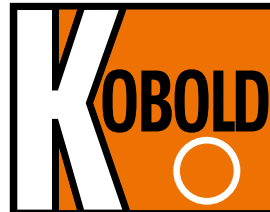


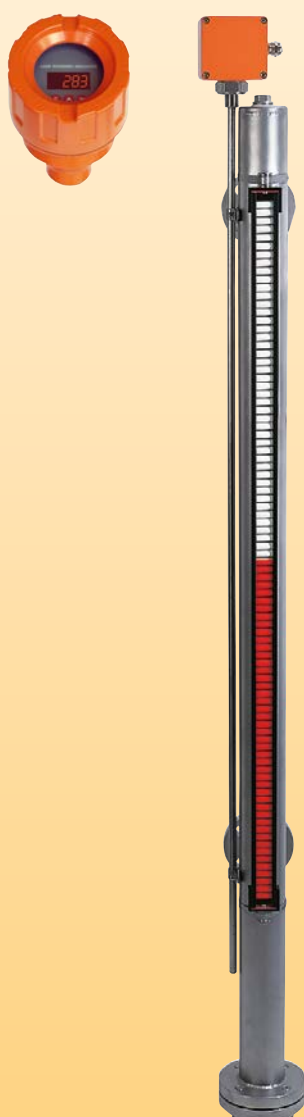


## Bypass Level Indicators ATEX or GL Approval



measuring  
•  
monitoring  
•  
analysing

**NBK -ATEX,-GL  
-03, -06, -07, -10**



- Measuring length: single-part max. 5 500 mm  
über 5 500 mm two-part or multipart
- Pressure: max. PN 100 / Class 600
- Temperature: -40 °C ... +400 °C (ceramic rollers)  
0 °C ... +120 °C (PP-rollers)
- Viscosity: max. 200 mm<sup>2</sup>/s Standard  
(Option: 460 mm<sup>2</sup>/s, only NBK-03)
- Connection:  
DIN flange DN 15 ... DN 50  
ANSI flange 1/2" ... 2"  
R- and NPT-threads  
welding nipple DN 15 ... DN 32
- Material: stainless steel 1.4571
- Insensitive magnet roller without auxiliary energy
- Limit contacts
- Analogue output, HART®, Profibus® PA,  
Foundation™ Fieldbus®



N2

KOBOLD companies worldwide:

ARGENTINA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHILE, CHINA, COLOMBIA, CZECHIA,  
EGYPT, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA,  
MEXICO, NETHERLANDS, PERU, POLAND, REPUBLIC OF KOREA, ROMANIA, SINGAPORE,  
SPAIN, SWITZERLAND, TAIWAN, THAILAND, TUNISIA, TURKEY, USA, VIETNAM

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## Description

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 fitted outside the tube or to a monitoring device.


The following indication and monitoring devices are available:

## ATEX version

The bypass level indicators are supplied with ATEX approval. Limit contacts and an immersible magnetic probe (reed contact chain) with ATEX approval are available for level measurement and monitoring. The electrical components have their own ATEX-certification.


ATEX approval:

Bypass-level indicator:  II 2G Ex mb IIC T5/T6 Gb

Limit contact NBK-RA:  II 2D Ex mb IIIC IP67 T 105°C Db  
Reed contact

resistance chain:  II 1GD Ex ia IIC T6 Ga

 II 1/2G Exd IIC T6 Ga/Gb

 II 1/2D Ex tb IIIC T85°C Da/Db

## GL version

In the pressure on stages PN 16 (NBK-03) and PN 40 (NBK-06) the bypass level indicators are available with GL approval (Germanischer Lloyd).

Certificate-No. GL: 79 786-95 HH

## Magnetic roller

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 immersible magnetic probe (chain of resistors) or a magnetostrictive transducer can be mounted outside the bypass tube. A continuous standard signal of 4-20 mA is generated by means of a fitted transmitter. (This standard signal can then be displayed on analogue or digital indicating devices. Optionally, HART®, Profibus®-PA or Foundation™ Fieldbus®. Communication protocols are possible.)

## Limit contacts

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

## Applications

- Storage tanks
- Tanks on ships
- Agitator vessel
- Water tanks

## Technical Details

Process connection: flange DIN EN1092-1 type 11, forme B  
DN 15, DN 20, DN 25, DN 32, DN 40, DN 50,  
flange ASME B 16.5 RF-2009  
1/2", 3/4", 1", 1 1/4"  
R-thread DIN EN 10226-1  
1/2", 3/4", 1", 1 1/4"  
NPT ANSI/ASME B1.20.1  
1/2", 3/4", 1", 1 1/4"

Bypass tube:  
NBK-03/06/07: Ø 60.3 mm, 1.4571  
flat gasket: <200°C; PTFE,  
≥200°C, Klingerit SIL®

NBK-10: reinforced graphite  
Operating pressure: PN 16/40/63/100  
Operat. temperature: -40°C ... +120°C (PP-rollers)  
-40°C ... +400°C (ceramic rollers)

Viscosity: max. 200 mm<sup>2</sup>/s standard  
(Option: up to max. 460 mm<sup>2</sup>/s for NBK-03)

max. meas. length: up to 5 500 mm single-part;  
longer two-part or multipart  
(not for GL-Approval)

Overall length: see dimension drawing

## Roller display RP (max. length 5 500 mm)

Material roller: Polypropylene  
Display glass: Plexiglas®  
Carrier frame material: Aluminium, brown anodised  
Operat. temperature: -40°C ... 120°C  
Protection: IP 54  
Approval: ATEX and GL

## Roller display RK (max. length 5 500 mm)

Material roller: Ceramic  
Display glass: Borosilicate glass  
Carrier frame material: Aluminium, brown anodised  
Operat. temperature: -40°C ... 400°C  
Protection: IP 54  
Approval: ATEX

## ATEX approval

### ATEX limit contact, model NBK-RA

Contact operation: bistable changeover contact encapsulated

Switching hysteresis: approximately 15 mm

max. switch. capacity: 45 VA, 230 V<sub>AC/DC</sub>, 0.6 A


Temperature class: T5/T6


max. ambient temp.: 70°C / 85°C

Connection: 3 m PVC-cable

Housing: metallic, cast  
(GD-ZN Al 4 Cu1)

Protection: IP 67

ATEX marking:  II 2G Ex mb IIC T5/T6 Gb

 II 2D Ex mb IIIC IP67 T 105°C Db



**Limit contacts high temperature, model NBK-RT200 in conjunction with an external, intrinsically safe Isolated Switch Amplifier as »Simple Apparatus«**

Contact operation: bistable changeover contact  
 Switching hysteresis: approx. 15 mm  
 max. switching capacity: 80 VA; 250 V<sub>AC/DC</sub>, 1 A  
 Resistance: < 20 mΩ  
 Medium temperature: max. 200 °C  
 Ambient temperature: max. 145 °C  
 Housing: Aluminium pressure-cast, terminal connection  
 Protection: IP65

**Limit contact high temperature model NBK-RV200NO in conjunction with an external, intrinsically safe Isolated Switch Amplifier as »Simple Apparatus«**

Sensor type: contact  
 Switching function: N/O, bistable  
 Medium temperature: -104 °C... +200 °C  
 Ambient temperature: -40 °C... +70 °C  
 max. operating voltage  
 U<sub>max</sub>: 30 V<sub>AC/DC</sub>  
 max. load current I<sub>max</sub>: 100 mA  
 max. switch capacity  
 P<sub>max</sub>: 1.2 W  
 Housing: Aluminium pressure-cast, terminal connection  
 Electrical connection: cable gland M20x1.5 (PVC)  
 Protection housing: IP65  
 Attention should be paid, that none of the three parameters U<sub>max</sub>, I<sub>max</sub> and P<sub>max</sub> are allowed to be exceeded!

