

Operating Instructions for Bypass Level Indicator

Model: NBK-ATEX



1. Contents

1. Contents.....	2
2. Note	3
2.1 General	3
2.2 Hazard warnings	3
2.3 As per PED 2014/68/EU	4
3. Instrument Inspection	5
4. Regulation Use	6
4.1 Bypass Measuring Tube System	6
4.2 Electrical Limit Switches (option)	6
4.3 Reed Contact Resistance Chain (ATEX: options ...2/...E/...R/...B/...4/...L/...K/...N)	6
5. Operating Principle.....	7
6. Mechanical Connection.....	9
7. Electrical Connection	11
7.1 Limit contacts NBK-RA	11
7.2 Electrical transmitters.....	12
7.3 Safety Instructions	13
7.4 Ground connection for ATEX models	15
8. Commissioning.....	16
9. Trouble Shooting.....	17
10. Maintenance	17
11. Technical Information	18
12. Options.....	18
13. Order Codes	18
14. Dimensions	18
15. Disposal	19
16. EU Declaration of Conformance	20
17. EU Declaration of Conformance (ATEX).....	21
18. Certificates	22
18.1 NBK-EXAM	22
18.2 PED EU Type Examination Certificate.....	27

Manufactured and sold by:

Kobold Messring GmbH
Nordring 22-24
65719 Hofheim
Tel.: +49(0)6192-2990
Fax: +49(0)6192-23398
E-Mail: info.de@kobold.com
Internet: www.kobold.com

2. Note

2.1 General

Before unpacking and commissioning the device, the operating instructions and the “General Safety Instructions” document must be read and followed carefully. The general safety instructions, the operating instructions, the data sheet as well as approvals and further information can be downloaded via the QR code on the device or under the respective product on www.kobold.com.

Due to technical changes, the device documentation 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.



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 device should be used only when the entire machine fulfils the EU machinery directive.

2.2 Hazard warnings

The following instructions are intended to ensure your personal safety and to prevent damage to the product described or connected devices. Safety instructions and warnings to prevent danger to the life and health of users or maintenance personnel, or to prevent damage to property, are highlighted in this documentation using the symbols defined here. *The symbols and terms used have the following meaning in the documentation itself:*

Symbol	Explanation	Symbol	Explanation
	Is important information about the product, the handling of the product or the respective part of the documentation to which particular attention should be drawn.		Means that minor personal injury or minor property damage may occur if proper precautions are not taken.
Note		Caution	

Symbol	Explanation	Symbol	Explanation
 Warning	Indicates that serious personal injury or substantial property damage may occur if proper precautions are not taken.	 Danger	Means that death can occur if proper precautions are not taken.
 Warning	Attention: Hot surface!	 Warning	Warning: Dangerous electrical voltage

2.3 As per PED 2014/68/EU

Classification according to Pressure Equipment Directive 2014/68/EU NBK-03 to NBK-33

Category assignment for dangerous media (from diagram 1)									
	Density [kg/dm³]	PN [bar]	Category	ML [mm]	Category	ML [mm]	Category	ML [mm]	
NBK-03	1,0	16	← Cat. II →	4711	← Cat. III →	6000	- / -		
	0,9/0,8/0,7/ 0,6/0,54			4600		6000	- / -		
NBK-06	1,0	40		1698		6000	← Cat. IV →	∞	
	0,9/0,8/0,7			1588		6000		∞	
NBK-07	1,0	63		1060		6000		∞	
	0,9/0,8/0,7			950		6000		∞	
NBK-10	1,0	100		577		4084		∞	
	0,9/0,8			467		3974		∞	
NBK-31	1,0	160				≤2090		← Cat. IV →	5600
	0,9					≤2020			5600
	0,8					≤1900			5400
NBK-32	1,0	250				≤1180			5600
	0,9					≤1110			5600
	0,8					≤985			5400
NBK-33	1,0	320				≤1040			5600
	0,9					≤970			5500
	0,8					≤830			5400

ATTENTION! If the calculated bypass length is exactly within the range limit, then the stricter test method must be used

