Operating Instructions

for

Over-Head Level Indicator

Model: NBK-04

1. Contents

Manufactured and sold by:

Kobold Messring GmbH
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D-65719 Hofheim
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Fax: +49(0)6192-23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

2. Note

Please read these operating instructions before unpacking and putting the unit into operation. Follow the instructions precisely as described herein.
The instruction manuals on our website www.kobold.com are always for currently manufactured version of our products. Due to technical changes, the instruction manuals available online may not always correspond to the product version you have purchased. If you need an instruction manual that corresponds to the purchased product version, you can request it from us free of charge by email (info.de@kobold.com) in PDF format, specifying the relevant invoice number and serial number. If you wish, the operating instructions can also be sent to you by post in paper form against an applicable postage fee.

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

The devices are only to be used, maintained and serviced by persons familiar with these operating instructions and in accordance with local regulations applying to Health & Safety and prevention of accidents.

When used in machines, the measuring unit should be used only when the machines fulfil the EC-machine guidelines.

as per PED 2014/68/EU

Model	Over-length*	p max [bar]	Medium no dangerous (diagr. 2)	Medium dangerous (diagr. 1)
NBK-04	≤ 645	16	Art.4, Para.3	Art.4, Para.3
NBK-04	≤ 1270	16	Art.4, Para.3	I
NBK-04	≤ 4230	16	I	II

* see dimensions in section 13

3. Instrument Inspection

Instruments are inspected before shipping and sent out in perfect condition.
Should damage to a device be visible, we recommend a thorough inspection of the delivery packaging. In case of damage, please inform your parcel service / forwarding agent immediately, since they are responsible for damages during transit.

Scope of delivery:
The standard delivery includes:

- Over-Head Level Indicator model: NBK-04

4. Regulation Use

Any use of the device, which exceeds the manufacturer's specification, may invalidate its warranty. Therefore, any resulting damage is not the responsibility of the manufacturer. The user assumes all risk for such usage.

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.

The over-head measuring tube system
The over-head tube is attached with the vessel with a connection flange. The installation position is always vertical. The NBK should only be used for liquids with the medium density specified on the unit label. Otherwise, the indication may be inaccurate and the float may submerge.
System pressure and temperature should not exceed the specified maximum values, as this can lead to the destruction and malfunction of the over-head system. Ensure that the liquids contacting the level indicator internals are chemically compatible with the materials used in the construction of this unit.

Proper operation is also impaired by:
- High degree of soiling
- Large particulate
- Crystallisation
- Ferrite particles

5. Electrical connection

Optional electrical add-on parts (transmitter and limit contacts)
There are separate operating manuals for the assembly and commissioning of the optional electrical add-on parts: MM, NMT/NBK-…T, NBK-R.
These operating instructions document the following electrical add-on parts:

Transmitter:
Reed contact resistor chain model **W**
Reed contact resistor chain with transmitter model **M**
Magnetostrictive sensor with transmitter model **T**
Reed contact resistor chain with transmitter model **AE/AC**
Reed contact resistor chain with transmitter HART model **HE/HC**
Reed contact resistor chain with transmitter FF model **F**

