

Operating Instructions for Over-Head Level Indicator

Model: NBK-04-ATEX



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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 non 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 14

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 ATEX

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.

The NBK Over-Head Level Indicator NBK-04 ATEX is used for continuous measurement, indication, and monitoring of liquids in tanks, vessels, reservoirs, basins etc. The indication occurs via a magnetically coupled roller indicator.

4.1 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
- gross particles
- crystallisation
- ferrite particles

4.2 Electrical limit switches (option)

The optional electrical limit switches serve to signal a preset level.

4.3 Reed Contact Resistance Chain (ATEX: options ...2/ ...E/ ...R/ ...B/ ...4/ ...L/ ...K/ ...N)

The optional reed contact resistance chain (model: MM..., see separate EC-Type Examination Certificate LOM14ATEX2075X) converts the liquid level to a resistance value. It serves to electrically transfer the level value. An optional available transmitter converts the resistance value into a standard signal (e.g. 4-20 mA).



Please pay attention to the maximum medium and ambient temperatures.

5. Operating Principle

Kobold Over-Head Level Indicators are used for continuous measurement, indication and monitoring of liquid levels. 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 indication 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/balls 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






For remote level transmitting, a chain of resistors can be mounted outside the bypass tube. The contacts of a reed contact chain are connected or disconnected via the float movement in a non-contacting manner. Depending on the level, the number of connected resistors changes and as a consequence the output of the total resistor value. A continuous standard signal of 4 to 20 mA is generated by means of a fitted transmitter. This standard signal can be indicated on analogue or digital indicating devices.

Limit contacts

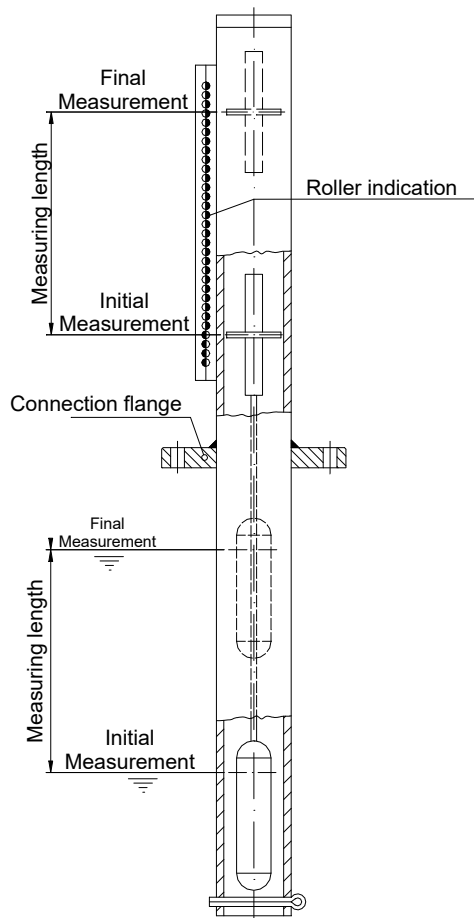
One or more reed contacts for limit-value acquisition or also for level control can be mounted on the bypass tube. They are switched from the magnet of the float when passing by.

ATEX-version

The bypass level indicators have an ATEX approval. Limit contacts and a magnetic immersion probe (reed contact chain) with ATEX approval are offered for level evaluation. The electrical attachments have their own ATEX approval. ATEX marking:

Bypass-level indicator:	 II 1/2G Ex h IIC T4...T1 Ga/Gb	or
	 II 1G/2D Ex h IIC/IIIC T4...T1/ T130 °C...445 °C/Ga/Db	
Reed contact resistance chain:	 II 1GD Ex ia IIC T6 Ga	
	 II 1/2G Exd II C T6 Ga/Gb	
	 II 1/2D Ex tb IIIC T85 °C Da/Db	
Limit contact NBK-RA:	contact sales department	

6. 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.

