



## Membrane Level Monitor for bulk goods



measuring  
•  
monitoring  
•  
analysing

NMF



- Pressure: overpressure max. 1 bar
- Temperature: max. 200 °C
- Up to density 0.05 kg/dm<sup>3</sup>
- Easy to install
- Suited for universal use
- Self-cleaning
- Versatile service
- Material: NBR, Nitrile, FPM, stainless steel (Membrane)



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**Areas of Application**

Membrane level monitors allow economic level monitoring of bulk goods in storage vessels.

They may be used to indicate full and empty states and load demand for dusty, powdery, granulated and grainy bulk goods.

They are suitable for use with bulk materials (0.3 to 2.5 t/m<sup>3</sup>) and particle sizes up to 30 mm.

The devices will operate faultlessly provided the bulk goods flow easily at not too small an 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-fibre-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 changeover 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 monitor can thus be optimised for the type of fill and the installation conditions.

**For use with bulk goods**

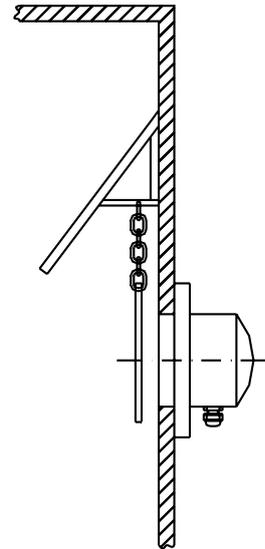
for example:

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

**Installation with very coarse-grained and sharp-edged bulk goods:**

The installation of guards is recommended for very large grained and sharp-edged materials with high specific weight.

A proposal for such a guard is shown in the sketch. The **guard** mounted over the level monitor protects sensor and membrane against 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 monitor is not in the path of the inflowing material, as otherwise monitor and membrane would be destroyed very quickly.



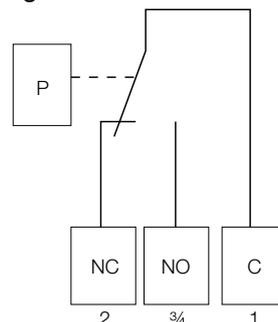
**Technical Details**

Installation position:	vertical
Maintenance:	none
Cable entry fitting:	M20x1,5
Switch-in delay:	no
Contact loading capacity:	4 A at 250 V <sub>AC</sub> floating changeover contact

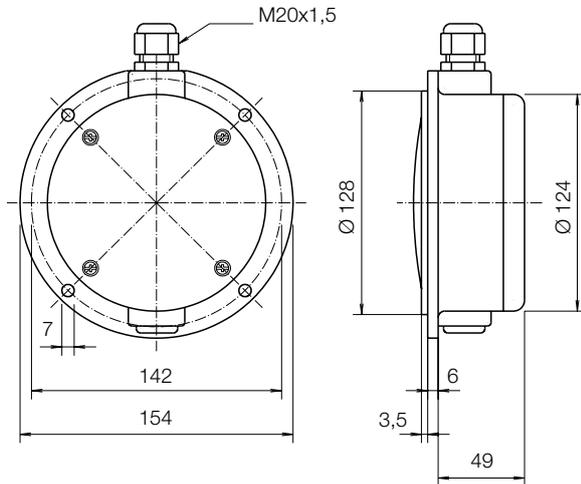
**Type codes**

Model:	NMF-E	N	E
Membrane material:			
N = Nitrile/NBR			
V = FPM			
E = Stainless steel			
Retaining ring material:			
N = Galvanized steel			
E = Stainless steel			
A = Cast aluminium			

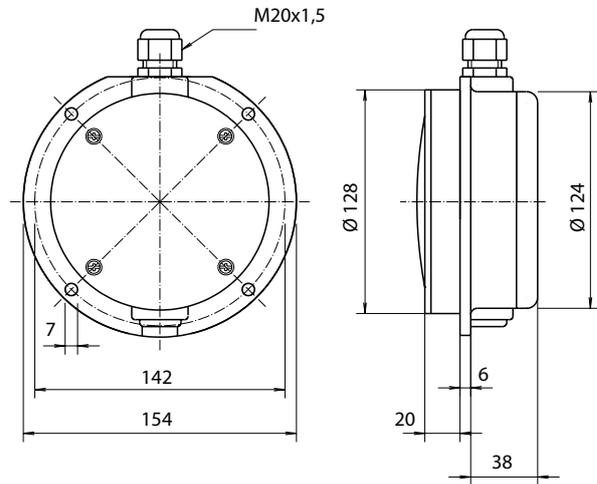
**Connection diagram**



**Model NMF-E...: most economic**



**Model NMF-F...: For greater wall thicknesses**



Materials: membrane made of nitrile or FPM  
retaining ring in galvanised steel or stainless steel 1.4324  
housing in glass-fibre-reinforced plastic GRP