**Limit contact model NBK-RV200NC in conjunction with an external, intrinsically safe Isolated Switch Amplifier as »Simple Apparatus«**

Sensor type: contact  
 Switching function: N/C, bistable  
 Other data: as for NBK-RV200NO

**Limit contact model NBK-RN200NO in conjunction with an external, intrinsically safe Isolated NAMUR Switch Amplifier as »Simple Apparatus«**

Sensor type: NAMUR  
 Switching function: N/O, bistable  
 max. operating voltage  
 U<sub>max</sub>: 15 V<sub>DC</sub>  
 Other data: as for NBK-RV200NO

**Limit contact model NBK-RN200NC in conjunction with an external, intrinsically safe Isolated NAMUR Switch Amplifier as »Simple Apparatus«**

Sensor type: NAMUR  
 Switching function: N/C, bistable  
 max. operating voltage  
 U<sub>max</sub>: 15 V<sub>DC</sub>  
 Other data: as for NBK-RV200NO

**ATEX reed contact resistor chain model: ...2....**

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

Total resistance: 0.7 ... 7 kΩ  
 max. voltage: U<sub>i</sub> = 24 V  
 max. capacity: P<sub>i</sub> = 1.2 W  
 Temperature class: T6  
 Resolution: 10 mm  
 Housing: Aluminium pressure-cast  
 Protection: IP65  
 ATEX marking: Ex II 1GD Ex ia IIC T6 Ga

**ATEX immersible reed contact resistor chain options E/R/B only in connection with an external intrinsically safe power supply**

**Option E**

**Transmitter model: 5333D**

**Common specifications:**

Power supply: 8.0 ... 35 V<sub>DC</sub>  
 Communication interface: Loop Link 5905  
 Linear resistance input: 0 ... 10 kΩ  
**Current Output:**  
 Signal range: 4 ... 20 mA  
 Min. signal range: 16 mA  
 Updating time: 135 ms  
 Load resistance: ≤ (V<sub>supply</sub> - 8) / 0.023 [Ω]

**Sensor error detection:**

Programmable: 3.5 ... 23 mA  
 NAMUR NE43 upscale: 23 mA (factory default)  
 NAMUR NE43  
 Downscale: 3.5 mA  
 Data for intrinsically safe current circuit: see instruction manual  
 U<sub>i</sub>: 28 V<sub>DC</sub>  
 I<sub>i</sub>: 120 mA<sub>DC</sub>  
 P<sub>i</sub>: 0.84 W  
 L<sub>i</sub>: 10 μH  
 C<sub>i</sub>: 1.0 nF

**ATEX approval transmitter:**

KEMA 03ATEX1535: II 1G Ex ia IIC T4 or T6  
 II 1D Ex iaD

max. ambient temp. for T1...T4: 85 °C  
 max. ambient temp. for T5 and T6: 60 °C  
 Applicable in zone: 0, 1, 2, 20, 21 or 22  
 Medium temperature: -40 ... +120 °C (with option N up to 250 °C)  
 Ambient temperature: -40 ... +80 °C  
 Resolution: 10 mm  
 Housing: Aluminium pressure-cast  
 Protection: IP66



**Technical Details** (continuation)

**Option R**

**Transmitter model:** 5337D

**Common specifications:**

Power supply: 8.0...35 V<sub>DC</sub>  
Communication interface: Loop Link 5905A & HART®  
Linear resistance input: 0...7 kΩ

**Current Output:**

Signal range: 4...20 mA  
Min. signal range: 16 mA  
Updating time: 440 ms  
Load resistance:  $\leq (V_{\text{supply}} - 8) / 0.023 [\Omega]$

**Sensor error detection:**

Programmable: 3.5...23 mA  
23 mA (factory default)

Data for intrinsically safe current circuit: see instruction manual

**ATEX approval transmitter:**

KEMA 03 ATEX 1537:  II 1G Ex ia IIC T6 or T4 Ga  
 II 1D Ex ia IIIC Da

max. ambient temp. for T1...T4: 85 °C  
max. ambient temp. for T5 or T6: 60 °C  
Applicable in zone: 0, 1, 2, 20, 21 or 22  
Medium temperature: -40...+120 °C (with option N up to +250 °C)  
Ambient temperature: -40...+80 °C  
Resolution: 10 mm  
Housing: Aluminium pressure-cast  
Protection: IP66

**Option B**

**Transmitter model:** 5350B

**Common specifications:**

Power supply: 9...32 V<sub>DC</sub>  
Consumption: < 11 mA  
Isolation voltage, test / operation: 1.5 kV<sub>AC</sub> / 50 V<sub>AC</sub>  
Signal / noise ratio: min. 60 dB  
Response time (programmable): 1...60 s  
Updating time: < 400 ms  
Dimensions: Ø 44 x 20.2 mm  
Linear resistance input: 0...10 kΩ

**Output:**

**Foundation™ Fieldbus® connection:**

Foundation™  
Fieldbus® version: ITK 4.6  
Foundation™  
Fieldbus® capability: Basic or LAS




Foundation™

Fieldb. function blocks: 2 analogue and 1 PID

**Profibus® PA connection:**

Profibus® PA  
protocol standard: EN 50170 vol. 2  
Profibus® PA  
function blocks: 2 analogue  
Data for intrinsically safe current circuit: see instruction manual

**ATEX approval transmitter:**

KEMA 02ATEX1318:  II 1 G Ex ia IIC T4...T6 or  
 II 2 (1) G Ex ib [ia] IIC T4...T6  
 II 1 D Ex iaD

Applicable in zone: 0, 1, 2, 20, 21 or 22  
Medium temperature: -40...+120 °C (with option N up to +250 °C)  
Ambient temperature: -40...+80 °C  
Resolution: 10 mm  
Housing: Aluminium pressure-cast  
Protection: IP66

**Option 4**

Total resistance: 0.7...7 kΩ  
max. voltage: U: 24 V<sub>DC</sub>  
max. capacity: 125 mW  
Temperature class: T6  
Resolution: 10 mm  
Housing: Aluminium pressure-cast  
Protection: IP65  
Explosion proof version: II 1/2G Ex d IIC T6 Ga/Gb

