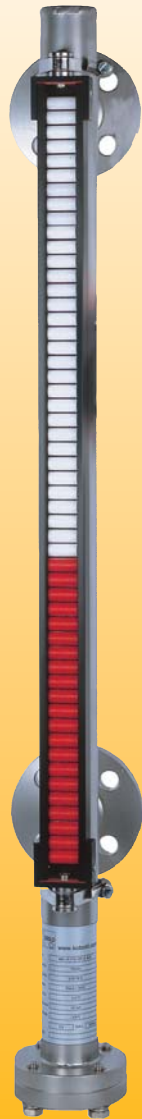


# MINI-NBK ECONOMICAL LEVEL INDICATOR



Flow  
Pressure  
Level  
Temperature  
measurement  
monitoring  
control

N2



- 316 Stainless Steel Tube
- Maximum Pressure: 580 PSIG
- Maximum Temperature: 390°F
- Measuring Lengths to 9.8 Ft.
- Optional Switches, Transmitters and Digital Displays Available
- Economical Rugged Design



## USA

KOBOLD Instruments Inc.  
1801 Parkway View Drive  
USA-Pittsburgh, PA 15205  
☎ +1 412-788-2830  
Fax +1 412-788-4890  
E-mail: info@koboldusa.com



## CANADA

KOBOLD Instruments Canada Inc.  
9A Aviation  
Pointe-Claire, QC H9R 4Z2  
☎ +1 514-428-8090  
Fax +1 514-428-8899  
E-mail: kobold@kobold.ca

Visit KOBOLD Online at  
[www.kobold.com](http://www.kobold.com)

Model:  
NBK-M

**Features**

- 316 Stainless Steel Tube
- Maximum Pressure 580 PSIG
- Maximum Temperature 390 F
- Measuring Lengths to 9.8 ft.
- Optional Switches, Transmitters and Digital Displays Available
- Economical Rugged Design

The Mini-NBK bypass level indicator provides many of the unique features of our standard NBK series but at a fraction of the cost. Like its predecessor, the Mini-NBK uses KOBOLD's revolutionary ring magnet float design allowing the user full flexibility in adding roller indicators, switches and other options anywhere on the periphery of the bypass tube.

The use of lighter gauge materials and a streamlined manufacturing process makes the Mini-NBK a very economical choice for low pressure level measuring applications.

**Roller Indicators:**

A magnetic indicator strip allows the user to take local level readings at the tank. The indicator rollers rotate from white to red as tank level changes. The roller indicator assembly can be rotated in the field to any position on the bypass tube in order to allow for easy readings when installed in a tight location. Rollers are available made of polypropylene for low temperature applications (<212°F) and ceramic for higher temperature applications.

**Switches:**

SPDT switches are available to use hi/low level alarms or for automatic tank fill/empty operations. The switch level setpoint is adjusted in the field by sliding the switch assembly up or down on the bypass pipe.

**Level Transducers:**

Magnetostrictive and variable resistance level transducers are available for transmission of tank level to a remote indicator or control system.

**Digital Indicators:**

For units which have a transducer installed, a digital indicator can also be mounted on the Mini-NBK to allow for local digital indication, an analog output and/or switches. Contact your KOBOLD Representative for details.

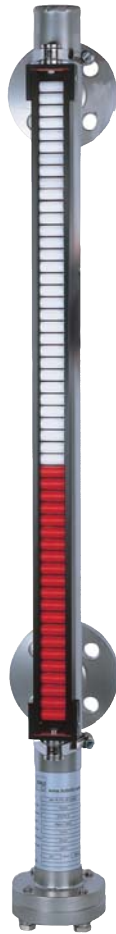


Table 1: Process Temperature Limits for Various Options

Option	Process Temperature Limit
Polypropylene Rollers	212°F
Ceramic Rollers	390°F
NBK-R	212°F
NBK-RT200	390°F
Option-M	265°F
Option-M1	390°F
Option-M2	250°F
Option-T	175°F
Option-W	265°F

**\*All options not listed in this table have a maximum process temperature limit of 390°F**

**Specifications**

**Max. Pressure**

Threaded Fittings: 580 PSIG  
 Flanged Fittings: Per ANSI B16.5 or DIN for the specified flange rating to 580 PSIG Max.