Classification according to Pressure Equipment Directive 2014/68/EU NBK-03 to NBK-33

Category assignment for not dangerous media (from diagram 2)											
	Density [kg/dm³]	PN [bar]	Kategorie	ML [mm]	Category	ML [mm]	Category	ML [mm]	Category	ML [mm]	
NBK-03	1,0	16	← Cat. I →	4711	← Cat. II →	6000	← Cat. III →	6000	- / -		
	0,9/0,8/0,7/ 0,6/0,54			4600		6000		6000	- / -		
NBK-06	1,0	40		1698		6000		6000	- / -		
	0,9/0,8/0,7			1588		6000		6000	- / -		
NBK-07	1,0	63		1060		6000		6000	← Cat. IV →	∞	
	0,9/0,8/0,7			950		6000		6000		∞	
NBK-10	1,0	100		577		4084		6000		∞	
	0,9/0,8			467		3974		6000		∞	
NBK-31	1,0	160						≤2090		5600	- / -
	0,9							≤2020		5600	- / -
	0,8							≤1900		5400	- / -
NBK-32	1,0	250						≤1180		4410	5600
	0,9							≤1110		4340	5600
	0,8							≤985		4220	5400
NBK-33	1,0	320						≤1040		4090	5600
	0,9							≤970		4010	5500
	0,8							≤830		3870	5400

ATTENTION! If the calculated bypass length is exactly within the range limit, then the stricter test method must be used

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:

- Bypass Level Indicator model: NBK-...

4. Regulation Use

Any use of the Bypass level Indicator, model: NBK, 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 Bypass Level Indicator 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 Bypass Measuring Tube System

The bypass tube is attached at the side of the vessel with a connecting flange or a threaded pipe. The installation position is always vertical. The NBK should only be used for liquids with the medium density specified on the nameplate. Otherwise the indication will deviate (float too high or submerged).

Vessel inner pressure and medium temperature should not exceed the specified maximum values, as this can lead to the destruction and malfunction of the bypass system. It is imperative that the materials used are compatible with the liquid being measured.

Proper operation is also impaired by:

- high degree of soiling
- suspended solids
- 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).

 Note	Please pay attention to the maximum medium and ambient temperatures.
---------------------------------------------------------------------------------------------	----------------------------------------------------------------------

5. Operating Principle

Kobold Bypass Level Indicators are used for continuous measurement, display and monitoring of liquid levels. The bypass tube is attached onto the side wall of the vessel.

According to the law of communicating tubes the level in the bypass tube equals the level in the vessel. A float with embedded circular magnets in the bypass tube follows the liquid level and transfers it in a non-contacting manner to a display or a monitoring device fitted outside the tube. The following indication and monitoring devices are available:

Magnetic roller indicator

As the float passes by, the red/white* rollers/balls are rotated in succession by 180° around their own axes. The rollers/balls change from white to red as the level rises and from red to white as the level falls. The advantage of ball displays is the higher protection category, good visibility of 180 ° and higher vibration resistance with filled version. The level in a tank or a mixer is continuously displayed as a red column, even when the power supply fails.

* ceramic rollers in orange/beige

Transmitter

To remotely transmit the level a transmitter with an immersible magnetic probe (chain of resistors) or a magnetostrictive transducer 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 then be displayed on analogue or digital indicating devices.

Limit contacts

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

ATEX-version only NBK-03...NBK-10

The bypass level indicators are ATEX approved. For level evaluation, limit switches and a magnetic submersible probe (reed contact chain) with ATEX approval are offered. The electrical add-on parts have their own ATEX approval.