**Option L**

**Transmitter model:** 5333D

**Common specifications:**

Power supply: 8.0...35 V<sub>DC</sub>  
Communication interface: Loop Link 5905  
Linear resistance input: 0...10 kΩ  
**Current Output:**  
Signal range: 4...20 mA  
Min. signal range: 16 mA  
Updating time: 135 ms  
Load resistance:  $\leq (V_{\text{supply}} - 8) / 0.023 [\Omega]$

**Sensor error detection:**

Programmable: 3.5...23 mA  
NAMUR NE43 upscale: 23 mA (factory default)  
NAMUR NE43  
downscale: 3.5 mA



**LED or LCD display (options LE/LC):**

Power supply: loop powered  
 Voltage: LED 3.3 V at 4 mA  
 3.7 V at 20 mA  
 LCD max. 2.5 V  
 Medium temperature: -40 ... +120 °C (with option N up to 250 °C)  
 Ambient temperature: -40 ... +80 °C  
 Resolution: 10 mm  
 Housing: Aluminium pressure-cast  
 Protection: IP66

**Option K**

**Transmitter model: 5337D**

**Common specifications:**

Power supply: 8.0 ... 35 V<sub>DC</sub>  
 Communication interface: Loop Link 5905A & HART®  
 Linear resistance input: 0 ... 7 kΩ

**Current Output:**

Signal range: 4 ... 20 mA  
 Min. signal range: 16 mA  
 Updating time: 440 ms  
 Load resistance:  $\leq (V_{\text{supply}} - 8) / 0.023$  [Ω]

**Sensor error detection:**

Programmable: 3.5 ... 23 mA  
 23 mA (factory default)

**LED or LCD display (Options KE/KC):**

Power supply: Loop powered  
 Voltage drop: LED 3.3 V at 4 mA  
 3.7 V at 20 mA  
 LCD max. 2.5V  
 Medium temperature: -40 ... +120 °C (with option N up to 250 °C)  
 Ambient temperature: -40 ... +80 °C  
 Resolution: 10 mm  
 Housing: Aluminium pressure-cast  
 Protection: IP66

**Option N**

**Transmitter model: 5350A**

**Common specifications:**

Power supply: 9 ... 32 V<sub>DC</sub>  
 Consumption: <11 mA  
 Isolation voltage, test / operation: 1.5 kV<sub>AC</sub> / 50 V<sub>AC</sub>  
 Signal / noise ratio: min. 60 dB  
 Response time (programmable): 1 ... 60 s  
 Updating time: <400 ms  
 Dimensions: Ø 44 x 20.2 mm  
 Linear resistance input: 0 ... 10 kΩ

**Output:**

**Foundation™ Fieldbus® connection:**

Foundation™  
 Fieldbus® version: ITK 4.6  
 Foundation™  
 Fieldbus® capability: Basic or LAS  
 Foundation™  
 Fieldb. function blocks: 2 analogue and 1 PID

**Profibus® PA connection:**

Profibus® PA  
 protocol standard: EN 50170 vol. 2  
 Profibus® PA  
 function blocks: 2 analogue  
 Medium temperature: -40 ... +120 °C (with option N up to 250 °C)  
 Ambient temperature: -40 ... +80 °C  
 Resolution: 10 mm  
 Housing: Aluminium pressure-cast  
 Protection: IP66

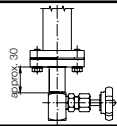
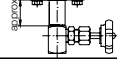
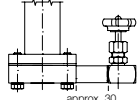
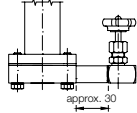
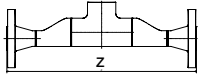




**Options**

Code	Description	Sketch/picture	Availability
<b>Top bypass tube connections</b>			
V0	Without vent plug		NBK-03/06/07* NBK-10, standard
VG	With vent plug G 1/2		NBK-10 NBK-03/06/07, standard*
VF <sup>1)</sup>	Flange connection DN50 (pressure rating as process flange)		NBK-03/06/07/10*
VA <sup>1)</sup>	Flange connection 2" ASME (pressure rating as process flange)		NBK-03/06/07/10*
V4	Vent flange DN15, stainless steel 1.4571 (pressure rating as process flange)		NBK-03/06
V5	Vent flange DN20, stainless steel 1.4571 (pressure rating as process flange)		NBK-03/06
V6	Vent flange DN25, stainless steel 1.4571 (pressure rating as process flange)		NBK-03/06
V7	Vent flange 1/2" ASME, stainless steel 1.4571 (316Ti) (pressure rating as process flange)		NBK-03/06
V8	Vent flange 3/4" ASME, stainless steel 1.4571 (316Ti) (pressure rating as process flange)		NBK-03/06
V9	Vent flange 1" ASME, stainless steel 1.4571 (316Ti) (pressure rating as process flange)		NBK-03/06
V2	Vent valve NAD-MMN15, 1/2" NPT, stainless steel 316Ti, max. temp.: +120°C		
V3	Vent valve NAD-MMR15, G 1/2, stainless steel 1.4571, max. temp.: +120°C	NBK-03/06 (not for GL approval)	
<sup>1)</sup> not possible with transmitter options E/R/B			
<b>Bottom bypass tube connections</b>			
D0	Without drain plug		NBK-03/06/07*
DG	With drain plug G 1/2	NBK-03/06  NBK-07/10	NBK-10 NBK-03/06/07, standard*
DF	Flange connection DN50 (pressure rating as process flange), with drain plug G1/2		NBK-03/06
DA	Flange connection 2" ASME (pressure rating as process flange), with drain plug 1/2" NPT		NBK-03/06
DC	Flange connection DN50 (pressure rating as process flange), without drain plug		NBK-03/06/07*
DD	Flange connection 2" ASME (pressure rating as process flange), without drain plug		NBK-03/06/07*
EF	Drain flange DN15, stainless steel 1.4571 (pressure rating as process flange)		NBK-03/06
E5	Drain flange DN20, stainless steel 1.4571 (pressure rating as process flange)		NBK-03/06
E6	Drain flange DN25, stainless steel 1.4571 (pressure rating as process flange)		NBK-03/06
E7	Drain flange 1/2" ASME, stainless steel 1.4571 (316Ti) (pressure rating as process flange)		NBK-03/06
E8	Drain flange 3/4" ASME, stainless steel 1.4571 (316Ti) (pressure rating as process flange)		NBK-03/06
E9	Drain flange 1" ASME, stainless steel 1.4571 (316Ti) (pressure rating as process flange)	NBK-03/06	

