Membrane Level Switch

for Bulk Media

measuring • monitoring • analyzing

NMF

- Pressure: max. 14.5 psi
- Temperature: max. 390 °F
- Density: min. 3.2 lb/ft³
- Easy to install
- Self-cleaning
- Handles a wide range of bulk materials
- Membrane Material: NBR, FKM, or Stainless steel

KOBOLD companies worldwide:

ARGENTINA, AUSTRIA, BELGIUM, BULGARIA, CANADA, CHILE, CHINA, COLUMBIA, CZECH REPUBLIC, EGYPT, FRANCE, GERMANY, GREAT BRITAIN, HUNGARY, INDIA, INDONESIA, ITALY, MALAYSIA, MEXICO, NETHERLANDS, PERU, POLAND, ROMANIA, SINGAPORE, SOUTH KOREA, SPAIN, SWITZER-LAND, TAIWAN, THAILAND, TUNISIA, USA, VIETNAM

KOBOLD Instruments, Inc.
1801 Parkway View Drive
Pittsburgh, PA 15205
Main Office:
+1.412.788.2830
+1.412.788.4890
info@koboldusa.com
www.koboldusa.com

12-2012

Areas of Application

Membrane level switches allow economic level monitoring of bulk media in storage vessels. They may be used to indicate full and empty states and load demand for dusty, powdery, granulated, and grainy bulk solids. They are suitable for use with bulk materials (19 to 144 lb/ft^3) and particle sizes up to 30 mm.
The devices will operate properly provided the bulk media flows easily and does not pile up at a sharp angle. Only such materials exert sufficient operating pressure on the detector fitted in the wall of the silo.

Method of Operation

The housing made of cast aluminium or glass reinforced plastic carries the membrane retained by a screwed on ring.

With its own weight, the bulk material presses against the membrane which is prestressed with a spring through to the support. A plunger fixed to the membrane transfers the pressure directly to a microswitch with SPDT contact. If the bulk material subsides, the membrane is relieved and the contact is switched back.

The sensitivity can be adjusted with a spring. The switch can thus be optimized for the type of fill and the installation conditions.

For use with bulk goods

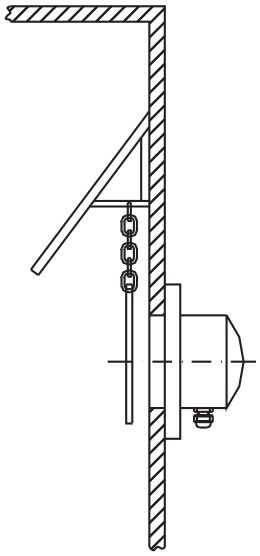
for example:

- Alum
- Bauxite
- Ceramics
- Dolomite
- Peas, peanuts
- Fish meal
- Gravel
- Oats, hazelnuts
- Insulating materials
- Coffee beans
- Long grain rice
- Corn, almonds
- Nuts
- Fruit
- Pearlite
- Quartz sand
- Rice
- Sand, slag
- Clay
- Various granulates
- Wheat
- Miscellaneous grain
- Sugar

Installation with very coarse and/or sharp-edged bulk media:

The installation of a guard is recommended for very large grained and/or sharp-edged materials with high bulk density.

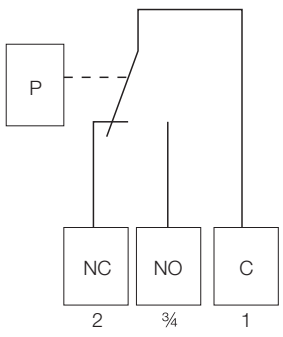
A proposal for such a guard is shown in the sketch below. The guard mounted over the level switch protects sensor and membrane from damage from dropping bulk material. The curtain (made of rubber or plastic, for instance) protects the membrane from excessive wear by hanging against the membrane as the amount of bulk material increases. Make sure that the switch is not in the path of the in flowing material, as otherwise the switch and membrane could be destroyed very quickly.