ATEX approval:

Bypass-level indicator:

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

or

⊕ II 1G/2D Ex h IIC/IIIC
T4...T1/T130 °C...445 °C Ga/Db
-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/3D Ex h IIC/IIIC
T4...T1/T130 °C...445 °C Ga/Dc
-20 °C ≤ T_a ≤ +80 °C

Reed Contact Resistance Chain: ⊕ II 1GD Ex ia IIC T6 Ga

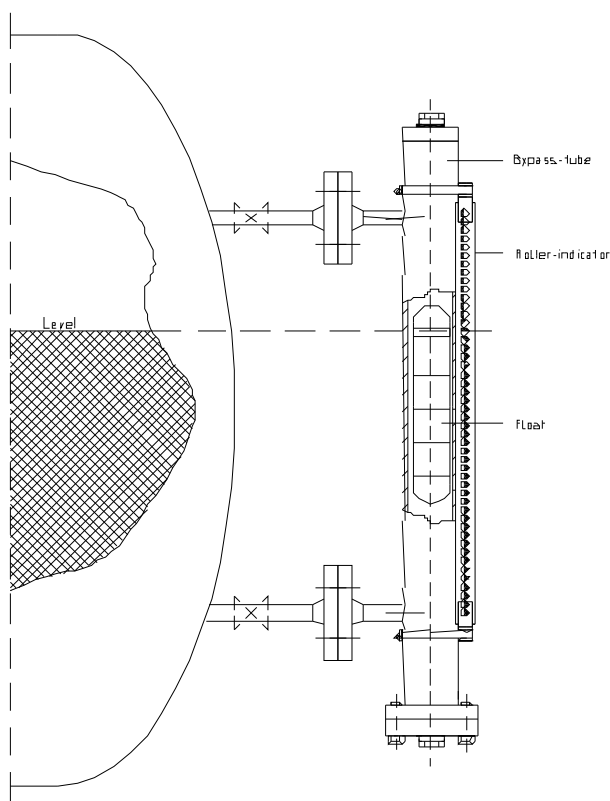
⊕ II 1/2G Exd II C T6 Ga/Gb

⊕ II 1/2D Ex tb IIIC T85 °C Da/Db

Limit contact NBK-RA:

contact sales department

6. Mechanical Connection

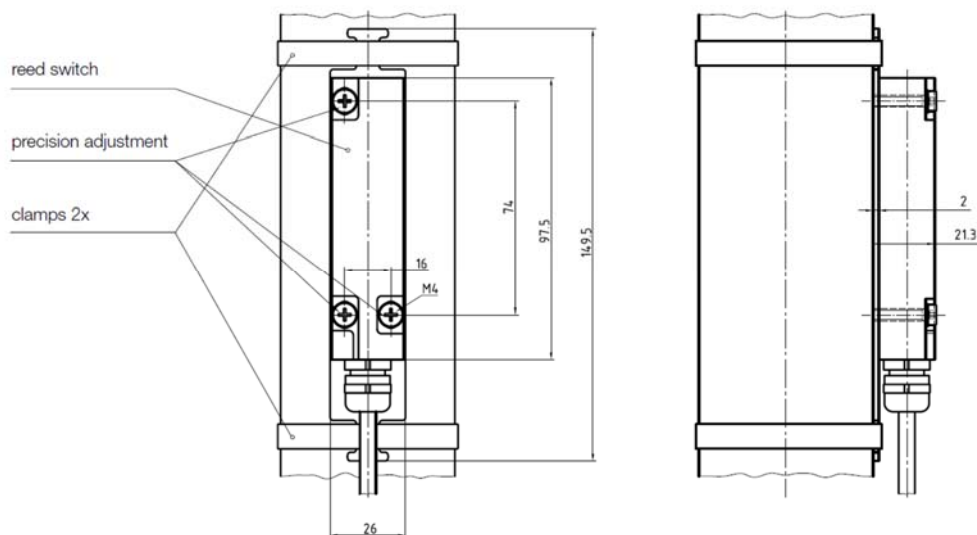


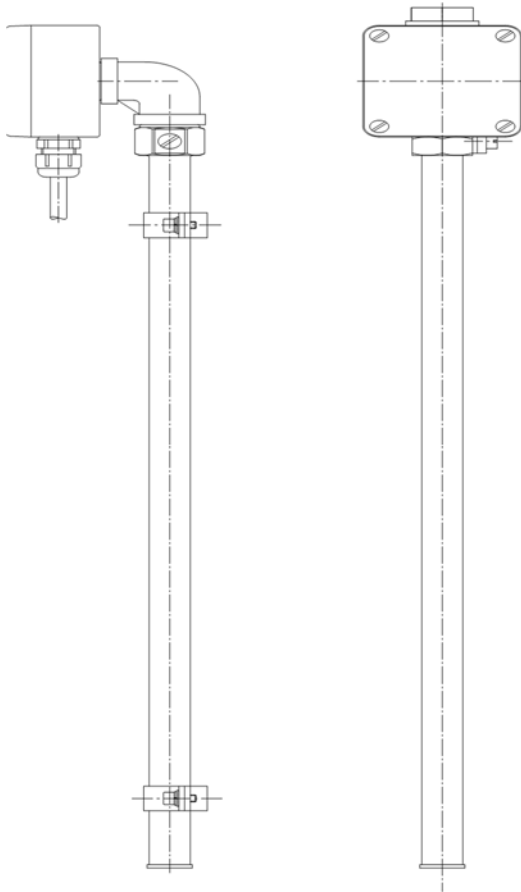
Remove the bottom flange from the bypass tube, and insert the cylindrical float in the NBK bypass tube with the designation "TOP" upturned. Reposition the gasket and close the bottom flange again; firmly tighten with screws.

Mount the bypass tube to the vessel to be monitored via the process connection and seal with an appropriate device. Normally it is sufficient to fix the complete NBK with both process connections. However, the NBK should be subjected to constant shock or strong vibrations it is recommended that the instrument is secured with rubber-damped tube clips. No welding is allowed on the bypass tube.

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

Mount and tighten the **reed switch** - if available - on the bypass tube at the opposite side of the roller indicator with the provided ribbon clamps (ex-contact: two ribbon clamps). The height of the switch contacts may be selected at will. The cable connection must point downwards. The switch must be attached close to the bypass tube. The switching function of the switch is impaired by an enlarged air gap.






Mount and tighten the **remote sensor** - if available and not already mounted - on the bypass tube with the ribbon clamps. The remote sensor must fully cover both process connections. The cable terminal box is situated at the top.

7. Electrical Connection

7.1 Limit contacts NBK-RA

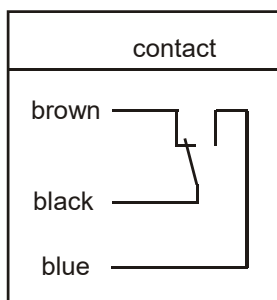
 Caution	Attention! Observe the allowed electrical ratings for the limit switch.
----------------------------------------------------------------------------------------------	----------------------------------------------------------------------------

Maximum values	NBK-RA-contact
Switching capacity:	45 W/VA
Switching current:	0,6 A
Switching voltage:	230 V _{AC/DC}

Install the switch (if available) according to the diagram and connect it to the electrical controller.

When switching inductive loads, such as contactors, relays, etc., electrical limit values should not, also temporarily, be exceeded by e.g. voltage peaks. The use of a contact protection relay is recommended to avoid overloading the reed contacts.

Valid regulations for hazardous areas and regulations for installation (DIN/VDE 0165) should be observed when installing the NBK level indicator in zone 1 or 2 hazardous areas (no combustible liquids).



NBK-RA

Note to NBK-RA:

Protect the circuit of the limit contact with a fuse. This fuse must tolerate the permitted nominal current of the switching contact and must have a deactivating ability according to the possible short circuit current of the power system at the place of installation. The contact is activated by the North Pole of a magnet and deactivated by its South Pole.

7.2 Electrical transmitters

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

The electrical connection and other technical data on the NBK measuring transducers can be found in the "MM" operating instructions.

7.3 Safety Instructions

7.3.1 Guidelines

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

Inlet bushing and cable glands must conform to the certification for their type in accordance with the 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 probable.

Verify that all data written on 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.

Remove power supply and verify that no explosion risk is present before opening the housing cover and check that the cover is correctly mounted before applying power to the instruments **MM...F** Series.

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

7.3.2 Protection against ESD (Electro Static Discharges)

Instruments with plastic parts that can produce Electro Static Discharges, have a label for it.