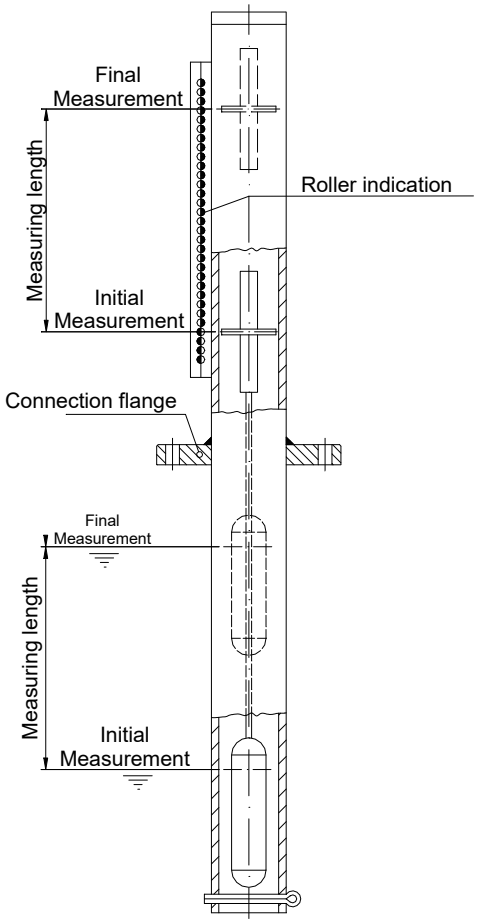
Limit Contacts:
Reed switch limit contact model **NBK-R**
Limit contact high temperature model **NBK-RT200**
Reed switch limit contact model **NBK-RV200NO/RV200NC**
Reed switch limit contact NAMUR model **NBK-RV200NO/RV200NC**

6. Operating Principle

A float in a dip pipe is connected with the magnet actuator inside the over-head tube via a connecting rod.
The built-in magnet inside the magnet carrier triggers the mounted display and other options (e.g. switches/transmitters) attached to the tube externally, in a non-contacting manner.

Magnet roller indication
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.

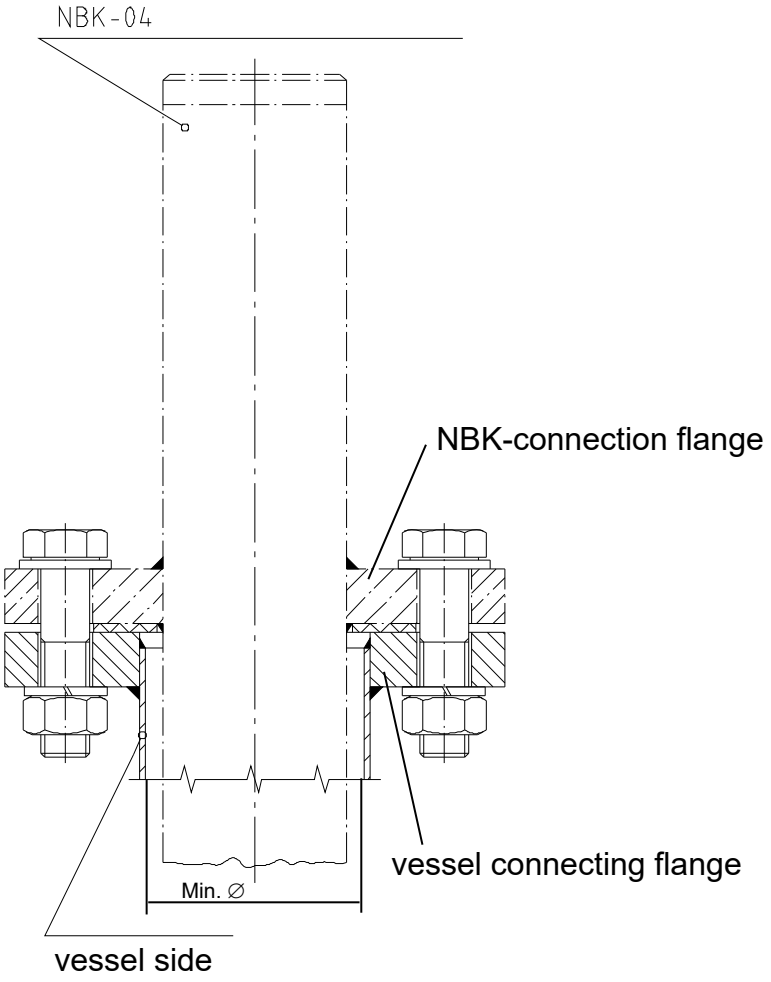
7. Mechanical Connection



Remove the cotter pin from bottom end of the dip pipe, next, remove the transport lock of the float. Fix the float with the magnet system towards top and make sure, there are no remains of packing material or other impurities inside the tube.
Set the cotter pin back and widen it. Secure the measurement system by means of a connecting flange on your container/drum/vessel.
Should the NBK be subjected to constant shock or strong vibrations, it is recommended that the instrument will be secured with damping-rubber tube clips. In any case, the over-head tube should never be welded onto the tank.

