

- Measuring length:
 single-part max. 6000 mm
 > 6000 mm two-part or multipart
- Pressure: max. PN 100/1500 lbs
- Temperature: max. 400 °C
- Viscosity: max 200 mm²/s
- Connection:
 DIN flange DN 15 to DN 32
 ANSI flange ½ to 1 ¼
- Material:
 stainless steel 1.4571
- Local indication without
 auxiliary power
- Limit switch
- Analogue output



KOBOLD offices exist in the following countries:

ARGENTINA, AUSTRIA, BELGIUM, BRAZIL, CANADA, CHINA,
 FRANCE, GERMANY, GREAT BRITAIN, ITALY, MEXICO, NETHER-
 LANDS, PERU, POLAND, SWITZERLAND, USA, VENEZUELA

KOBOLD Messring GmbH
 Nordring 22-24
 D-65719 Hofheim/Ts.
 ☎ +49(0)6192 299-0
 Fax +49(0)6192 23398
 E-Mail: info.de@kobold.com
 Internet: www.kobold.com

Model:
 NBK-03,
 -06, -07,
 -10



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:

Magnetic roller indicator

As the float passes by, the red/white rollers are rotated in succession by 180° around their own axes. The rollers change from white to red as the level rises and from red to white as the level falls. The level in a tank or a mixer is continuously displayed as a red column, even when the power fails.

Transmitter

To remotely transmit the level a transmitter with a chain of resistors or a magnetostrictive transducer can be mounted outside the bypass tube. A continuous standard signal of 4 - 20 mA is generated by means of a fitted transmitter. This standard signal can then be displayed on analogue or digital indicating devices.

Universal indicating unit

A universal indicating unit of type series ADI can be mounted on the bypass to display and evaluate the standard signal (4 - 20 mA) generated by the transmitter.

Limit contacts

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

Applications

- Storage tanks
- Mixing vessels
- Tanks on ships
- Water tanks

Technical Details

Flange:	DIN EN 1092-1, type 1, form B; ANSI
Bypass tube:	Ø 60.3 mm, 1.4571
Flat gasket	
NBK-03, -06, -07:	< 200 °C: PTFE ≥ 200 °C: Klingerit SIL
NBK-10:	Reinforced graphit
Operating pressure:	PN 16/40/63/100
Operating temperature:	to 120 °C PP (polypropylene) rollers to 400 °C ceramic rollers
Viscosity:	max. 200 mm ² /s
Max. measuring length:	to 5500 mm single-part; longer two-part or multipart
Overall length:	depending on measuring length, see dimension drawing
ATEX-approval:	BVS 04 ATEX H 042

Technical Details Additional Features

Limit contacts model NBK-R

Contact operation:	bistable changeover contact
Switching hysteresis:	approximately 15 mm
Switch capacity:	60 W/VA, 230 V _{AC/DC} , 1 A (NBK-R)
Switch capacity:	20 W/45 VA, 220 V, 0.4 A (NBK-REx)
Medium temperature:	max. 100 °C
Ambient temperature:	max. 75 °C
Protection:	IP 67
Connection:	3 m PVC cable
Housing:	Polycarbonate

Limit contacts model

NBK-RT200, NBK-RT400, NBK-RD100, NBK-RD200

Contact operation:	bistable changeover contact
Switching hysteresis:	approximately 15 mm
Switch capacity:	80 VA; 220 V; 1 A
Medium temperature:	max. 200 °C/400 °C/100 °C
Ambient temperature:	max. 75 °C/145 °C/350 °C
Protection:	IP 65
Housing:	Aluminium pressure casing, clamp connection
Protection category:	⊗ II 2GD EEx-d-IIC (NBK-RD only)

Transmitter type: ...W...

Reed contact chain of resistors

Total resistance:	approximately 5 kΩ
Measuring-circuit voltage:	max. 24 V _{DC}
Measuring current:	max. 0.1 A
Medium temperature:	max. 200 °C max. 400 °C with option N
Ambient temperature:	max. 130 °C
Resolution:	10 mm (ML < 2000 mm) 20 mm (ML ≥ 2000 mm)

Transmitter type: ...M...