**Wetted Materials:**

Bypass Pipe & Fittings: 316-Ti stainless steel  
 Titanium  
 Float: Buna-N standard, viton, silicone,  
 Seals: Teflon and Kalrez optional

**Roller Materials:**

Polypropylene or ceramic based on ordering code

**Max. Liquid Viscosity:**

200 Centistokes

**Allowable Liquid SG:**

Float style 8: Liquid specific gravity between 0.78 and 0.94  
 Float style 1: Water and any liquid with specific gravity above 0.95

**Max. Measuring Length:**

9.8 ft

**Electrical Specifications**

**Level Transducers  
Resistive, Option-W**

Output: Resistive 0 to 5 K-ohm Approx.  
 Working Voltage: 24 VDC Max.  
 Working Current: 100 mA Max.  
 Resolution: ±3/8" for Measuring lengths <6.6 Ft.  
 ±3/4" for Measuring lengths >6.6Ft.  
 Max. Process Temperature: 390°F  
 Max. Ambient Temperature: 265°F  
 Electrical Connection: Cable gland, PG 9  
 Electrical Protection: NEMA 4/IP65

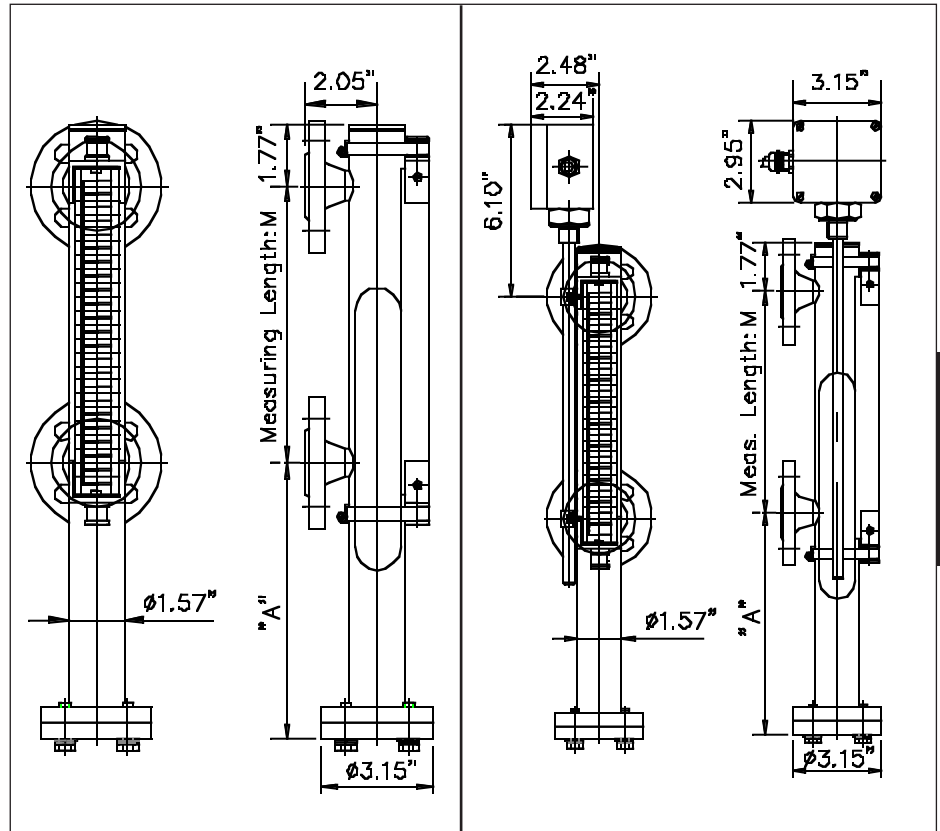
\*Option W can be combined with DFM, DST or DFA series remote controllers/transmitters to achieve an analog output, switching or remote indication.