Needed size of the assembly tube of the vessel side

Over-Head Level Indicator



Flange	Diameter ∅ NBK-04-tube	Min. diameter ∅ of the submerged tube on the vessel side
PN 16 DN 65/ 2 ½“ ANSI	∅ 76.1mm	∅ 88.9 x 2 mm
PN 16 DN 50/ 2“ ANSI	∅ 60.3mm	∅ 76.1 x 2 mm

8. Trouble Shooting

Error: The tank is full but there is no indication

- Check that the float is present in the system.
- If the float is present, check whether it is being blocked by foreign objects or dirt deposits.
- Check the op. SG of the float and the medium.

Error: The tank is full but the indication is too low.

- Check that the density of the liquid is in accordance with the density prescribed on the unit-label.
- Check that the float has been correctly installed.
- Check if dirt deposits in the over-head tube are blocking the float.

9. Maintenance

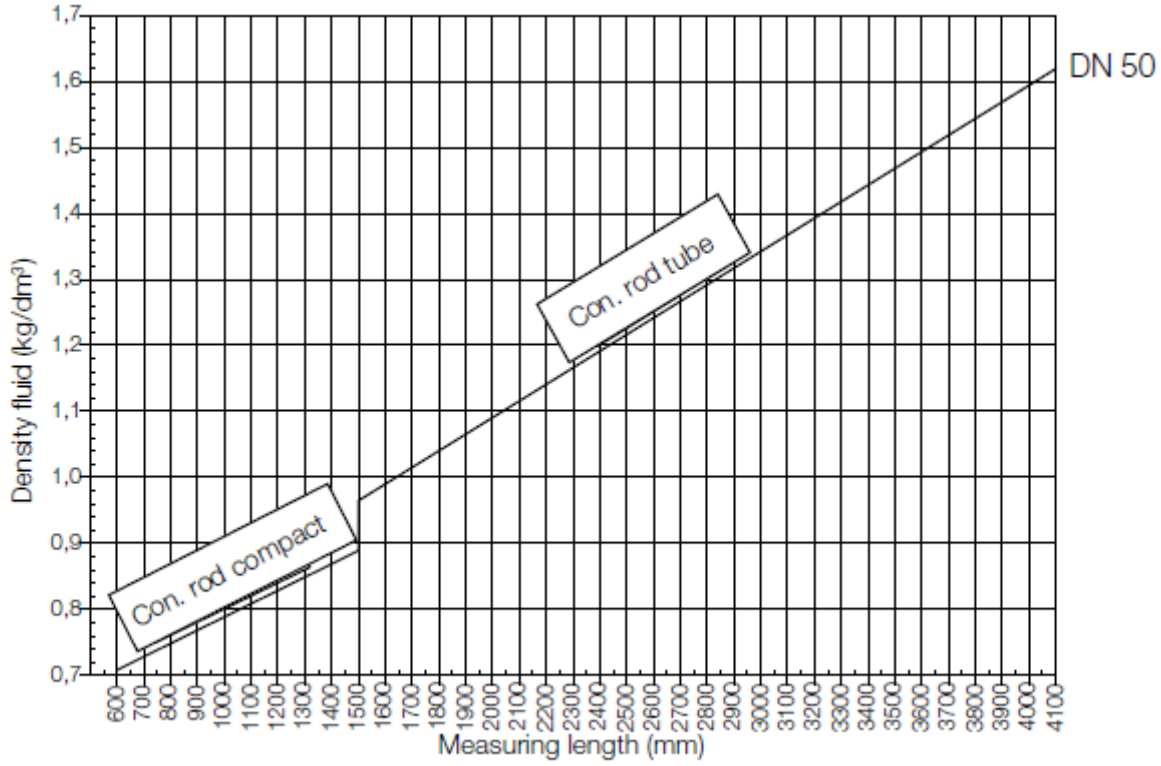
If encrustations or crystallizations build up in the immersion tube, the measuring system must be dismantled and mechanically cleaned.
The viewing window of the roll display is made of high-quality Plexiglas and can be cleaned with a suitable cleaning agent if necessary.
The indicator does not otherwise require any maintenance.