\* GL-Approval only for NBK-03/06

**Options** (continuation)

Code	Description	Sketch/picture	Availability
F1	Drain valve NAD-MMR15, G $\frac{1}{2}$ , stainless steel 1.4571, max. temp.: +120°C		NBK-03/06 (not for GL approval)
F2	Drain valve NAD-MMN15, $\frac{1}{2}$ " NPT, stainless steel 316Ti, max. temp.: +120°C		NBK-03/06 (not for GL approval)
DS	Drain socket DN15	see sketch	NBK-03
D2	Drain valve NAD-MMN15, $\frac{1}{2}$ " NPT, horizontally mounted, stainless steel 1.4571 (316Ti), max. temp.: +120°C		NBK-03/06 (not for GL approval)
D3	Drain valve NAD-MMR15, G $\frac{1}{2}$ , horizontally mounted, stainless steel 1.4571 (316Ti), max. temp.: +120°C		NBK-03/06 (not for GL approval)
RF**	Dead space free version DN25, stainless steel 1.4571 (pressure rating as process flange)		NBK-06
RA**	Dead space free version 1" ASME, stainless steel 31.4571 (316Ti) (pressure rating as process flange)		NBK-03/06
<b>Process connection options</b>			
ST	1 x process connection side, 1 process connection vertical on top	see sketch	NBK-03/06/07/10*
TS	1 x process connection side, 1 process connection vertical at bottom	see sketch	NBK-03/06/07/10*
TT	2 x process connection vertical, up to DN25 or 1" ASME	see sketch	NBK-03/06/07/10*
<b>Scales</b>			
(Ball displays are always delivered with scales, see technical data/ sketch for resolution)			
M1	Measuring scale, medium temperature -40°C... +400°C, engraved scale made of aluminium	see sketch	NBK-03/06/07/10 (not for GL approval)
M2	Measuring scale, medium temperature -40°C... +150°C, scale backing made of aluminium with polyester foil	see sketch	NBK-03/06/07/10 (not for GL approval)
<b>Thermal screening</b>			
N	Thermal screening for sensor	see sketch	NBK-03/06/07/10 (not for GL approval)
<b>Electrical Outputs</b>			
MU <sup>2)</sup>	Option with connection box at bottom, for easy access to connection box		NBK-03/06/07/10
MS <sup>2)</sup>	Option and connection box at 100 mm distance, max. medium temperature = +300°C (Thermal screening option N mandatory with this option)		NBK-03/06/07/10
<sup>2)</sup> only in addition with optional sensor/transmitter			
<b>Display options</b>			
LE	Aluminium die-cast housing, LED digital display, connection box at bottom (only in combination with transmitter option L)		NBK-03/06/07/10
LC	Aluminium die-cast housing, LCD digital display, connection box at bottom (only in combination with transmitter option L)	as AE, however with LCD display	NBK-03/06/07/10
KE	Aluminium die-cast housing, LED digital display, connection box at bottom (only in combination with transmitter option K)		NBK-03/06/07/10
KC	Aluminium die-cast housing, LCD digital display, connection box at bottom (only in combination with transmitter option K)	as HE, however with LCD display	NBK-03/06/07/10





**Options** (continuation)

Code	Description	Sketch/picture	Availability
<b>Additional options</b>			
<b>A</b>	Connection flange for 2-part version (not possible with sensor), split roller display and scale possible.	see sketch	NBK-03/06/07/10 (not for GL approval)
<b>HL</b>	Retaining plate, centric between process connections, necessary from L > 5000 mm (alternative option HF)	see sketch	NBK-03/06/07/10
<b>HF</b>	Retaining flange, centric between process connections, necessary from L > 5000 mm (alternative option HL)	see sketch	NBK-03/06/07/10
<b>Tests / certificates</b>			
<b>P</b>	Radiographic examination DIN 54 111 T1 (only for V-seam)	-	NBK-03/06/07/10
<b>Q</b>	Dye penetration test DIN EN 571-1	-	NBK-03/06/07/10
<b>X</b>	Pressure test with water 1.5 x PN	-	NBK-03/06/07/10
<b>Z</b>	Material certificate 3.1 acc. to EN 10204	-	NBK-03/06/07/10
<b>MR</b>	Material acc. to NACE MR 0103/ISO15156 (MR0175), Declaration of conformance	-	NBK-03/06/07/10
<b>WV</b>	Positive Material Identification (PMI)	-	NBK-03/06/07/10
<b>SF</b>	Oil and fat free	-	NBK-03/06/07/10

\* GL-Approval only for NBK-03/06

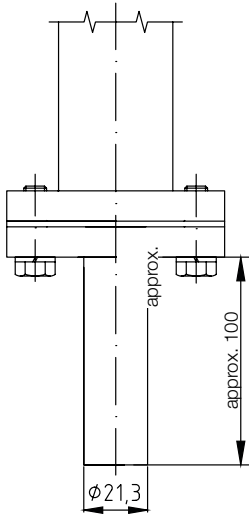
\*\* on request

**Note:** Please pay attention to max. permissible temperature limits of individual components

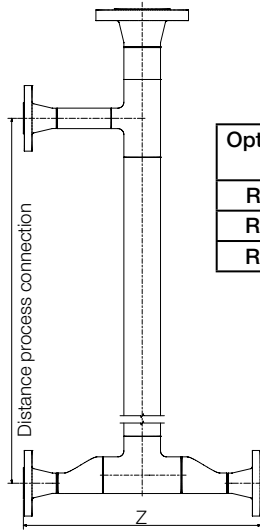


Sketches of selected options

Option DS

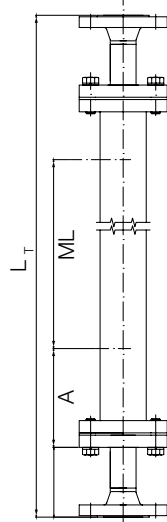


Option RF/RA

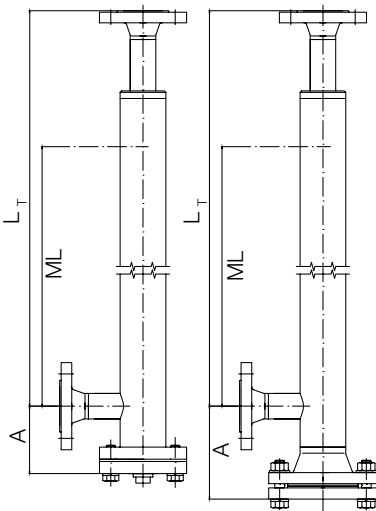


Option	Process connection below	Dimension Z
RF	V-flange DN25 PN40	approx. 360
RA	V-flange CI 150 1"	approx. 390
RA	V-flange CI 300 1"	approx. 405

