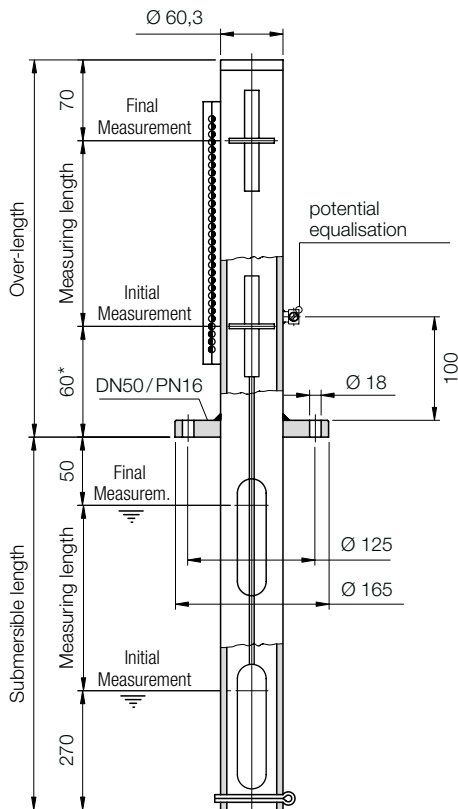
Order Details (Example: NBK-04 F50 00 1 8)

Model	Material	Connection and nominal size	Roller indication	Electrical attached parts	Medium density and meas. length
NBK-04...	St. steel, 1.4571	F50 = DIN flange DN 50 A50 = ANSI flange 2"	00 = without RP = PP rollers	1 = without electrical attached parts ATEX - II 1G / 2G D 2 = with immersible magnetic probe (Reed contact chain) ATEX - II 2G D EEx d IIC	8 = see diagram 8 6 = see diagram 6
		F65 = DIN flange DN 65 A65 = ANSI flange 2 1/2"	00 = without RP = PP rollers		4 = see diagram 4
NBK-RA	ATEX limit contact, encapsulated, Ex II2G EEx m II T6/T5				
NBK-RT200	High temperature limit contact, in conjunction with an external, intrinsically safe Isolated Switch Amplifier as «Simple Operator»				
REL-5114B1A	ATEX transmitter for immersible magnetic probe (Reed contact chain) EX II (1) G [EEx ia] IIC, DIN rail mounting				

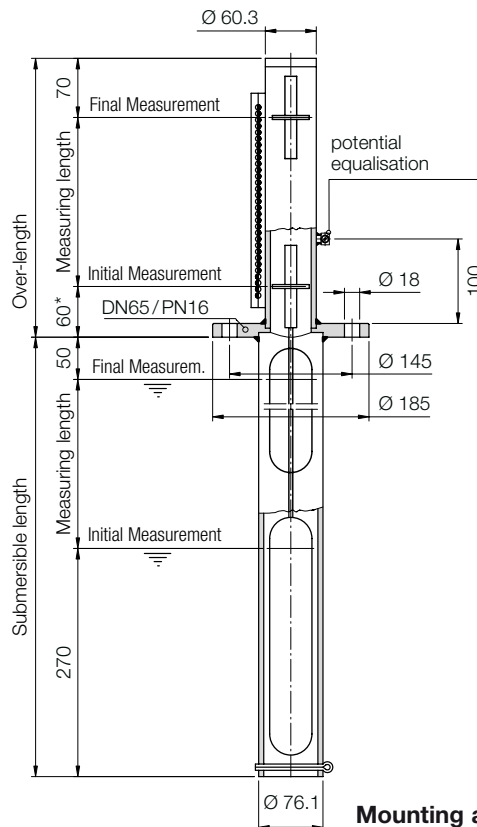
Please specify measuring length L, density, pressure and temperature in writing

Dimensions

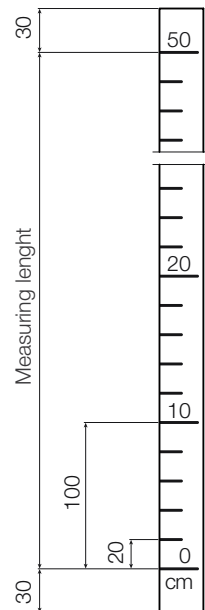
NBK-04...F50...



NBK-04...F65...



Measuring scale engraved, aluminium backum, Option M1



Mounting advice

Minimum inside diameter of mounting flange	Flange
Ø 88.9 mm x 2	PN 16 DN 65
Ø 76.1 mm x 2	PN 16 DN 50

* when using an immersible magnetic probe (reed contact chain): Dimension = 80 mm

Submersible length = measuring length + 320 mm.

Measuring length = Submersible length - 320 cm