**Resistive, with Head Mounted Transmitter, Option-M**

Output: 4-20 mA, 2-wire  
 Supply Voltage: 16-32 VDC  
 Max. Loop Burden: (V<sub>supply</sub>-9)/0.02 ohms  
 Resolution: ±3/8" for Measuring lengths <6.6 Ft.  
 ±3/4" for Measuring lengths >6.6Ft.  
 Max. Process Temperature: 265°F  
 Max. Ambient Temperature: 175°F  
 Electrical Connection: Cable gland, PG 9  
 Electrical Protection: NEMA 4/IP65

**Magnetostrictive, with Head Mounted Transmitter, Option-T**

Output: 4-20 mA, 4-wire  
 Supply Voltage: 24 VDC +/-10%  
 Max. Loop Burden: 500 ohms  
 Resolution: +/-1mm  
 Max. Process Temperature: 175°F  
 Max. Ambient Temperature: 175°F  
 Electrical Connection: Cable gland, PG 9  
 Electrical Protection: NEMA 4/IP65



N2

Float Well Dimension A		
Flange Rating	Specific Gravity	
	Customer Specified	1.0
PN 6	10.27"	6.64"
150 LB	10.27"	6.64"
300 LB	11.18"	7.0"

**Switches**

**Low Temperature, Model NBK-R**

Function: Bistable reed contact, SPDT  
 Ratings: Max. 60 watt, 230 VAC, 0.8A  
 Hysteresis: Approx. 1/2"  
 Max. Process Temperature: 212°F  
 Max. Ambient Temperature: 165°F  
 Electrical Connection: 10 Ft. PVC cable  
 Electrical Protection: NEMA 4X/IP67

**High Temperature, Model NBK-RT200**

Function: Bistable, magnetically activated, SPDT  
 Ratings: Max. 80 watt, 230 VAC, 1.0A  
 Hysteresis: Approx. 1/2"  
 Max. Process Temperature: 390°F  
 Max. Ambient Temperature: 290°F  
 Electrical Connection: Cable Gland, PG 9  
 Electrical Protection: NEMA 4X/IP65



**NBK-M = Mini NBK Bypass Level Indicator**

<b>0</b>	= No flange (threaded fittings)
<b>1</b>	= DIN PN 6 (for DIN flanges only)
<b>2</b>	= ANSI Cl.150 LB/DIN PN 16
<b>3</b>	= ANSI Cl. 300 LB/DIN PN 40

<b>Fitting Type</b>	
<b>A</b>	= ANSI Flange
<b>F</b>	= DIN Flange
<b>N</b>	= NPT Thread
<b>R</b>	= BSP Thread

<b>Fitting Size</b>	
<b>10</b>	= DN 10 mm (DIN Flange only)
<b>15</b>	= 1/2"/DN 15 mm
<b>20</b>	= 3/4"/DN 20 mm
<b>25</b>	= 1"/DN 25 mm

<b>Roller Indicator Type</b>	
<b>0</b>	= None
<b>P</b>	= Polypropylene (212°F Max.)
<b>K</b>	= Ceramic (390°F Max.)

<b>Level Transducer Type</b>	
<b>0</b>	= None
<b>M</b>	= Resistive, with 4-20 mA transmitter
<b>T</b>	= Magnetostrictive, with 4-20 mA transmitter
<b>W</b>	= Resistive, 0 to 5 K-ohm output

<b>Float Specific Gravity</b>	
<b>1</b>	= Float S.G. = 1.0 for liquid specific gravity above 0.95
<b>8</b>	= Float S.G. = 0.8 for liquid specific gravity between 0.78 and 0.94