10. Technical Information

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

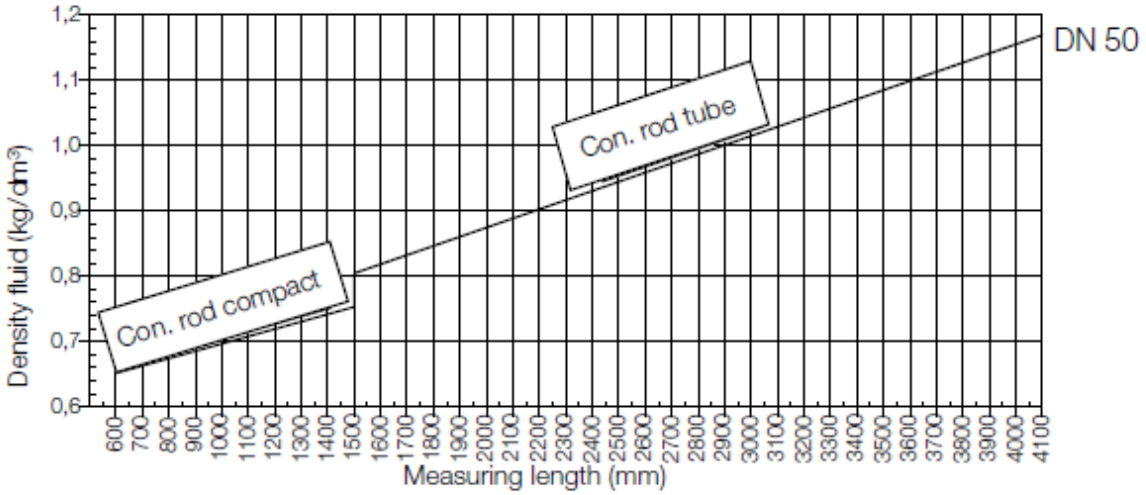
11. Diagram Density / Length of Measuring Tube

11.1. NBK-04...8, diagram 8



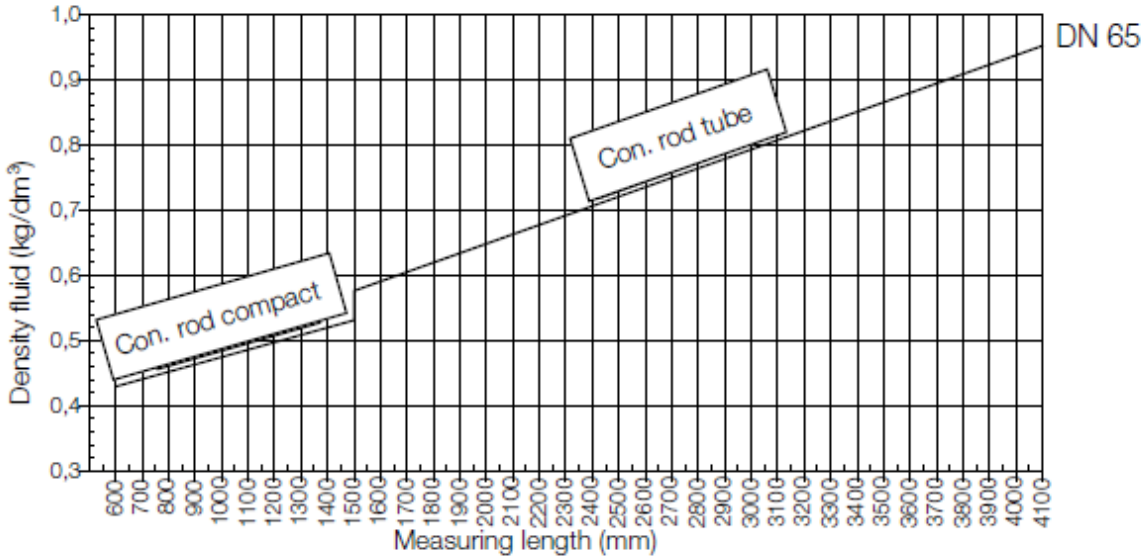
NBK-04 ...8:	Float:	titanium
	Connecting rod:	stainless steel, 1.4571
	Process connection:	DIN EN 1092-1 flange, DN 50, 80, 100, ASME flange, 2“, 3”, 4”
	Overhead and tank tube:	Ø 60.3 mm, continuous
	Min. medium density:	0.71 kg/dm^3 at ML = 600 mm