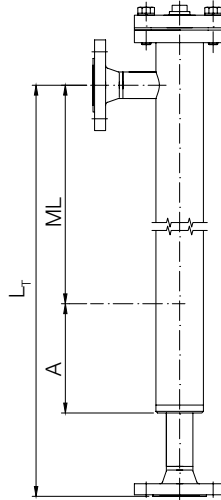
Option TT



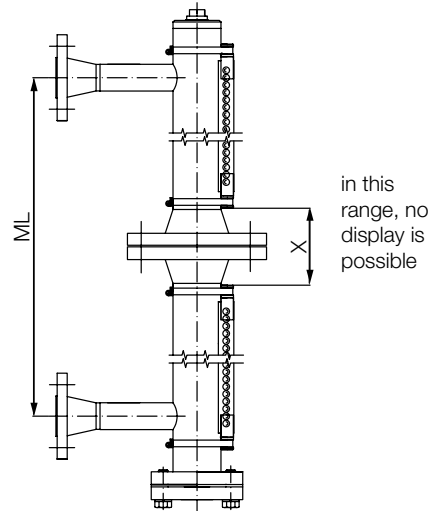
Option ST



Option TS

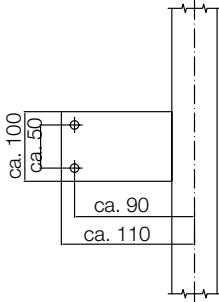


Option A

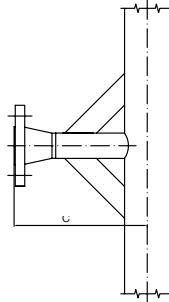


Model	Dimension X
NBK-03	92
NBK-06	98
NBK-07	127
NBK-10	139

**Option HL**  
(centred to dimens. L)

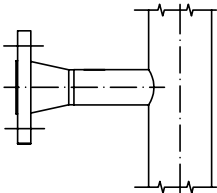


**Option HF**  
(centred to dimens. L)

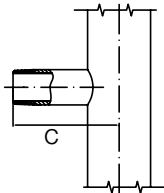


**Options process connection**

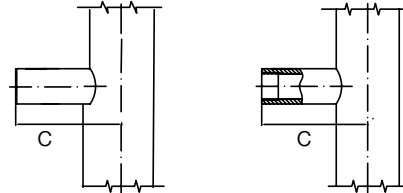
**Option F/A**



**Option R**



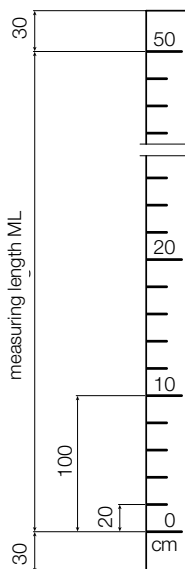
**Option S**



**Measuring scale, aluminium**

**Option M1 - engraved scale**

**Option M2 - polyester foil**



**Float models (closed design)**

Model	min. density [kg/dm <sup>3</sup> ]	Material
A	1.0	Titan
B	0.9	Titan
C	0.8	Titan
D	0.7	Titan
E	0.6	Titan
F*	0.54	Titan
V	1.0	stainless steel
W	0.8	stainless steel
<b>Interface float</b>	min. density difference =150 kg/dm <sup>3</sup> (indicate both densities)	Titan

\*Option N not possible. Not for NBK-10, special float for special medium densities (taring) or reduced length A on request



**ATEX version**

Order Details (Example: **NBK-03 F15 00 1 A 0**)

Model	Rated pressure	Conne- ction	Nominal size	Roller/ ball indicator	Sensor/ Transmitter	Medium density float	Options
<b>NBK-03...</b>	PN 16/Class 150	<b>F</b> = DIN- flange <b>A</b> = ASME- flange <b>R</b> <sup>3)</sup> = R-male thread <b>N</b> <sup>3)</sup> = NPT- male thread <b>S</b> <sup>4)</sup> = welding- nipple	<b>15</b> = DN 15, ½" <b>20</b> = DN 20, ¾" <b>25</b> = DN 25, 1" <b>32</b> = DN 32, 1 ¼" <b>40</b> = DN 40, 1 ½" <b>50</b> = DN 50, 2" XX = special- connection <sup>7)</sup>	<b>00</b> = without <b>RP</b> = PP-roller <b>RK</b> = ceramic- roller	<b>1</b> = without electrical attached parts ATEX II 1G / 2G D <b>2</b> = with reed contact chain II 1GD Exia IIC T6 <b>E</b> = immersible magnetic probe (reed chain)/ 4...20 mA, 2-wire, ATEX Exia <b>R</b> = immersible magnetic probe (reed chain)/ 4...20 mA, HART®, 2-wire, ATEX Exia <b>B</b> = immersible magnetic probe (reed chain)/ Profibus® PA Foundation™ Fieldbus®, ATEX Exia <b>4*</b> = with reed contact chain ATEX II 1/2G Exd IIC T6 Ga/Gb <b>L*</b> = immersible magnetic probe (reed chain)/ 4...20 mA, 2-wire, ATEX Exd <b>K*</b> = immersible magnetic probe (reed chain)/ 4...20 mA, HART®, 2-wire, ATEX Exd <b>N*</b> = immersible magnetic probe (reed chain)/ Profibus® PA Foundation™ Fieldbus®, ATEX Exd	<b>A</b> = 1.0 kg/dm <sup>3</sup> , titan for viscosity up to 200 cP <b>B</b> <sup>6)</sup> = 0.90 kg/dm <sup>3</sup> , titan for viscosity up to 200 cP <b>C</b> = 0.80 kg/dm <sup>3</sup> , titan for viscosity up to 200 cP <b>D</b> = 0.70 kg/dm <sup>3</sup> , titan for viscosity up to 200 cP <b>E</b> = 0.60 kg/dm <sup>3</sup> , titan for viscosity up to 200 cP <b>F</b> <sup>5)</sup> = 0.54 kg/dm <sup>3</sup> , titan for viscosity up to 200 cP <b>V</b> <sup>5)</sup> = 1.0 kg/dm <sup>3</sup> , stainless steel for viscosity up to 460 mm <sup>2</sup> /s <b>W</b> <sup>5)</sup> = 0.8 kg/dm <sup>3</sup> , stainless steel for viscosity up to 460 mm <sup>2</sup> /s <b>Y</b> = special density, titan (specify in clear text)	<b>0</b> = without options or options as in list and descrip- tion (see separate options list)
<b>NBK-06...</b>	PN 40/Class 300						
<b>NBK-07...</b>	PN 63/Class 400						
<b>NBK-10...</b>	PN 100/Class 600						
<b>NBK-RA</b>	ATEX limit contact, encapsulated, Ex II 2G EEx m II T6/T5						
<b>NBK-RT200</b>	limit contact high-temperature max. 200 °C; "Simple Apparatus", zone 1						
<b>NBK-RV-200NO</b>	limit contact, bistable, N/O, max. +200 °C (suitable for vessels with strong vibrations); "Simple Apparatus", zone 1						
<b>NBK-RV200NC</b>	limit contact, bistable, N/C, max. +200 °C (suitable for vessels with strong vibrations); "Simple Apparatus", zone 1						
<b>NBK-RN-200NO</b>	limit contact, bistable, NAMUR, N/O, max. +200 °C (suitable for vessels with strong vibrations); "Simple Apparatus", zone 1						
<b>NBK-RN200NC</b>	limit contact, bistable, NAMUR, N/C, max. +200 °C (suitable for vessels with strong vibrations); "Simple Apparatus", zone 1						