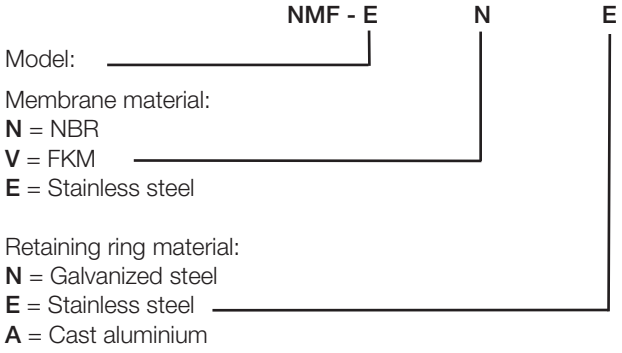
Technical Details

Installation position:	Vertical
Maintenance:	None
Cable entry fitting:	M20 x 1.5
Contact loading capacity:	4 A at 250 V_{AC} floating SPDT contact

Wiring Diagram

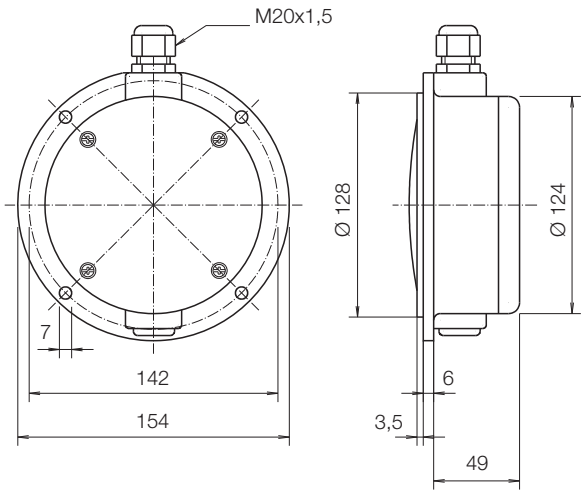


Type codes



12-2012

Model NMF-E... most economic

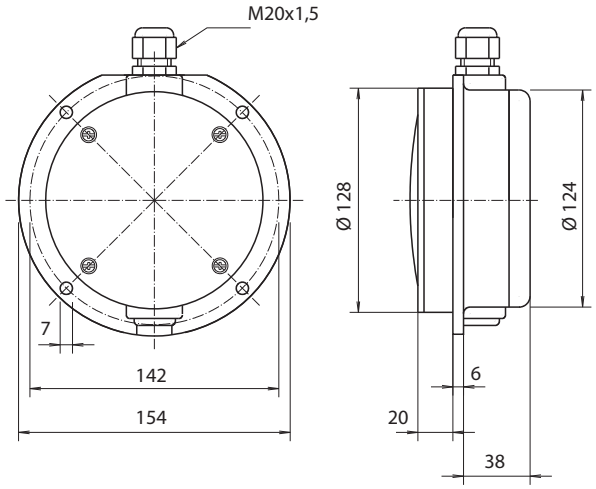


Materials:	Membrane - NBR or FKM retaining ring - galvanized steel or stainless steel 1.4324 housing - glass reinforced plastic GRP
Weight:	480 g
Sensitivity:	Adjustable between 60 g and 200 g
Protection:	IP 40 screwed fitting bottom IP 53 screwed fitting top
Contact loading:	max. 4 A at 250 V_{AC}
Temperature range:	-4 ... 140 °F
Pressure:	Vented, max. 14.5 psi
Cable entry:	M20 x 1.5 fitting
Mounting:	Vertical

Order Details (Example: **NMF-ENN**)

Membrane	Retaining ring	Order Number
NBR	Galvanized steel	**NMF-ENN**
	St. steel 1.4324	**NMF-ENE**
FKM	Galvanized steel	**NMF-EVN**
	St. steel 1.4324	**NMF-EVE**