11.2. NBK-04...6, diagram 6



NBK-04 ...6:	Float:	titanium
	Connecting rod:	titanium
	Process connection:	DIN EN 1092-1 flange, DN 50, 80, 100 ASME flange, 2“, 3”, 4”
	Overhead and tank tube:	Ø 60.3 mm, continuous
	Min. medium density:	0.65 kg/dm^3 at ML = 600 mm

11.3. NBK-04...4, diagram 4



NBK-04 ...4:	Float:	titanium
	Connecting rod:	stainless steel, 1.4571
	Process connection:	DIN EN 1092-1 flange, DN 65, 100 ASME flange, 2 ½“, 4”
	Bypass tube:	Ø 60.3 mm
	Overhead and tank tube:	Ø 76.1 mm
	Min. density:	0.43 kg/dm^3 at ML = 600 mm

12. Order Codes

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

13. Dimensions

Operating instructions, data sheet, approvals and further information via the QR code on the device or via www.kobold.com

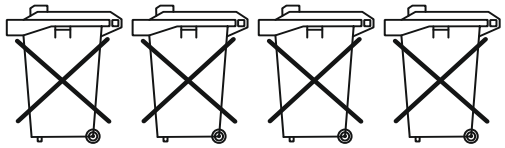
14. Disposal

Note!

- Avoid environmental damage caused by media-contaminated parts
- Dispose of the device and packaging in an environmentally friendly manner
- Comply with applicable national and international disposal regulations and environmental regulations.

Batteries

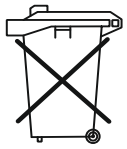
Batteries containing pollutants are marked with a sign consisting of a crossed-out garbage can and the chemical symbol (Cd, Hg, Li or Pb) of the heavy metal that is decisive for the classification as containing pollutants:



Cd[1] Hg[2] Pb[3] Li[4]

1. „Cd" stands for cadmium
2. „Hg" stands for mercury
3. „Pb" stands for lead
4. „Li" stands for lithium

Electrical and electronic equipment



15. EU Declaration of Conformance

We, KOBOLD-Messring GmbH, Hofheim-Ts, Germany, declare under our sole responsibility that the product:

Over-Head level indicator **model: NBK-04…**

to which this declaration relates is in conformity with the standards noted below:

EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Also, the following EC guidelines are fulfilled:

2011/65/EU **RoHS** (category 9)
2015/863/EU Delegated Directive (RoHS III)

2014/68/EU **PED**

- Module D1, marking CE0575
- Notified body: DNV AS
- Certificate No. PEDD1000000B

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* see dimensions in section 13

Hofheim, 16 March 2023

H. Volz
General Manager

M. Wenzel
Proxy Holder