It is important to follow some rules to avoid ESD:

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

7.3.3 Chemical resistance

Ensure that the device construction materials have chemical resistance sufficient to prevent mechanical deformations that may affect the device. The responsibility for suitability and intended use lies solely with the operator.

7.3.4 Maintenance and repairs

The instrument does not require maintenance or servicing. By measuring substances, which tend to deposit and contamination, cleaning may be necessary. Repairs must be only carried out by Kobold Mesura (manufacturer).

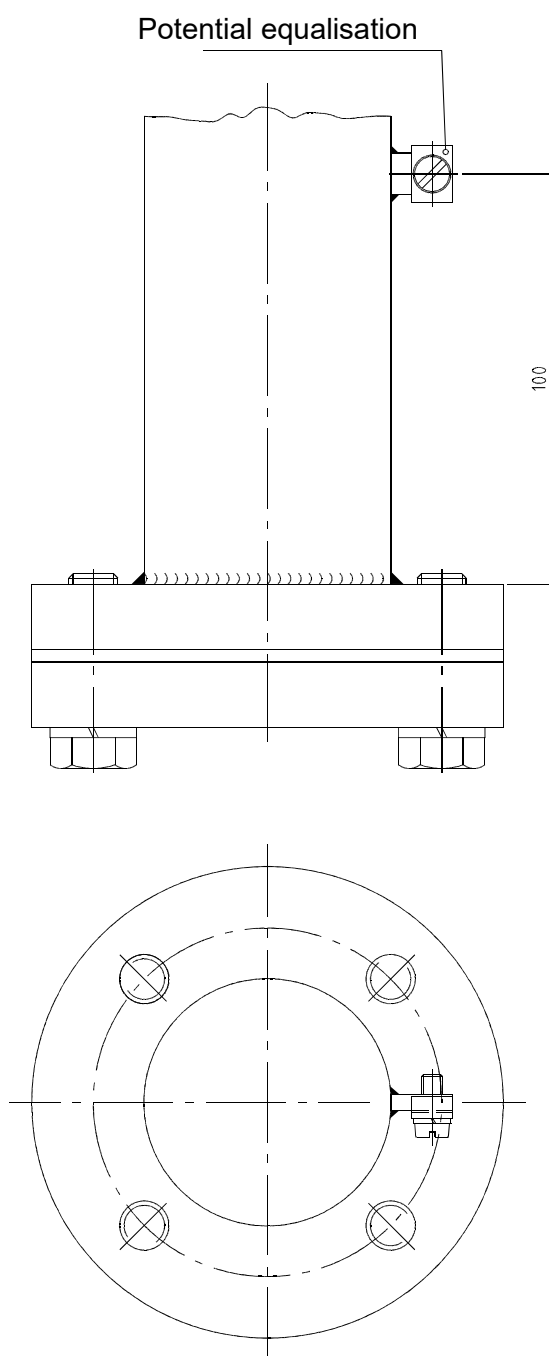
7.3.5 Storage

Measuring instruments should be protected against humidity and dust.

Storage temperature: -5...+55 °C

7.4 Ground connection for ATEX models

The bypass has to be integrated into the potential equalisation system of the installation. This can be carried out through the earth terminal which is shown in the following drawing:



8. Commissioning

Because of the setting behaviour of seals, all screw connections must be retightened.

Fill vessel and switch on electrical controller, if available. If there are gate valves between bypass process connection and tank, first slowly open the upper valve (pressure equalisation) and then the lower valve (liquid side). If vent and drain valves have been installed, close them before filling.

The liquid that now enters the bypass tube raises the float until the level between tank and bypass tube is balanced. The roller indicator indicates the liquid level.

Commissioning electrical reed switches NBK-RA

Function of switches

All switches have three connection poles (black (2), blue (1) and brown (3)).

The black wire (2) is the common pole for both switching functions (N/C and N/O contact).

The float must pass the switch once in both directions so that the switching function is in line with the terminal connection diagram and table below.

These instructions are often ignored when an alarm lamp is connected directly with the result that the alarm lamp incorrectly indicates a fault.