\* In preparation



**GL version**

**Order Details** (Example: **NBK-03 F15 00 5 A 0**)

Model	Nominal pressure	Connection	Nominal size	Roller / ball indicator	Sensor / Transmitter	Medium density float	Options
<b>NBK-03...</b>	PN 16 / Class 150	<b>F</b> = DIN-flange <b>A</b> = ASME-flange <b>R</b> = R-thread <b>N</b> = NPT-thread	<b>15</b> = DN 15, ½" <b>20</b> = DN 20, ¾" <b>25</b> = DN 25, 1" <b>32</b> = DN 32, 1 ¼"	<b>00</b> = without <b>RP</b> = PP-roller	<b>5</b> = without electrical attached parts	<b>A</b> = 1.0 kg/dm <sup>3</sup> , Titan <b>B</b> = 0.90 kg/dm <sup>3</sup> , Titan <b>C</b> = 0.80 kg/dm <sup>3</sup> , Titan <b>D</b> = 0.70 kg/dm <sup>3</sup> , Titan <b>E</b> = 0.60 kg/dm <sup>3</sup> , Titan <b>F<sup>6)</sup></b> = 0.54 kg/dm <sup>3</sup> , Titan <b>V</b> = 1.0 kg/dm <sup>3</sup> , stainless steel for viscosity up to 460 mm <sup>2</sup> /s <b>W<sup>6)</sup></b> = 0.8 kg/dm <sup>3</sup> , stainless steel for viscosity up to 460 mm <sup>2</sup> /s <b>Y</b> = special density, Titan (specify in clear text)	<b>0</b> = without options or options as in list and description (see separate options list)
<b>NBK-06...</b>	PN 40 / Class 300						

<sup>3)</sup> only possible with nominal diameter code 15/20/25/32 (female thread on request)

<sup>4)</sup> only possible with NBK-03/06 and nominal size code 15/20/25/32

<sup>5)</sup> only possible with NBK-03

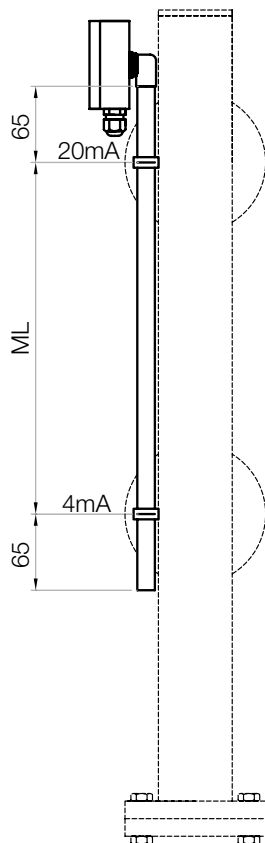
<sup>6)</sup> not possible with NBK-10

<sup>7)</sup> only possible for DN 15 and DN 25 or ½", ¾" and 1" ASME

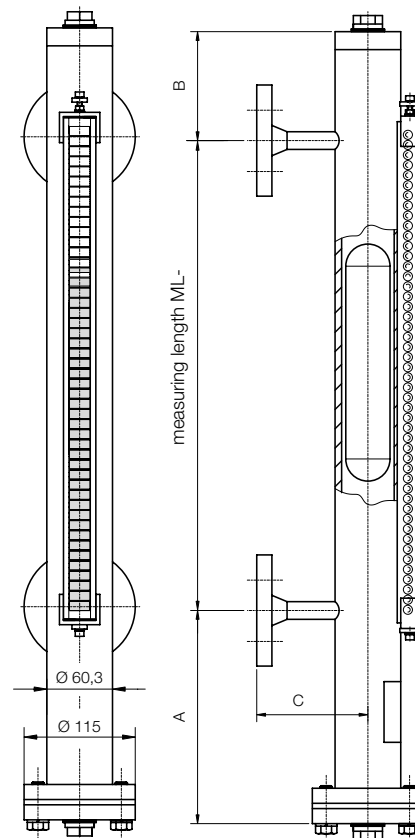
Measuring length L, density and temperature please specify in clear text!

**Dimensions [mm]**

**NBK-ATEX version reed chain Model 2**



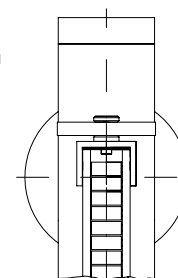
**NBK-GL version**



**Dimension NBK**

Model	Rated pressure	Dimensions [mm]		
		B	C	D
NBK-03...	PN 16 / Class 150	130	110	115
NBK-06...	PN 40 / Class 300	130	110	115
NBK-07...	PN 63 / Class 400	130	150	180
NBK-10...	PN 100 / Class 600	130	150	195

NBK-10 always without vent plug and without drain plug



**Clearance dimension A [mm]**

Model	Rated pressure	Medium density					
		0.54 [kg/dm³]	0.6 [kg/dm³]	0.7 [kg/dm³]	0.8 [kg/dm³]	0.9 [kg/dm³]	1 [kg/dm³]
NBK-03...	PN 16 / Class 150	320	320	320	320	320	210
NBK-06...	PN 40 / Class 300	410	410	320	320	320	210
NBK-07...	PN 63 / Class 400	410	410	320	320	320	210
NBK-10...	PN100/Class 600	-	700*	410**	320	320	210

\* 800 for units with thermal screening  
 \*\*450 for units with thermal screening

**Pressure-/temperature-assignment for flange made of stainless steel**

DIN EN 1092-1:2008-09 (extract)									
PN	Material	Maximum allowable temperature TS in °C							
		RT	100	150	200	250	300	350	400
		Maximum allowable pressure PS in bar							
16	1.4571 (15E0)	16.0	16.0	15.6	14.9	14.1	13.3	12.8	12.4
40		40.0	40.0	39.2	37.3	35.4	33.3	32.1	31.2
63		63.0	63.0	61.8	58.8	55.8	52.5	50.7	49.2
100		100.0	100.0	98.0	93.3	88.5	83.3	80.4	78.0

Remarks:

RT = -10°C up to +50°C

TS = maximum allowable temperature in °C, temperature which is defined by pressure equipment manufacturer, for which the pressure equipment is designed.

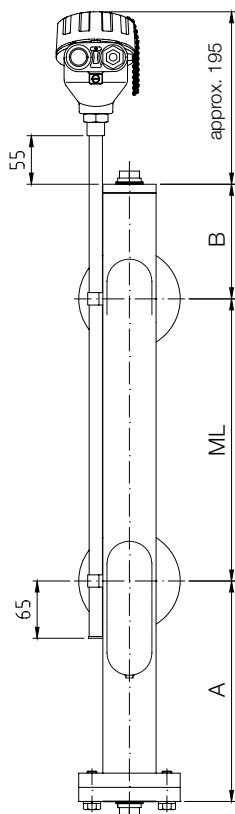
PS = maximum allowable pressure, pressure which is defined by pressure equipment manufacturer, for which the plant is designed. 1.4571 (15E0) was calculated with help of creep resistance values of 100000 h acc. to EN-Material Norms considering the safety value.

At intermediate temperatures e.g. 120°C, a linear interpolation is to be carried out between 2 following creep resistance values, e.g. of 100°C and 150°C.