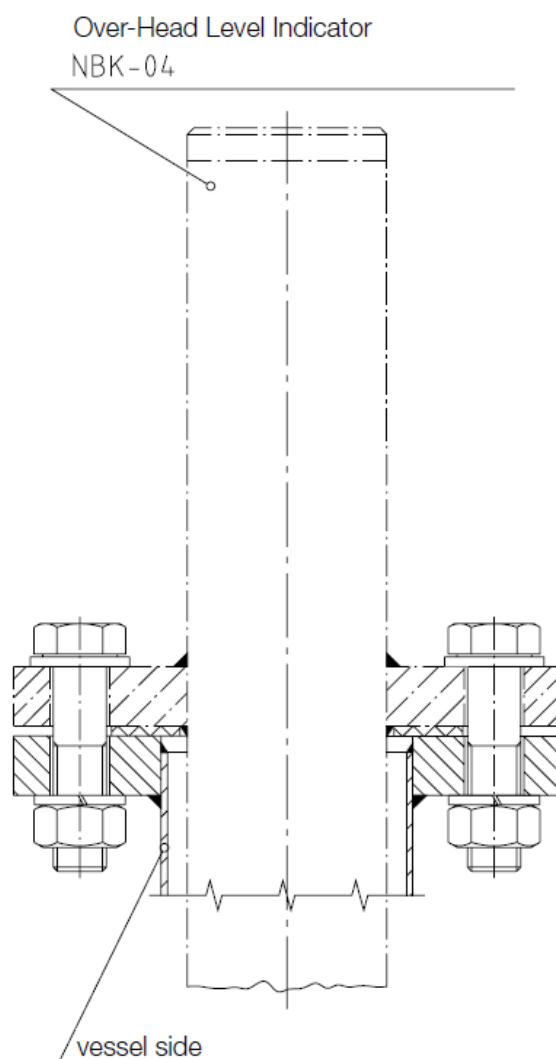
Set the cotter pin back and widen it. Secure the measurement system by means of a connecting flange on your container/drum/vessel.

Mount and tighten the **magnetic roller indicator** - if not already mounted - on the bypass tube with the two provided ribbon clamps.

If there are constant shocks or strong vibrations, it is advisable to fix the NBK-04 mechanically using rubberized pipe clamps. However, under no circumstances may welding be carried out on the tank and over-the-tank pipe.

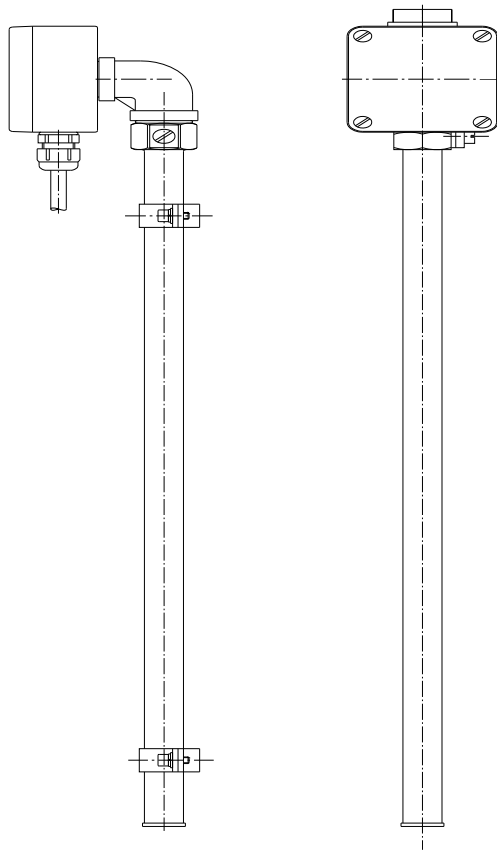
NBK-04 ATEX

Required size of the mounting tube of vessel side



Ø NBK-04-tube	Min. Ø of the mounting tube of the vessel side
Ø 76.1	Ø 88.9 x 2
Ø 60.3	Ø 76.1 x 2

Transmitter with reed contact resistance chain



If present and not yet installed at the factory, fasten the transmitter to the bypass pipe with the tensioning straps and tighten it. The cable junction box is at the top. By default, the transmitter is mounted to the left of the standpipe. The transmitter must completely cover the two process connections.

7. Electrical Connection

7.1 Connection diagram

- Ensure that the electrical supply lines are powerless.
- To avoid faults caused by electrical fields from other circuits, the cables should not be installed together with other high voltage power lines.
- Unscrew cover and mount the power supply cable through cable gland.
- Connect the remote sensor to the electronics according to the following table.

7.1.1 Transmitter output: reed contact resistance chain (ATEX: option ... 2 / ... 4)

See separate operation instructions „MM”.

7.1.2 Transmitter for resistance chain (options ...E/...R/...B/...L/...K/...N)

See separate operation instructions „MM”.

7.1.3 Transmitter and display for resistance chain

See separate operation instructions „MM”.

7.2 Safety Instructions (ATEX)

7.2.1 Area of validity

Temperature class and/or surface temperature relates solely to a device operated at ambient temperature. On installation, the actual temperature class for process operation has to be determined.

Only use certified cable glands and seals according to the ATEX directive.

The use in zone 0 of heads made of aluminium should be restricted to locations where the risk of ignition due to mechanical impact is not possible.

Verify that all data written in the label of the device matches the data required for the installation.