Weight: 480 g

Sensitivity: adjustable between 60 g ... 200 g

Protection: IP 40 screwed fitting bottom  
IP 53 screwed fitting top

Contact loading: max. 4 A at 250 V<sub>AC</sub>

Temperature range: -20 ... +60 °C

Max. pressure: depressurised,  
overpressure max. 1 bar

Cable entry fitting: M20x1,5

Switch-in delay: 0 s

Installation position: any

Materials: membrane made of nitrile or FPM  
retaining ring in galvanised steel or stainless steel 1.4324  
housing in glass-fibre-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<sub>AC</sub>

Temperature range: -20 ... +60 °C

Max. pressure: depressurised,  
overpressure max. 1 bar

Cable entry fitting: M20x1,5

Switch-in delay: 0 s

Installation position: any

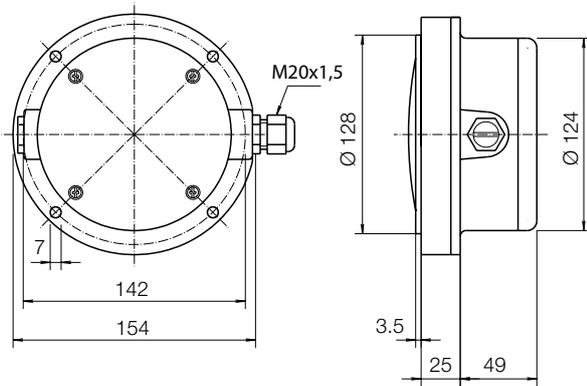
**Order Details (Example: NMF-ENN)**

Membrane	Retaining ring	Order no.
Nitrile	Galvanised steel	<b>NMF-ENN</b>
	St. steel 1.4324	<b>NMF-ENE</b>
FPM	Galvanised steel	<b>NMF-EVN</b>
	St. steel 1.4324	<b>NMF-EVE</b>

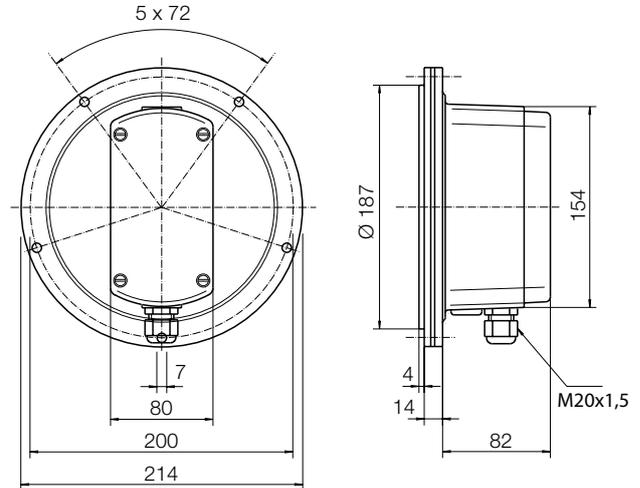
**Order Details (Example: NMF-FNN)**

Membrane	Retaining ring	Order no.
Nitrile	Galvanised steel	<b>NMF-FNN</b>
	St. steel 1.4324	<b>NMF-FNE</b>
FPM	Galvanised steel	<b>NMF-FVN</b>
	St. steel 1.4324	<b>NMF-FVE</b>

**Model NMF-D...: with double-membrane**



**Model NMF-B...: for higher temperatures**



Materials: membrane made of nitrile or FPM  
retaining ring in galvanised steel or stainless steel 1.4324  
housing in glass-fibre-reinforced plastic GRP

Weight: 750 g

Sensitivity: adjustable between 60 g ... 200 g

Protection: IP 65

Contact loading: max. 4 A at 250 V<sub>AC</sub>

Temperature range: -20 ... +70 °C

Max. pressure: depressurised, overpressure max. 1 bar

Cable entry fitting: M20x1,5

Switch-in delay: 0 s

Installation position: any

Materials: membrane made of NBR, FPM or stainless steel 1.4301  
retaining ring in cast aluminium  
housing in cast aluminium

Weight: 1700 g

Sensitivity: adjustable between 100 g ... 200 g (NMF-BNA, NMF-BVA)  
adjustable between 200 g ... 500 g (NMF-BEA)

Protection: IP 40 screwed fitting top  
IP 53 screwed fitting bottom

Contact loading: max. 4 A at 250 V<sub>AC</sub>

Temperature range: Membrane NBR -20 ... +80 °C  
FPM -20 ... +150 °C  
St. steel -20 ... +200 °C

Max. pressure: depressurised, overpressure max. 1 bar

Cable entry fitting: M20x1,5

Switch-in delay: 0 s

Installation position: any

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

Membrane	Retaining ring	Order no.
Nitrile	Galvanised steel	<b>NMF-DNN</b>
	St. steel 1.4324	<b>NMF-DNE</b>
FPM	Galvanised steel	<b>NMF-DVN</b>
	St. steel 1.4324	<b>NMF-DVE</b>

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

Membrane	Retaining ring	Order no.
<b>NBR</b>	Cast aluminium	<b>NMF-BNA</b>
<b>FPM</b>	Cast aluminium	<b>NMF-BVA</b>
<b>Stainless steel</b>	Cast aluminium	<b>NMF-BEA</b>