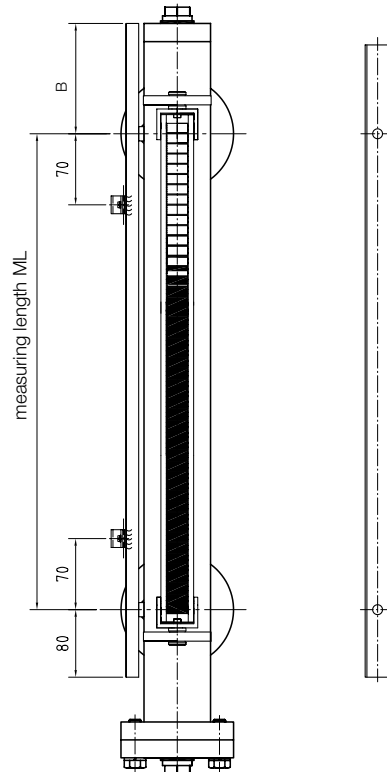
The pressure/temperature assignment is valid for the following flange models with sizes up to DN100 used by KOBOLD.

Model No. and nomination: 05 Blind flange, 11 Welding neck flange

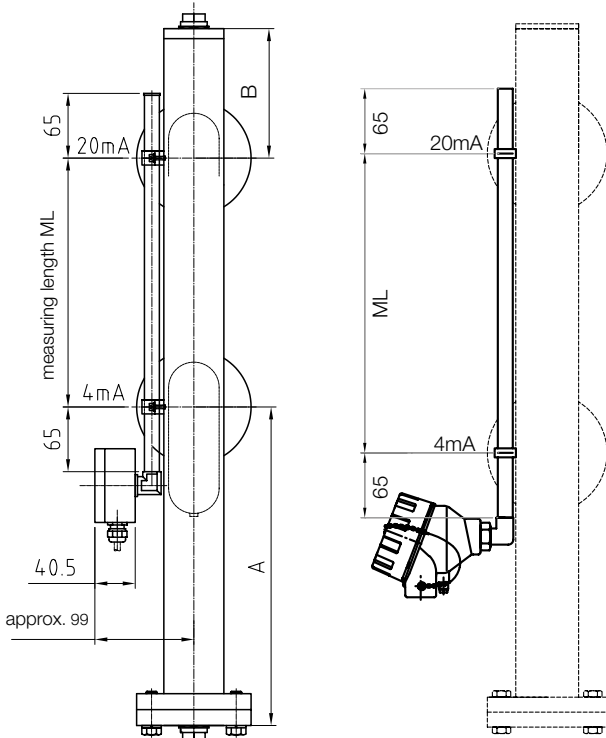
**NBK-... with transmitter options E/R/B/4/L/K/N**  
(not possible with options VA/VF)



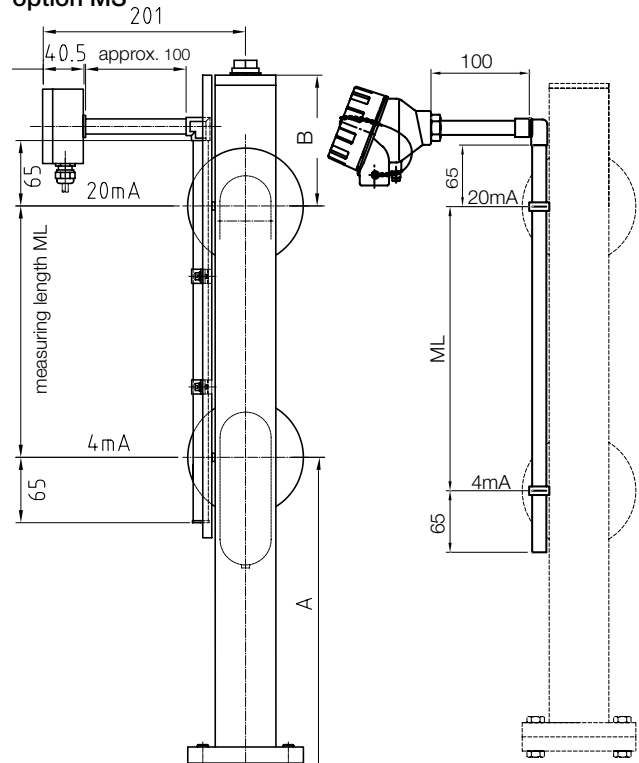
**NBK-... with thermal screen option N**



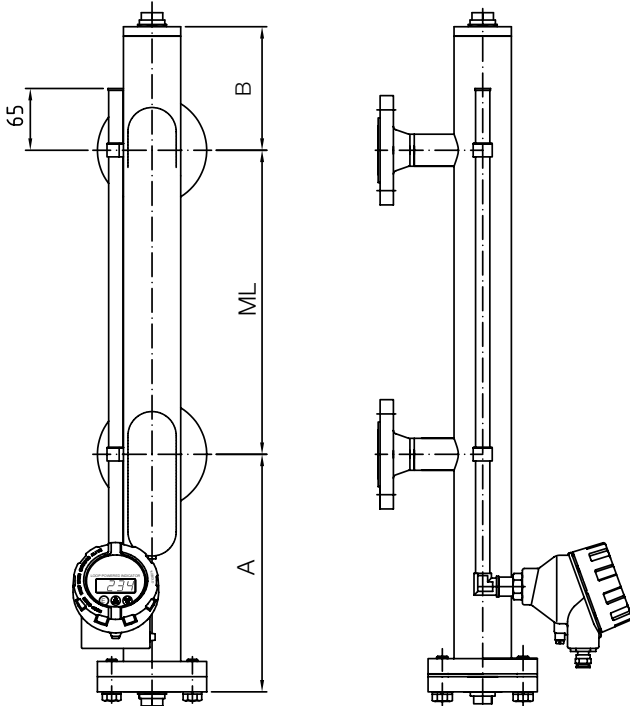
NBK-... with transmitter options 2/E/R/B/4/L/K/N and option MU



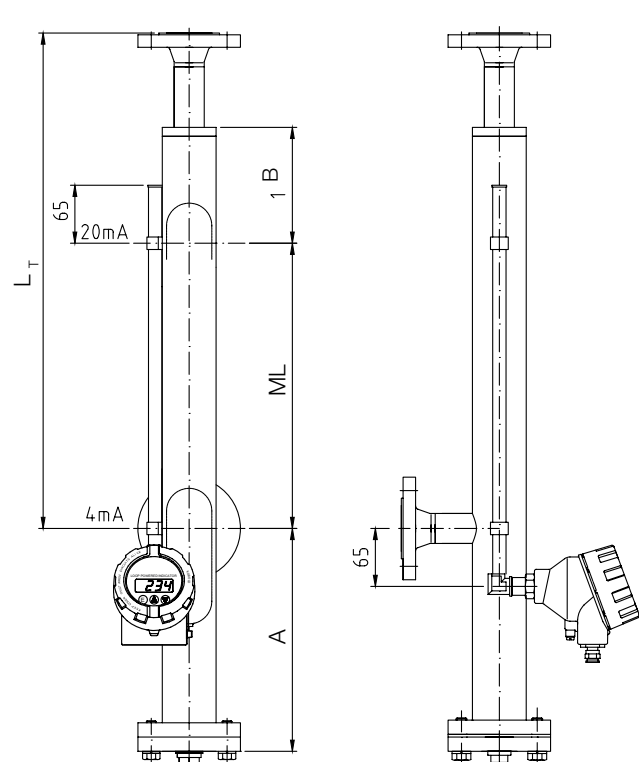
NBK-... with transmitter options 2/E/R/B/4/L/K/N and option MS