When the switch has been passed, it is ready for operation and requires no maintenance.

	black (2) / blue (1)	black (2) / brown (3)
float above	open	closed
float below	closed	open

Hysteresis

Hysteresis is the difference between contact closing and opening points. A hysteresis of approximately 15 mm float travel is achieved by factory tuning of the float magnet and contact strength.

9. Trouble Shooting

Error: The tank is full but there is no indication

- Check that both flanges (process connection), top and bottom, are open to the vessel, and that the bypass tube fills with liquid.
- Check that there is a float in the system.
- When the float is installed, 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 the same as the density given on the nameplate.
- Check that the float has been correctly installed with the marking "TOP" upturned.
- Check if dirt deposits in the bypass tube are blocking the float.

10. Maintenance

The drain plug should be opened occasionally, to wash out any deposits in case the liquid to be measured contains dirt particles, which could settle in the bypass tube.

If crust formation or crystallisation has taken place, the tank must be emptied or shut off; the lower cover flange must then be removed. The float should then be taken carefully out of the bypass. The bypass tube can now be mechanically cleaned.

The inspection window for the roller indication is made of high-quality plexiglass (glass for high-temperature display). It should be cleaned with a suitable cleaning agent.

The indicator requires no further 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. Options

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

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

See “General Safety Instructions” - via the QR code on the device or via www.kobold.com

16. EU Declaration of Conformance

We, KOBOLD Messring GmbH, Nordring 22-24, 65719 Hofheim, Germany, declare under our sole responsibility that the product:

NBK Bypass Level Indicator

Fulfills the following EU directives:



2011/65/EU	RoHS (category 9)
2015/863/EU	Delegated Directive (RoHS III)
2014/68/EU	PED <ul style="list-style-type: none">• Category I to IV, Diagram 1, vessel, group 1 dangerous fluids• Notified body: DNV AS• CE marking: 0575• PQA Certificate No. PEDD000000R PEDD1000000B

Model	EU Type Examination Certificate
NBK-03	PEDB000004D
NBK-06	PEDB000004D
NBK-07	PEDB000004D
NBK-10	PEDB000004D
NBK-31	PEDB0000060
NBK-32	PEDB0000060
NBK-33	PEDB0000060

Also, the following standards are fulfilled:

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

Hofheim, 15. Sept. 2025



H. Volz
General Manager

J. Burke
Compliance Manager

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/IIC 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/IIC 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 1G/2D Ex h IIC/IIIC
T4...T1/T130°C...445°C Ga/Db
-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/3D Ex h IIC/IIIC
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
This supplement may only be reproduced in its entirety and without change.

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)

Page 2 of 5 of BVS 04 ATEX H 042 X N1

This supplement may only be reproduced in its entirety and without change.

DEKRA EXAM GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany
phone +49.234.3696-105, fax +49.234.3696-110, email: zs-exam@dekra.com





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



Page 3 of 5 of BVS 04 ATEX H 042 X N1
This supplement may only be reproduced in its entirety and without change.
DEKRA EXAM GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany
phone +49.234.3696-105, fax +49.234.3696-110, email: zs-exam@dekra.com

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.

DEKRA

[illegible]

DEKRA EXAM GmbH



Deutscher
Akkreditationsrat

DEKRA EXAM GmbH, Dinnendahlstr. 9, 44809 Bochum, Germany
phone +49.234.3696-105, fax +49.234.3696-110, email: zs-exam@dekra.com

18.2 PED EU Type Examination Certificate



EU TYPE EXAMINATION CERTIFICATE - PRODUCTION TYPE

Certificate No:
PEDB000004D

This is to certify:

That representative samples of the product(s) **Pressure Accessory**

with name and/or type designation(s)

Level Indicators NBK-03, NBK-06, NBK-07 and NBK-10

Manufactured by

Kobold Messring GmbH

Hofheim am Taunus, Hessen, Germany

has been assessed with respect to the conformity assessment procedure described in Annex III Module B Production Type of Directive 2014/68/EU on Pressure Equipment, and found to comply with the requirements in Annex I – Essential Safety Requirements of the Directive.