Verify that there is no mechanical stress or deformation due to installation in the tank.

Make sure that the electrical supply lines are de-energized before opening the housing cover.

Check the housing cover for proper assembly before making an electrical connection to the device.

The installation of instruments in hazardous areas must be exclusively done by trained people.

The highest medium temperature permitted for the gases, vapours and mists to be used shall not exceed the following:

- at bypass level indicators with EPL Ga: 80% of the maximum medium temperature according to the temperature class marked:
- at bypass level indicators with EPL Gb and EPL Gc the limit of the temperature class minus 5 K for temperature classes T4 and T3, and minus 10 K at temperature classes T2 and T1.

The bypass level indicators shall not be used with substances that are susceptible to ignition or explosion caused by sparks or friction (e.g. according to class 4.1 ADR); neither shall they be used in hybrid mixtures.

If the bypass level indicators are to be used in hazardous areas, any apparatus it is operated in conjunction with have to be suitable for this purpose and supplied according to Directive 2014/34/EU. If the bypass level indicator is assembled with apparatus that have not been subjected of this EU-type examination (e.g. the electric limit contacts), a separate risk assessment with regard to additional ignition hazards has to be carried out.

The bypass level indicators shall not be coated by the end user.

7.2.2 Dust environment

The ignition temperature of the individual dusts intended for use must be at least 1.5 times the value of the maximum surface temperature of bypass level indicators. The smouldering temperature of the individual dusts intended for use must be at least 75 K above the maximum surface temperature of the bypass level indicators. The dust accumulated shall only reach a layer thickness of 5 mm maximum. Where dust layers of >5 mm thickness are formed, the safety distance between the minimum ignition temperature of the settled dusts and maximum surface temperature of the equipment must be increased taking e.g. the requirements of EN 60079-14 in its valid edition into account.

During operation no potential ignition sources (e.g. smouldering or burning particles, smouldering nests or foreign particles) shall enter the bypass level indicators.

7.2.3 Protection against ESD (electro static discharges)

Instruments with plastic parts that can produce electro statics discharges, have a label for it.

It is important to follow some rules to avoid ESD:

- Avoid rubbing the device.
- Never clean the device dry.
- Do not install the device near material airflows or near steam outlets.

7.2.4 Chemical resistance

Ensure that the device construction materials have chemical resistance sufficient to prevent mechanical deformations that may affect the device.

7.2.5 Maintenance and repairs

The instrument does not require maintenance or servicing.

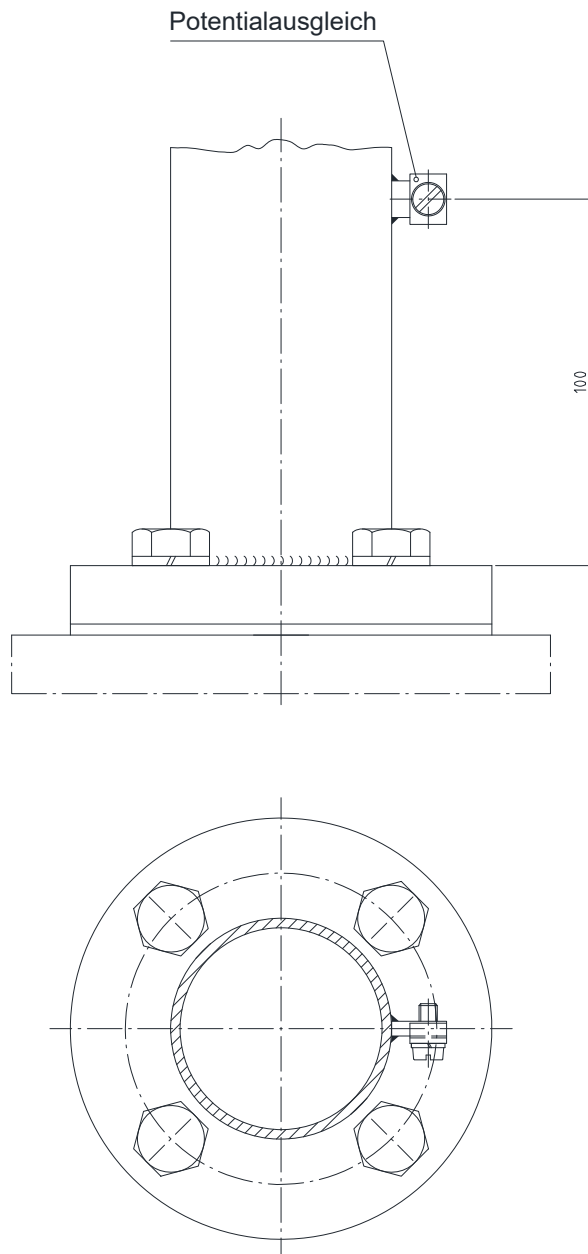
Repairs must be only carried out by Kobold Mesura (manufacturer).