NBK-... with transmitter options E/R/L/K/ and display options LE/KE or LC/KC

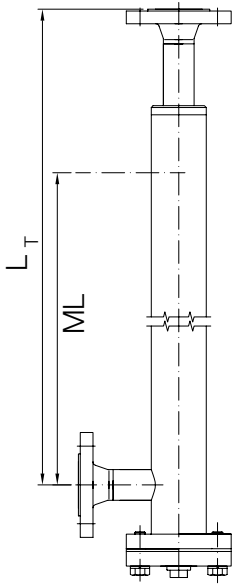


NBK-... with transmitter options E/R/L/K/ and display options LE/KE or LC/KC and option ST

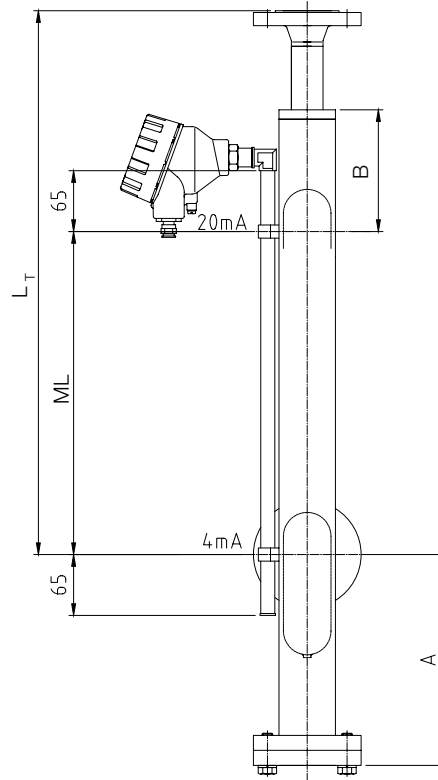




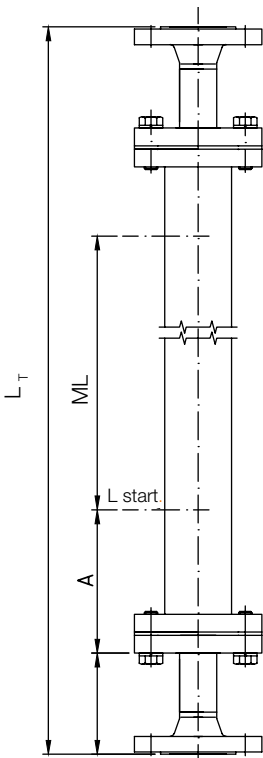
**Process connection option ST**



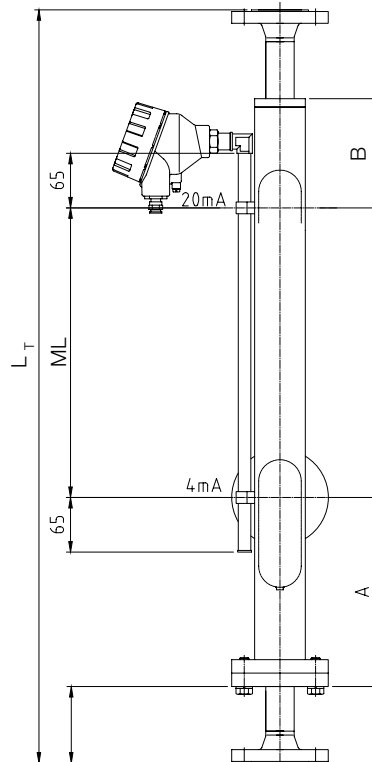
**NBK... with transmitter  
model E/R/B/L/K/N option ST**



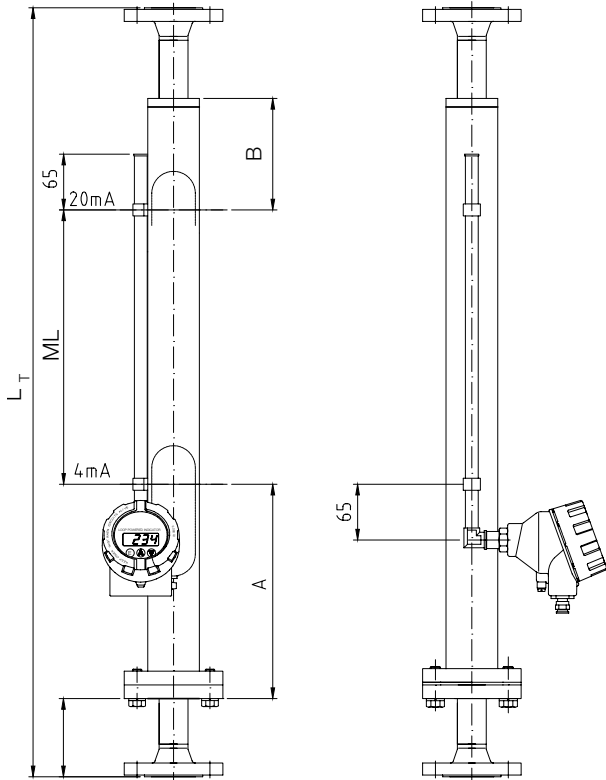
**Process connection  
option TT**



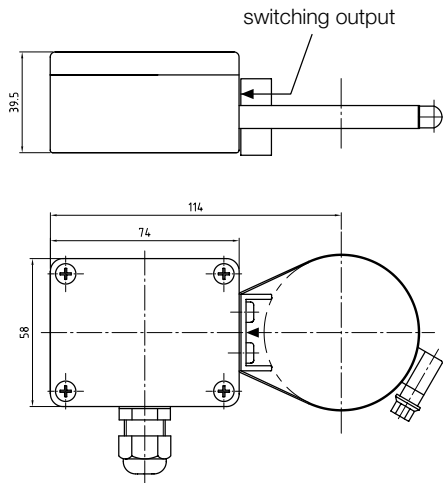
**NBK... with transmitter  
model E/R/B/L/K/N option TT**



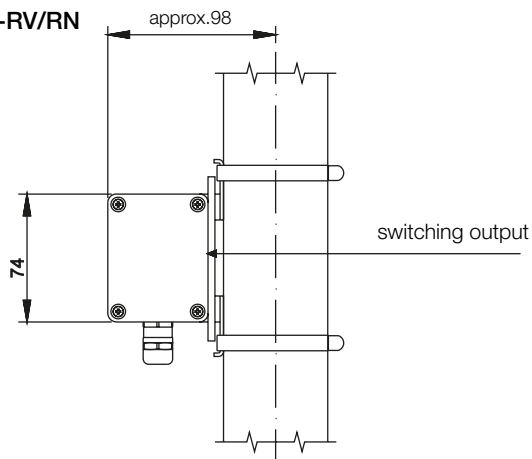
NBK-... with transmitter display options  
LE/KE or LC/KC and option TT



**NBK-RT200**



**NBK-RV/RN**



**NBK-RA**