Model NMF-F... for greater wall thicknesses

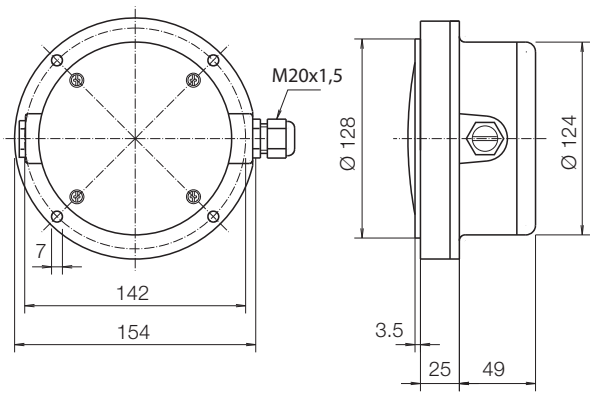


Materials:	Membrane - NBR or FKM retaining ring - galvanized steel or stainless steel 1.4324 housing - glass reinforced plastic GRP
Weight:	530 g
Sensitivity:	Adjustable between 60 g and 200 g
Protection:	IP 40 screwed fitting bottom IP 53 screwed fitting top
Contact loading:	max. 4 A at 250 V_{AC}
Temperature range:	-4 ... 140 °F
Pressure:	Vented, max. 14.5
Cable entry:	M20 x 1.5 fitting
Mounting:	Vertical

Order Details (Example: **NMF-FNN**)

Membrane	Retaining ring	Order Number
NBR	Galvanized steel	**NMF-FNN**
	St. steel 1.4324	**NMF-FNE**
FKM	Galvanized steel	**NMF-FVN**
	St. steel 1.4324	**NMF-FVE**

Model NMF-D... with double-membrane

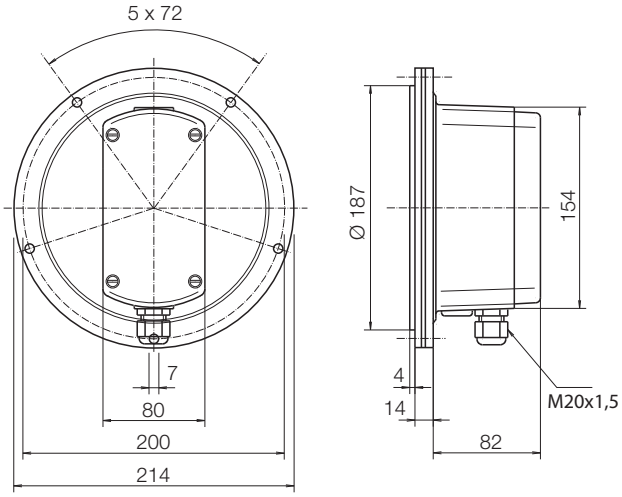


Materials:	Membrane - NBR or FKM retaining ring - galvanized steel or stainless steel 1.4324 housing - glass reinforced plastic GRP
Weight:	750 g
Sensitivity:	Adjustable between 60 g and 200 g
Protection:	IP 65
Contact loading:	max. 4 A at 250 V_{AC}
Temperature range:	-4 ... 158 °F
Pressure:	Vented, max. 14.5 psi
Cable entry:	M20 x 1.5 fitting
Mounting:	Vertical

Order Details (Example: **NMF-DNN**)

Membrane	Retaining ring	Order Number
NBR	Galvanized steel	**NMF-DNN**
	St. steel 1.4324	**NMF-DNE**
FKM	Galvanized steel	**NMF-DVN**
	St. steel 1.4324	**NMF-DVE**

Model NMF-B... for higher temperatures



Materials:	Membrane - NBR, FKM or stainless steel 1.4301 retaining ring - cast aluminium housing - cast aluminium
Weight:	1700 g
Sensitivity:	Adjustable between 100 g and 200 g (NMF-BNA, NMF-BVA) adjustable between 200 g and 500 g (NMF-BEA)
Protection:	IP 40 screwed fitting top IP 53 screwed fitting bottom
Contact loading:	max. 4 A at 250 V_{AC}
Temperature range:	Membrane NBR -4 ... 175 °F FKM -4 ... 300 °F St. steel -4 ... 390 °F
Pressure:	Vented, max. 14.5 psi
Cable entry:	M20 x 1.5 fitting
Mounting:	Vertical

Order Details (Example: **NMF-BNA**)

Membrane	Retaining ring	Order Number
NBR	Cast aluminium	**NMF-BNA**
FKM	Cast aluminium	**NMF-BVA**
Stainless Steel	Cast aluminium	**NMF-BEA**

12-2012