7.2.6 Storage

Measuring instruments should be protected against humidity and dust. Storage temperature: -5...+55°C.

7.3 Ground connection for ATEX variant

The bypass must be included in the equipotential bonding system of the plant. This is done via the earthing terminal, which can be seen in the following drawing. The resistance to earth has to be of a value of $<10\ \Omega$:



8. Commissioning

Due to the setting behavior of the seals, the screw connections must be tightened.

Fill the container and switch on the electrical control, if available.

The liquid lifts the float and the magnet system coupled to it. The roller indicator marks the liquid level.

9. 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.

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.

10. Maintenance

Only in the event that the liquid to be measured contains dirt particles that can settle in the bypass pipe, the drain plug must be opened from time to time in order to flush out deposits.

The viewing window of the roller display is made of high-quality Plexiglas (glass for the high-temperature display) and can be cleaned with a suitable cleaning agent if necessary.

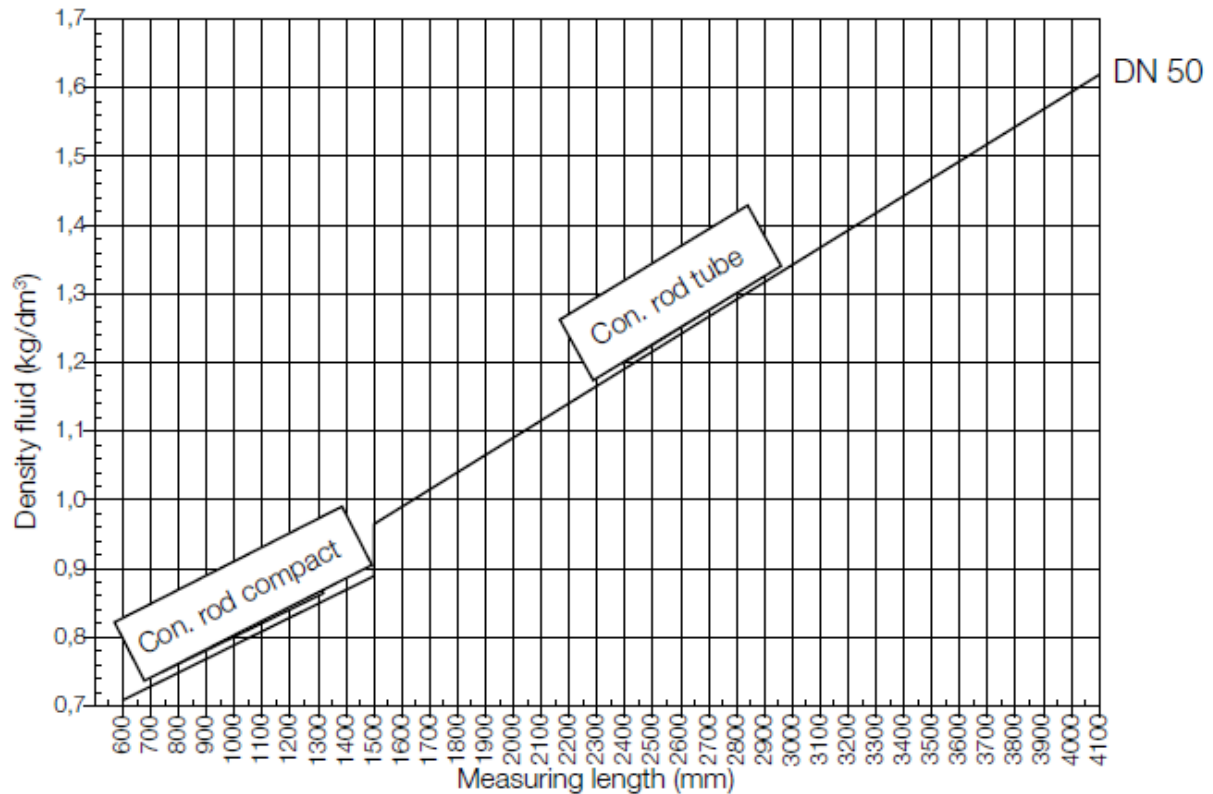
The indicator does not otherwise require any maintenance.

