



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/dm³
- 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/m³) 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

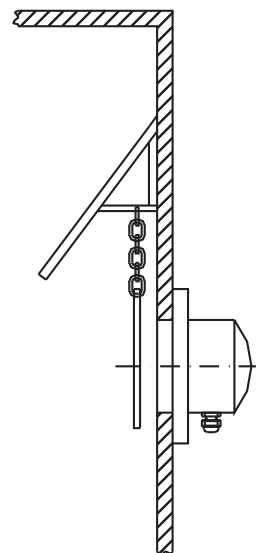
for example:

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



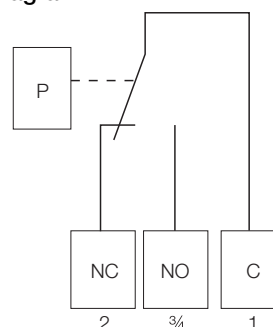
Technical Details

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

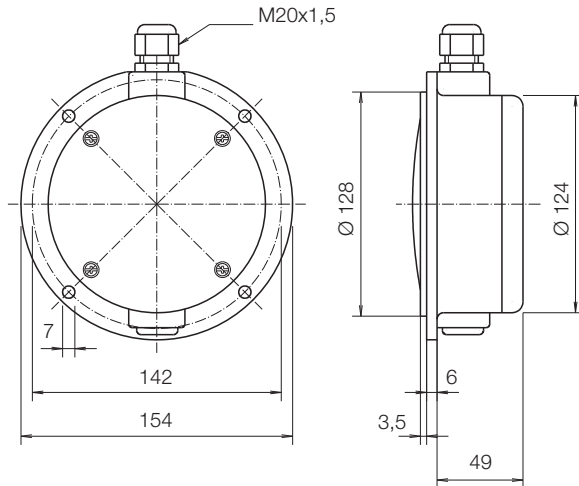
Type codes

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

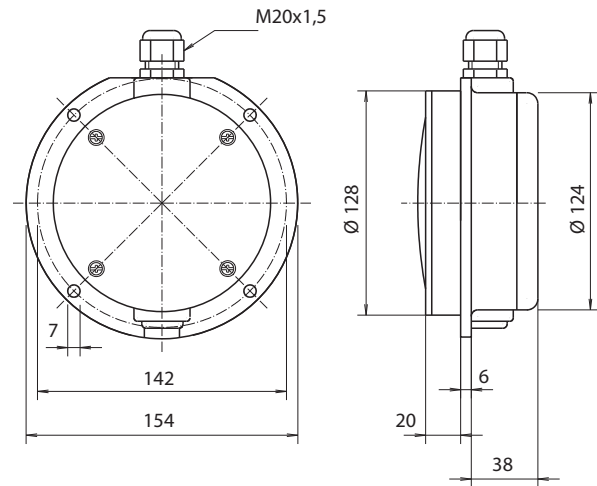
Connection diagram



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 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: -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_{AC}

Temperature range: -20 ... +60 °C

Max. pressure: depressurised,
overpressure max. 1 bar

Cable entry fitting: M20x1,5

Switch-in delay: 0 s

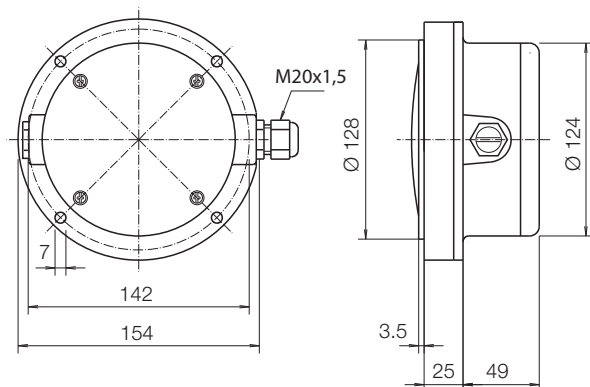
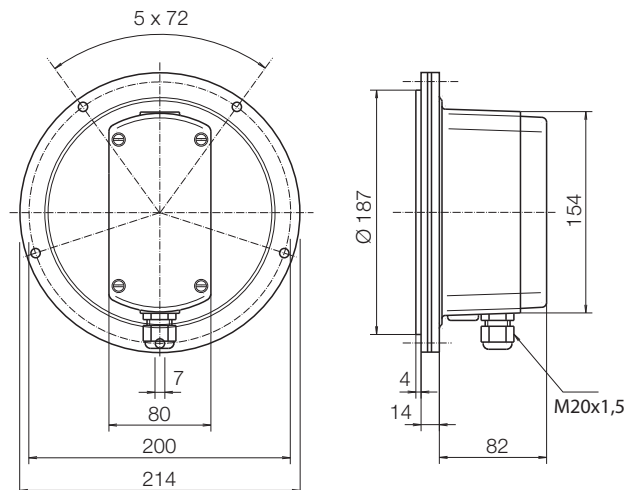
Installation position: any

Order Details (Example: NMF-ENN)

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

Order Details (Example: NMF-FNN)

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

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 and 200 g
Protection:	IP 65
Contact loading:	max. 4 A at 250 V _{AC}
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 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 -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	NMF-DNN
	St. steel 1.4324	NMF-DNE
FPM	Galvanised steel	NMF-DVN
	St. steel 1.4324	NMF-DVE

Order Details (Example: NMF-BNA)

Membrane	Retaining ring	Order no.
NBR	Cast aluminium	NMF-BNA
FPM	Cast aluminium	NMF-BVA
Edelstahl	Cast aluminium	NMF-BEA