Further details are given overleaf

This Certificate is valid until **2032-07-15**.

Issued at **Høvik** on **2022-07-16**



for the Notified Body 0575

DNV AS

van der Merwe, Bosman

Høvik

2023.02.17 16:09:36

+01'00'

Bosman van der Merwe
Head of Notified Body

Lack of fulfilment of conditions as set out in the Product Certification Agreement may render this Certificate invalid.

The digitally signed and electronically distributed document is the original and valid certificate.

DNV AS, Veritasveien 1, 1363 Høvik, Norway. Tlf.: +47 67 57 91 00. Email: PED@dnv.com

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.



Form code: PED 321

Revision: 2022-09

www.dnv.com

Page 1 of 3



Job Id: 341.4-000337-2
Certificate No: PEDB000004D

Jurisdiction

Application of Directive 2014/68/EU and Norwegian Regulation FOR-2017-10-10-1631 "Forskrift om trykkløst utstyr", as amended, issued by the Norwegian Directorate of Civil Protection and Emergency Planning and by the Petroleum Safety Authority Norway.

Certificate history

Revision	Description	Issue Date
-	Original certificate	2022-07-16

Products covered by this Certificate

Product Name	Product Description	PED Category	Product Std.
NBK-03	Pressure Accessory	I to III	AD 2000
NBK-06	Pressure Accessory	I to IV	AD 2000
NBK-07	Pressure Accessory	I to IV	AD 2000
NBK-10	Pressure Accessory	I to IV	AD 2000

Design Data

Product Name	Max. allowable Pressure (PS)	Min. allowable Temperature	Max. allowable Temperature (TS)	Test Pressure
NBK-03	16 bar	-104°C	400°C	24 bar
NBK-06	40 bar	-104°C	400°C	60 bar
NBK-07	63 bar	-104°C	400°C	95 bar
NBK-10	100 bar	-104°C	400°C	150 bar

Design Data

Product Name	Volume	DN	Fluid	Fluid Group
NBK-03	depending on the length	50	div.	1 / 2
NBK-06	depending on the length	50	div.	1 / 2
NBK-07	depending on the length	50	div.	1 / 2
NBK-10	depending on the length	50	div.	1 / 2

Prototype Test reference

Site Name	Site Address	Inspected by	Date	Report ID
Kobold Messring GmbH	Nordring 22-24 D-65719 Hofheim Germany	DNV HAM DNV AUG	2015-05-28 2021-08-06	341.4-000337-1 341.4-000907-3

Documents Reviewed

Document No.	Rev.	Date	Title	Status ¹
203.048	1	2012-07-19	Bypass Typ: NBK-03-GL	A
203.049	2	2012-07-19	Bypass Typ: NBK-06-GL	A
203.080	1	2012-07-19	Bypass Typ: NBK-07	A
203.081	1	2012-07-19	Bypass Typ: NBK-07	A
203.082	2	2012-07-19	Bypass Typ: NBK-10	A
203.083	2	2012-07-19	Bypass Typ: NBK-10	A
NBK K05/0722		2022-03-18	Bedienungsanleitung für Bypass-Niveaustandanzeiger Typ NBK	FI

Applications/Limitations

¹ A = Approved, AC = Approved with comments, FI = For information



Job Id: 341.4-000337-2
Certificate No: PEDB000004D

- This Certificate only relates to directives described above. Other directives, covering other phenomena, and also having requirements related to CE marking, might also apply.

Terms and conditions

Valid Terms and Conditions are found in the Product Certification Agreement which includes DNV's PED Certification Requirements.

This Certificate alone does not give the right to CE mark and put the product(s) listed in this Certificate on the market. Only after the product(s) have been found to comply with the requirements in one of the following Conformity Assessment Modules C2 or E (if product category III), D or F (if product category IV) the Manufacturer may draw up an EU declaration of conformity and legally affix the CE mark followed by the identification number of the Notified Body involved in these modules.