11. Technical Information

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

12. Diagram Density / Length of Measuring Tube*

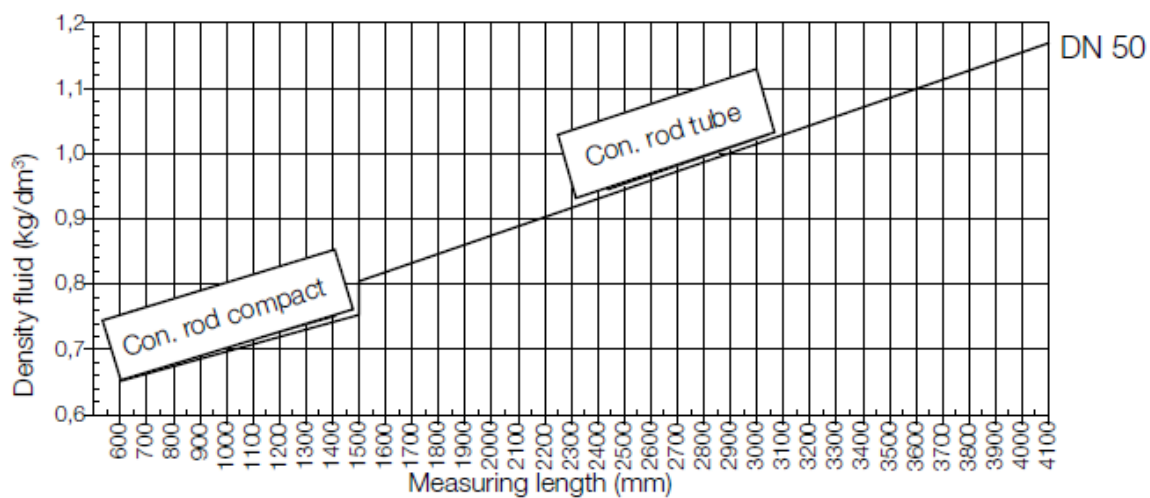
12.1 NBK-04...8, diagram 8



NBK-04 ...8:	Float:	titanium
	Connecting rod:	st. steel, 1.4571
	Process connection:	DIN flange PN 16, DN 50, 80, 100 ANSI flange, 2", 3", 4"
	Overhead and tank tube:	Ø 60.3 mm, continuous
	Min. medium density:	0.71 kg/dm³ at ML = 600 mm

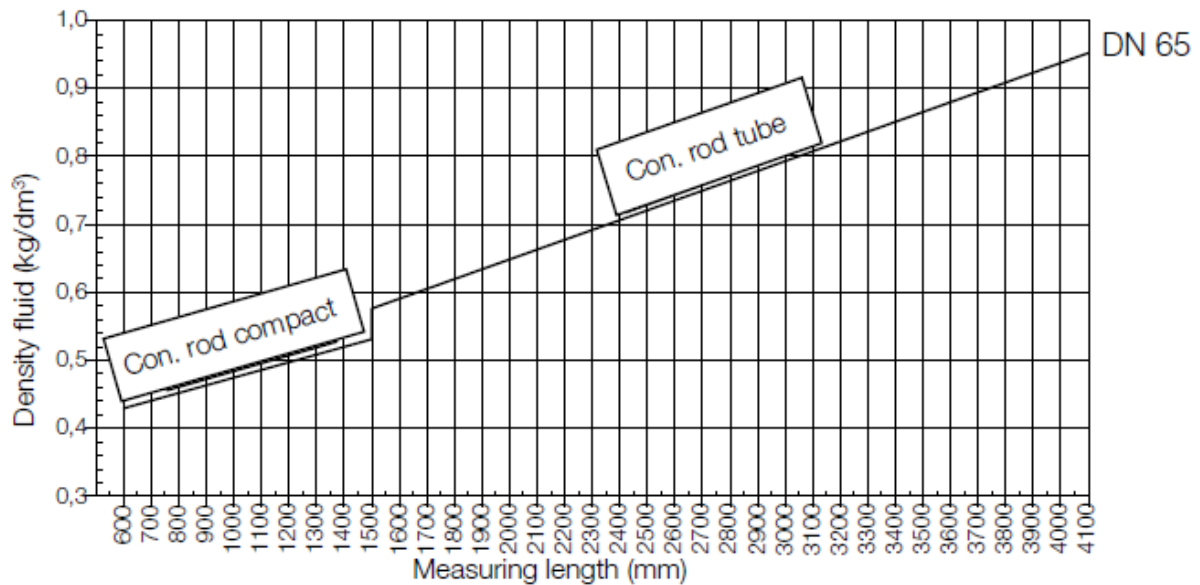
NBK-04 ATEX

12.2 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/dm³ at ML = 600 mm

12.3 NBK-04...4, diagram 4



NBK-04 ...4:	Float:	titanium
	Connecting rod:	st. steel, 1.4571
	Process connection:	DIN EN 1092-1 flange, DN 65, 100 ASME flange, 2½", 4"
	Overhead and tank 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 (Curve shifts upward)

13. Order Codes

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

14. Dimensions

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

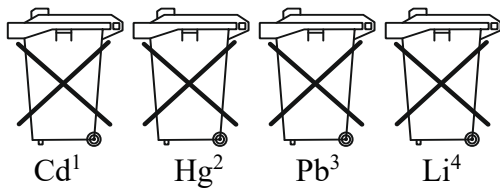
15. Disposal

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.