**Options** (add option codes to base part number)

<b>E1</b>	= Drain flange, DIN 15 mm, 316-Ti SS
<b>E2</b>	= Drain flange, DIN 20 mm, 316-Ti SS
<b>E3</b>	= Drain flange, ANSI 1/2", 316-Ti SS
<b>E4</b>	= Drain flange, ANSI 3/4", 316-Ti, SS
<b>H1</b>	= Top and bottom flush connections DIN 15 mm flange, 316-Ti SS
<b>H2</b>	= Top and bottom flush connections 1/2" ANSI flange, 316-Ti SS
<b>L1</b>	= Drain valve, 1/4" BSP, 316-Ti, SS
<b>L2</b>	= Drain valve, 1/4" NPT, 316-Ti, SS
<b>M1</b>	= Level measuring scale, engraved scale Max. process temperature 390°F
<b>M2</b>	= Level measuring scale, foil scale Max. process temperature 250°F

<b>R1</b>	= Drain plug 1/4" BSP
<b>R2</b>	= Drain plug 1/4" NPT
<b>P</b>	= Radiographic weld testing per DIN 54111 T1
<b>W1</b>	= Viton seal on bottom flange
<b>W2</b>	= Silicone seal on bottom flange
<b>W3</b>	= Teflon seal on bottom flange
<b>W4</b>	= Kalrez seal on bottom flange
<b>X</b>	= Hydrostatic testing at 1.5 X nominal pressure

<b>Accessories (order as separate line items)</b>	
<b>NBK-R</b>	Standard SPDT contact, 212°F Max. process temperature
<b>NBK-RT200</b>	High temperature SPDT contact, 390°F max. process temperature



\* To ensure fast order processing, please retain the completed application data sheet and send it along with your purchase.



FAX to:
KOBOLD Instruments Inc.
412-788-4890 (USA)
514-428-8899 (Canada)

Customer Name: \_\_\_\_\_

Company Name: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-Mail : \_\_\_\_\_

Date: \_\_\_\_\_

Process Conditions

Accurate process information is essential to ensure the proper operation of your level indicator. Please fill out accurately and completely.

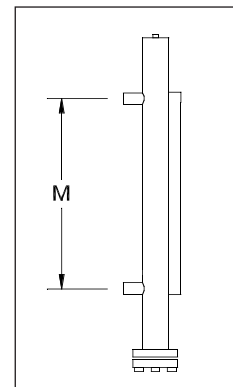
Material

316 Stainless Steel

- 1. Pressure: Normal \_\_\_\_PSIG Maximum \_\_\_\_PSIG
2. Temperature: Normal \_\_\_\_°F Maximum \_\_\_\_°F
3. Liquid Type: \_\_\_\_\_
4. Liquid Specific Gravity at Normal Operating Temp: \_\_\_\_\_
5. Liquid Viscosity: \_\_\_\_\_ Centistoke

Mounting Configuration

- 1. Measuring Length M: \_\_\_\_\_ Inches (M=center to center length between fittings)
2. Fitting Size: 1/2" 3/4" 1"
3. Fitting Type:
NPT Thread 150 LB ANSI Flange 300 LB ANSI Flange
Other (specify): \_\_\_\_\_



Roller Indicator Type

- Polypropylene (212°F Max. Temp.) Suffix-P Ceramic (390°F Max. Temp.) Suffix-K

Options

- 1. Switches (SPDT): Quantity \_\_\_\_ (See catalog for switch specifications)
Standard Switch (212°F Max. Temp.) NBK-R Hi-Temp Switch (390°F Max. Temp.) NBK-RT200
2. Analog Transducer and Signal Conditioner:
Power Requirement \_\_\_\_ VAC VDC
Transducer w/ integral 4-20 mA transmitter (2-wire, 16-32 VDC)
Transducer only. For use w/ remote mounted signal conditioner/transmitter, DFM, DST or DFA series Magnetostrictive with 4-20 mA transmitter DFM, DST or DFA series.)
3. Drain Valve Suffix -L2
4. Level Measuring Scale
Suffix -M1 or M2 (Scale in inches)
Scale mounted on left
Scale mounted on right
5. Top and Bottom Cleanout Flanges
Suffix -H1 or H2