EU TYPE EXAMINATION CERTIFICATE - PRODUCTION TYPE

Certificate No:
PEDB0000060

This is to certify:

That representative samples of the product(s) **Pressure Accessory**

with name and/or type designation(s)

Level Indicators: NBK-31, NBK-32 and NBK-33

Manufactured by

Kobold Messring GmbH
Hofheim am Taunus, Hessen, Germany

has been assessed with respect to the conformity assessment procedure described in Annex III Module B Production Type of Directive 2014/68/EU on Pressure Equipment, and found to comply with the requirements in Annex I – Essential Safety Requirements of the Directive.

Further details are given overleaf

This Certificate is valid until **2035-07-21**.

Issued at **Høvik** on **2025-07-20**



for the Notified Body 0575
DNV AS



Digitally signed
by Bosman van
der Merwe

Bosman van der Merwe
Head of Notified Body

Lack of fulfilment of conditions as set out in the Product Certification Agreement may render this Certificate invalid.

The digitally signed and electronically distributed document is the original and valid certificate.

DNV AS, Veritasveien 1, 1363 Høvik, Norway. Tlf.: +47 67 57 91 00. Email: PED@dnv.com

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Form code: PED 321

Revision: 2024-10

www.dnv.com

Page 1 of 3



Job Id: 341.4-001759-1
Certificate No: PEDB0000060

Jurisdiction

Application of Directive 2014/68/EU and Norwegian Regulation FOR-2017-10-10-1631 "Forskrift om trykkløst utstyr", as amended, issued by the Norwegian Directorate of Civil Protection and Emergency Planning and by the Petroleum Safety Authority Norway.

Certificate history

Revision	Description	Issue Date
-	Renewal of certificate PED-B-171	2025-07-20

Products covered by this Certificate

Product Name	Product Description	PED Category	Product Std.
NBK-31	Level Indicator	II to IV	AD 2000
NBK-32	Level Indicator	II to IV	AD 2000
NBK-33	Level Indicator	II to IV	AD 2000

Design Data

Product Name	Max. allowable Pressure (PS)	Min. allowable Temperature	Max. allowable Temperature (TS)
NBK-31	160 bar	-60°C	100°C
NBK-32	250 bar	-60°C	100°C
NBK-33	320 bar	-60°C	100°C

Design Data

Product Name	DN	Fluid	Fluid Group
NBK-31	50	div.	1 / 2
NBK-32	50	div.	1 / 2
NBK-33	50	div.	1 / 2

Prototype Test reference

Site Name	Site Address	Inspected by	Date	Report ID
Kobold Messring GmbH	Nordring 22-24, D-65719 Hofheim, Germany	DNV Hamburg	2015-05-28	341.4-000337-1

Documents Reviewed

Document No.	Rev.	Date	Title	Status ¹
203.096-1	-	2014.11.13	Bypass Typ: NBK-31	A
203.097-1	-	2014.11.13	Bypass Typ: NBK-32	A
203.098-1	-	2014.11.13	Bypass Typ: NBK-33	A
NBK K02/0713	-	2014.11.18	Bedienungsanleitung für Bypass-Niveaustandanzeiger Typ: NBK	FI
PED-B-171	-	2015-07-22	PED Certificate module B	FI
QS 07-14	-	2015-05-28	Prüfprotokoll für Druckgeräte	FI

Applications/Limitations

- This Certificate only relates to directives described above. Other directives, covering other phenomena, and also having requirements related to CE marking, might also apply.
- PED category is determined by volume of the level indicator.

Terms and conditions

Valid Terms and Conditions are found in the Product Certification Agreement which includes DNV's PED Certification Requirements.

This Certificate alone does not give the right to CE mark and put the product(s) listed in this Certificate on the market. Only after the product(s) have been found to comply with the requirements in one of the following Conformity

¹ A = Approved, AC = Approved with comments, FI = For information



Job Id: 341.4-001759-1
Certificate No: PEDB0000060

Assessment Modules C2 or E (if product category III), D or F (if product category IV) the Manufacturer may draw up an EU declaration of conformity and legally affix the CE mark followed by the identification number of the Notified Body involved in these modules.