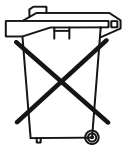
Batteries

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:



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

Electrical and electronic equipment



16. EU Declaration of Conformance

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

Bypass 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 EU directives are fulfilled:

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

2014/68/EU PED
notified body: DNV AS, module D

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 datasheet

Hofheim, 28 July 2022



H. Volz
General Manager



M. Wenzel
Proxy Holder

17. EU Declaration of Conformance (ATEX)

**EU-Konformitätserklärung zur
Bestätigung der Übereinstimmung mit
der Richtlinie 2014/34/EU**

**EU-Declaration of conformity for
confirmation with the Directive
2014/34/EU**

Der Hersteller:

The Manufacturer:

Kobold Messring GmbH, Nordring 22-24, D65719 Hofheim am Taunus

erklärt hiermit in alleiniger Verantwortung, dass das
nicht-elektrische Gerät;

*hereby declares under its sole responsibility, that the
non-electrical equipment;*

NBK-**

mit dem Modell, aus der EU-Baumusterprüf-
bescheinigung mit der Nummer BVS 04 ATEX H 042
X, sowie mit den Bestimmungen folgender
harmonisierter Normen der Europäischen Union
übereinstimmt:

*complies with the model, assessed during the EU-Type
Approval with the certificate number BVS 04 ATEX H
042 X and is conform with the provisions of the
following harmonised standards of the European
Union:*

Norm –Ref. Nr. / Standard Ref. N°.	Ausgabe Edition	Normbeschreibung Standard Description
EN ISO 80079-36	2016	Nicht-elektrische Geräte – Grundlagen und Anforderungen <i>Non-electrical equipment – Basic method and requirements</i>
EN ISO 80079-37	2012	Nicht-elektrische Geräte – Konstruktive Sicherheit "c" <i>Non-electrical equipment – Constructional safety "c"</i>
IEC/TS 60079-32-1	2013	Elektrostatische Gefahren – Vermeidung von Zündung <i>Electrostatic Hazards – Guidance to avoid ignition</i>

Kennzeichnungen:

Markings:

⊕ II 1/2G Ex h IIC T4...T1 Ga/Gb or ⊕ II 1/2D Ex h IIC/IIIC T4...T1/T130°C..T445°C Ga/Db
or
⊕ II 1/3G Ex h IIC T4...T1 Ga/Gc or ⊕ II 1/3D Ex h IIC/IIIC T4...T1/ T130°C..T445°C Ga/Dc

Name und Anschrift der Benannten Stelle

Name and Address of the Notified Body

DEKRA Testing and Certification GmbH, Carl-Beyling-Haus, Dinnendahlstr. 9, D-44809 Bochum
RL 2014/34/EU ID-Nr. / ID-N°.: **0158**

Ausgefertigt in Hofheim am 12.06.2023

Issued at Hofheim on 12th June 2023



Hans Volz Geschäftsführer / CEO

Joseph Burke ExB / ExR

Unterzeichnet für und im Namen der / Signed for and on behalf of Kobold Messring GmbH

18. Certificates

18.1 NBK EXAM

TRANSLATION

1st Supplement to the EC-Type Examination Certificate

Equipment or Protective System intended for use in potentially explosive atmospheres
Directive 2014/34/EU

Number of Type Examination Certificate Supplement: **BVS 04 ATEX H 042 X N1**

Equipment: Bypass level indicators, types NBK -03, -04, -06, -07, -10, -31, -32 and -33

Manufacturer: KOBOLD Messring GmbH

Address: Nordring 22-24
65719 Hofheim/Taunus, Germany

The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this supplement.

The certification body of DEKRA EXAM GmbH, Notified Body No. 0158 according to Article 17 of Directive 2014/34/EU of the European Parliament and the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in the confidential reports no. BVS PP 1100/019/04 and BVS PP 1100/019/04 N1.


The Essential Health and Safety Requirements have been assured by compliance with:

EN ISO 80079-36:2016 EN ISO 80079-37:2016 IEC/TS 60079-32-1:2013


If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this supplement.