Reed contact chain of resistors with 2-wire transmitter

Output:	4 - 20 mA
Supply voltage:	16 - 32 V _{DC}
Load:	(U _B - 9 V)/0.02 A [Ω]
Medium temperature:	max. 130 °C
Ambient temperature:	max. 80 °C
Protection:	IP 65
Resolution:	10 mm (ML < 2000 mm) 20 mm (ML ≥ 2000 mm)

Type: ...T...

Magnetostrictive transducer with 4-wire transmitter

Output:	4 - 20 mA/load max. 500 Ω
Max. length:	4000 mm
Supply voltage:	24 V _{DC} , max. 150 mA
Accuracy:	± 1 mm
Medium temperature:	max. 120 °C
Ambient temperature:	max. 80 °C
Protection:	IP 65



Options

- A- connecting flange for two-part design
- B- indicating unit type ADI-B with bargraph, rugged aluminium casing mounted on bypass tube, for description see brochure Z2
- C- indicating unit type ADI-K with bargraph and digital display, rugged aluminium casing, mounted on bypass tube, for description see brochure Z2
- D- indicating unit type ADI-D with digital display, rugged aluminium casing, mounted on bypass tube, for description see brochure Z2
- E- drain flange DN 20/25 stainless steel 1.4571
- F- drain valve NAD-MZ15 G 1/2 stainless steel 1.4571
- H- rinsing connection DN 15/PN16 top and bottom
- K- Armaflex insulation (thermal conductance 0.025 kcal/m °C)
- M1-Measuring scale to 400 °C, aluminium backing, engraved scale
- M2-Measuring scale to 120 °C, aluminium backing polyester foil scale
- N- thermal screening for transmitter type ...W... 200 - 400 °C (float must be used)
- P- radiographic examination DIN 54111 T1
- Q- dye penetration test DIN EN 571-1
- X- pressure test with water 1.5 x PN

Float types

Type	Min. density (kg/dm³)	Material
A	1.0	Titanium
B	0.9	Titanium
C	0.8	Titanium
D	0.7	Titanium
E	0.6	Titanium
F	0.54	Titanium
1	1.0	St. steel

Other special versions (for example: other densities, reduced submersible length and so forth upon request)

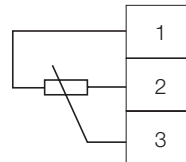
Order Details (Example: NBK-03 F15 00 0 A)

Model	Nominal pressure	Connection	Nominal size	Roller indication	Transmitter	Medium density Float
NBK-03... NBK-06... NBK-07... NBK-10...	PN 16/150 lbs PN 40/300 lbs PN 63/600 lbs PN 100/1500 lbs	F=DIN flange A=ANSI flange	15=DN 15, 1/2" 20=DN 20, 3/4" 25=DN 25, 1" 32=DN 32, 1 1/4"	00= without RP=PP (polypropylene) rollers RK=ceramic rollers	0= without T= magnetostruktiv W=chain of resistors M=chain of resistors with transmitter 6*=without transmitter, ATEX-II 2G EEx d 7*=without transmitter, ATEX-II 1G EEx d 8*=with chain of resistors, ATEX-II 1G EEx ia IIC 9*=with chain of resistors, ATEX-II 1G EEx ia IIC (transmit.) ATEX-II 1G EEx d (Bypass tube inside)	A=1.0 kg/dm³, titanium B=0.90 kg/dm³, titanium C=0.80 kg/dm³, titanium D=0.70 kg/dm³, titanium E=0.60 kg/dm³, titanium F**=0.54 kg/dm³, titanium 1=1.0 kg/dm³, st. steel
NBK-R	Standard limit contact (bistable changeover contact)					
NBK-RD100	ATEX Limit contact -40 ... +100 °C					
NBK-RD200	ATEX Limit contact -40 ... +200 °C					
NBK-RT200	High-temperature limit contact max. 200 °C					
NBK-RT400	High-temperature limit contact max. 400 °C					

*Not in conjunction with PP roller indication **not possible with NBK-10
Please specify measuring length L, density, pressure and temperature in writing!

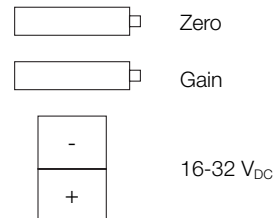
Electrical connection

Transmitter with chain of resistors type: ...W...