This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified product.
Further requirements of the Directive apply to the manufacturing process and supply of this product. These are not covered by this supplement.


The marking of the product shall include the certificate reference no (3) and the following:

 II 1/2G Ex h IIC T4...T1 Ga/Gb
-20°C ≤ T_a ≤ +80°C


or

 II 1/3G Ex h IIC T4...T1 Ga/Gc
-20°C ≤ T_a ≤ +80°C

or

 II 1G/2D Ex h IIC/IIC
T4...T1/T130°C...445°C Ga/Db
-20°C ≤ T_a ≤ +80°C

or

 II 1G/3D Ex h IIC/IIC
T4...T1/T130°C...445°C Ga/Dc
-20°C ≤ T_a ≤ +80°C

DEKRA EXAM GmbH
Bochum, Germany, dated 2018-07-24


signed: Koch

Certifier

signed: Dr Hübner

Approver

Page 1 of 5 of BVS 04 ATEX H 042 X N1
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DEKRA EXAM GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany
phone +49 234 3696-105, fax +49 234 3696-110, email: zs-exam@dekra.com





13 Appendix to

14 1st Supplement to the EC-Type Examination Certificate

BVS 04 ATEX H 042 X

15 Description of Product

15.1 Subject and Type

Bypass level indicator of types NBK -03, -04, -06, -07, -10, -31, -32 and 33

15.2 Description

The bypass level indicators of types NBK -03, -04, -06, -07, 10, -31, -32 and -33 are used for continuous measurement, display and monitoring of liquid levels in tanks, vessels, basins, vats etc. The bypass tube is attached to the side wall of the vessel. According to the law of communicating tubes, the fill level in the bypass tube will equal the fill level in the vessel. Inside the bypass tube a float equipped with embedded circular magnets follows the fill level of the liquid and transfers this level contactless to a display installed outside the tube (roller display).

Overall, the equipment consists of a vertically mounted tube, a float (with a magnet inside) that moves freely inside the tube and a roller display attached to the outside of the tube. The float is lifted by the liquid inside the tube. The magnetic field causes the rollers of the roller display to rotate, indicating the fill level of the vessel. The measuring length can be up to 6500 mm. The tube consists of stainless steel, the float can be made of stainless steel or titanium.

All conductive components of the bypass level indicators are conductively interconnected due to permanent metallic contact. The maximum surface temperature depends on the temperature of the medium for which the bypass level indicators are used. The inside of the bypass level indicators complies with the requirements of equipment category 1 G; their outside complies with the requirements of equipment categories 2 GD or 3 GD.

Optionally, the bypass level indicators can be equipped with electric transmitters, attached on the outside, for remote sensing of the fill level and with electric limit contacts for sensing limit levels. Those are not subject of this EU-type examination.

Additionally, the bypass level indicators are also supposed to comply with the requirements of Directive 2014/68/EU where this applies if they are intended for use in overpressure areas. The test of sufficient pressure resistance is not subject of this EU-type examination; where required, a separate EU-type examination according to Directive 2014/68/EU has to be carried out.

15.3 Parameters

Bypass tube

Measuring length: max. 5.5 m (two-part if above)

Process connection: DIN flange DN15...DN100

ANSI flange ½" ...6"

Bypass tube: Ø 60.3 mm, 1.4571 (NBK-03/.../10)

Ø 71.0 mm, 1.4571 (NBK-31)

Ø 76.1 mm, 1.4571 (NBK-32/33)

Seal: NBK-03, -06, -07 flat gasket < 200 °C: PTFE;

> 200 °C: Klinger SIL®

NBK-10: reinforced graphite

NBK-31/32/33: RTJ-seal

Nominal pressure: maximal PN 320

Viscosity: maximum 200 mm²/s (standard)

(optional: 460 mm²/s, NBK-03 only)



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DEKRA EXAM GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany
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Roller display RP (max. length 5500 mm)

Roller material: POM
 Display glass: PMMA
 Carrier frame material: aluminium, black, anodised
 Medium temperature: -20 °C... 120 °C
 Ambient temperature: -20 °C... 80 °C
 Degrees of protection: IP 54

Roller display RK (max. length 5500 mm)

Roller material: ceramic
 Display glass: borosilicate glass
 Carrier material: aluminium, black, anodised
 Medium temperature: -20 °C... 400 °C
 Ambient temperature: -20 °C... 80 °C
 Degrees of protection: IP 54

15.4 Description of the Supplement

The bypass fill level displays are supplemented by the types NBK -31, -32 and -33. The magnetic roller displays mounted outside the tube of types RK and RP are supplemented by the ball indicating displays of types KP, KM, KF, KG:

Ball indicating display KP (max. length 3800 mm, single-part)

Ball material: PA
 Sight tube: PMMA
 Sealing plug: aluminium
 Seal: NBR
 Ball support rail: aluminium, black, anodised
 Carrier frame: stainless steel 1.4301
 Scale: PVC (stainless steel 1.4301 optional)
 Medium temperature: -20 °C... 80 °C
 Ambient temperature: -20 °C... 80 °C
 Degrees of protection: IP 66

Ball indicating display KM (max. length 3800 mm, single-part)

Ball material: PA
 Sight tube: PC
 Sealing plug: aluminium
 Seal: FKM
 Ball support rail: aluminium, black, anodised
 Carrier frame: stainless steel 1.4301
 Scale: PVC (stainless steel 1.4301 optional)
 Medium temperature: -60 °C... 120 °C
 Ambient temperature: -20 °C... 80 °C
 Degrees of protection: IP 66

Ball indicating display KF (max. length 3800 mm, single-part)

Fill liquid: silicone oil
 Ball material: PA
 Sight tube: PC
 Sealing plug: stainless steel
 Seal: FKM
 Ball support rail: aluminium, black, anodised
 Carrier frame: stainless steel 1.4301
 Scale: PVC (stainless steel 1.4301 optional)
 Medium temperature: -104 °C... 120 °C
 Ambient temperature: -20 °C... 80 °C
 Degrees of protection: IP 66



Ball indicating display KG (max. length 3000 mm, single-part)

Ball material:	PA
Sight tube:	borosilicate glass
Sealing plug:	stainless steel
Seal:	FKM
Ball support rail:	aluminium, black, anodised
Carrier frame:	stainless steel 1.4301
Scale:	stainless steel 1.4301
Medium temperature:	-20 °C...200 °C
Ambient temperature:	-20 °C...80 °C
Degrees of protection:	IP 66

16 Test and Assessment Reports

PP BVS PP 1100/019/04, as of 30.07.2004
PP BVS PP 1100/019/04 N1, as of 24.07.2018

17 Special Conditions for Safe Use

The bypass level indicators have to be integrated into the equipotential bonding by earthing; here, the resistance to earth has to be of a value of $< 10^6 \Omega$.

The maximum surface temperature of the bypass level indicators depends on the temperature of the medium for which the bypass level indicators are used.

The ignition temperature of the individual dusts intended for use must be at least 1.5 times the value of the maximum surface temperature of bypass level indicators. The smouldering temperature of the individual dusts intended for use must be at least 75 K above the maximum surface temperature of the bypass level indicators. The dust accumulated shall only reach a layer thickness of 5 mm maximum. Where dust layers of > 5 mm thickness are formed, the safety distance between the minimum ignition temperature of the settled dusts and maximum surface temperature of the equipment must be increased taking e.g. the requirements of EN 60079-14 in its valid edition into account.

The highest medium temperature permitted for the gases, vapours and mists to be used shall not exceed the following:

- at bypass level indicators with EPL Ga: 80 % of the maximum medium temperature according to the temperature class marked;
- at bypass level indicators with EPL Gb and EPL Gc the limit of the temperature class minus 5 K for temperature classes T4 and T3, and minus 10 K at temperature classes T2 and T1.

The bypass level indicators shall not be used with substances that are susceptible to ignition or explosion caused by sparks or friction (e.g. according to class 4.1 ADR); neither shall they be used in hybrid mixtures.

During operation no potential ignition sources (e.g. smouldering or burning particles, smouldering nests or foreign particles) shall enter the bypass level indicators.

If the bypass level indicators are to be used in hazardous areas, any apparatus it is operated in conjunction with have to be suitable for this purpose and supplied according to Directive 2014/34/EU. If the bypass level indicator is assembled with apparatus that have not been subject of this EU-type examination (e.g. the electric limit contacts), a separate risk assessment with regard to additional ignition hazards has to be carried out.

The bypass level indicators shall not be coated by the end user.

Additionally, the bypass level indicators are also supposed to comply with the requirements of Directive 2014/68/EU where this applies if they are intended for use in overpressure areas. The test of sufficient pressure resistance is not subject of this EU-Type Examination Certification; where required, a separate EU-type examination according to Directive 2014/68/EU has to be carried out.

18 Essential Health and Safety Requirements

The Essential Health and Safety Requirements covered by the standards listed under item 9.



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19 Drawings and Documents

The drawings and documents are listed in the test and assessment report.

In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, Germany, dated 29.08.2018
18EXAM 10375

DEKRA EXAM GmbH

Certifier

Approver



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