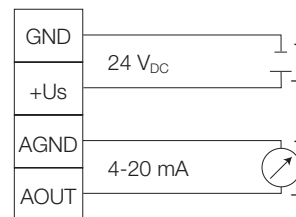


approx. 5 kΩ

Chain of resistors with transmitter type: ...M...

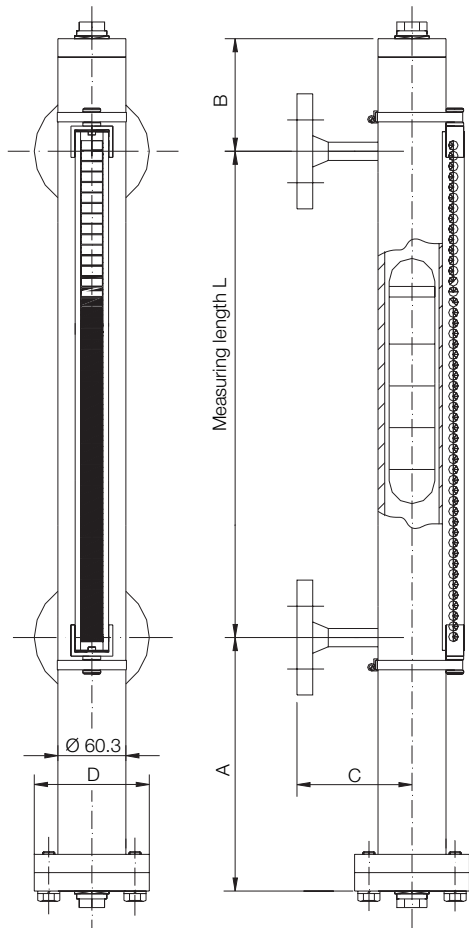


Magnetostrictive transmitter type: ...T...

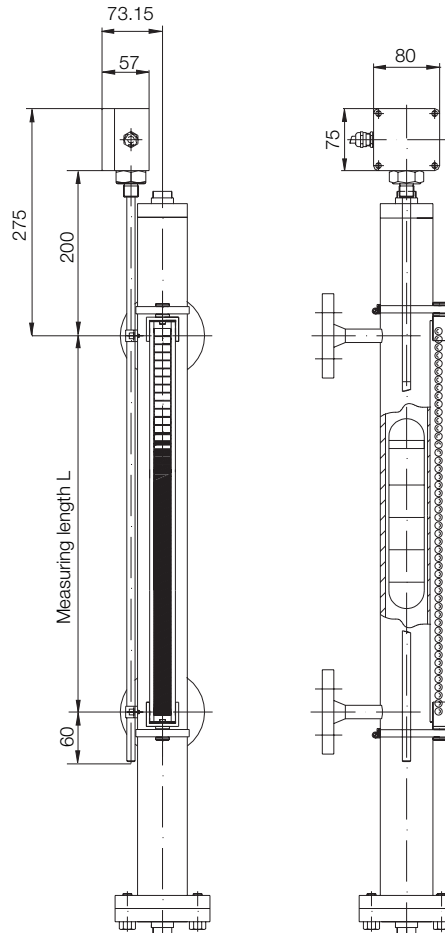


Dimensions

NBK-... with roller indication



NBK-... with roller indication and magnetostrictive transmitter



Dimensions NBK

Model	Nominal pressure	Dimensions [mm]		
		B	C	D
NBK-03...	PN 16 / 150 lbs	130	110	115
NBK-06...	PN 40 / 300 lbs	130	110	115
NBK-07...	PN 64 / 600 lbs	130	130	180
NBK-10...	PN 100 / 1500 lbs	130	130	195

Clearance dimension A [mm]

Model	Nominal pressure	Medium density					
		0.54 [kg/dm ³]	0.6 [kg/dm ³]	0.7 [kg/dm ³]	0.8 [kg/dm ³]	0.9 [kg/dm ³]	1 [kg/dm ³]
NBK-03...	PN 16 / 150 lbs	320	320	320	320	320	210
NBK-06...	PN 40 / 300 lbs	410	410	320	320	320	210
NBK-07...	PN 64 / 600 lbs	410	410	320	320	320	210
NBK-10...	PN 100 / 1500 lbs	-	700*	410**	320	320	210

*800 by instruments with thermal screening; **450 by instruments with thermal screening