

Membrane level indicator

Level limit switches for bulk solids

MF

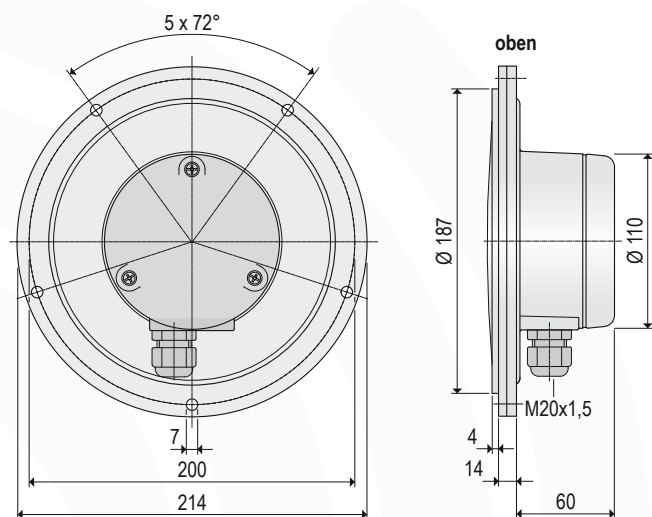
Appliance information

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any position

Appliance information

Dimensions

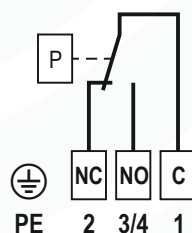


002-0205

Type selection

Type	Membrane	Mounting ring
MFB-NA	= NBR	Aluminium
MFB-NE	= NBR	Stainless steel 1.4301 / 304
MFB-VA	= VITON	Aluminium
MFB-VE	= VITON	Stainless steel 1.4301 / 304
MFB-EA	= 1.4310 / 301	Aluminium
MFB-EE	= 1.4310 / 301	Stainless steel 1.4301 / 304

Wiring connection



002-AP01

Use

The membrane level indicator observes the level as limit switch in silos, hoppers and vessels. There it is used as level indicator for dusty, powdery, granulated and grained bulk solids with a maximum grain size of 100 mm and a bulk density from 0.3 t/m³ ... 2.5 t/m³.

Mode of operation

The bulk solids presses with its weight against the membrane. A tappet directly transfers the pressure from the membrane to the switch. When the bulk solids are decreasing, pressure is taken off the membrane and the switch will be interconnected.

Construction

The aluminium housing carries a membrane which is held in place by a mounting ring. The membrane is transferring the pressure via a tappet onto a switch. Sensitivity is adjustable by a spring.

Technical data

Materials	Housing	Aluminium
	Membrane	- N . NBR
	Membrane	- V . VITON
	Membrane	- E . Stainless steel 1.4310 / 301
	Mounting ring	- A Aluminium
	Mounting ring	- E Stainless steel 1.4301 / 304
Temperatures with ATEX option B1		
> Bulk solids		$T_{(Process)}$ -15 °C ... +80 °C
> Ambient		T_a -15 °C ... +80 °C
Temperatures w/o ATEX option		
> Bulk solids	NBR	-20 °C ... +80 °C
	VITON	$T_{(Process)}$ -20 °C ... +150 °C
	Stainless steel	-25 °C ... +200 °C
> Ambient		T_a -20 °C ... +80 °C
Signal contact		
> Loadability of signal contact		change-over contact, potentialfree
> Switching voltage		4 A / 250 V AC
		24 V...250 V AC or
		12 V...125 V DC
Response delay		none
Sensitivity with Membrane made of		
	NBR	adjustable from 100 g ... 200 g
	VITON	adjustable from 100 g ... 200 g
	Stainless steel	adjustable from 200 g ... 500 g
Cable entry		cable gland M20x1.5
Type of protection	EN 60529	
Weight		IP40 1.85 kg
Maintenance		IP53 if cable gland is downwards
Installation		IP66 with stainless steel membrane

ATEX option only with stainless steel membrane in the MFB-EA-B1 or MFB-EE-B1 version

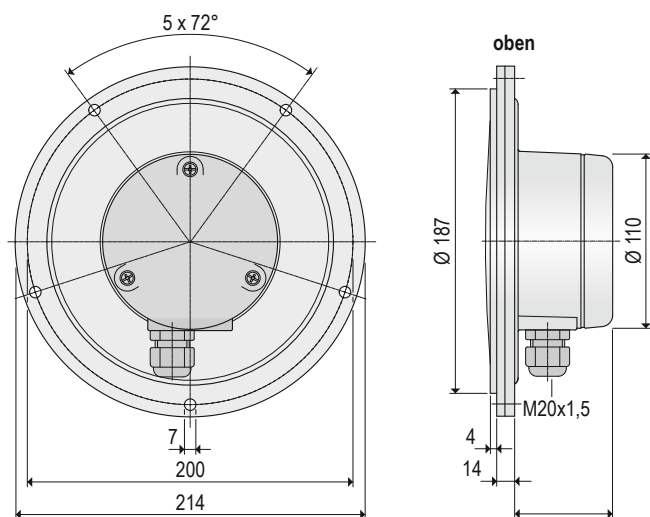
B1 **Dust**  II 1/2D IIIC

Subject to modification

Appliance information

for potentially gas and dust explosive atmospheres

Dimensions

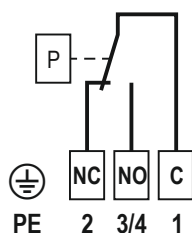


002-0205

Type selection

Type	Membrane	Mounting ring
MFB-EE-B5	= Stainless steel 1.4310 / 301	Stainless steel 1.4301 / 304

Wiring connection



002-AP01

Use

The membrane level indicator observes the level as limit switch in silos, hoppers and vessels. There it is used as level indicator for dusty, powdery, granulated and grained bulk solids with a maximum grain size of 100 mm and a bulk density from 0.3 t/m³ ... 2.5 t/m³.

Mode of operation

The bulk solids presses with its weight against the membrane. A tappet directly transfers the pressure from the membrane to the switch. When the bulk solids are decreasing, pressure is taken off the membrane and the switch will be interconnected.

Construction

The aluminium housing carries a membrane which is held in place by a mounting ring. The membrane is transferring the pressure via a tappet onto a switch. Sensitivity is adjustable by a spring.

Technical data

Materials	Housing	Aluminium
	Membrane	- E . Stainless steel 1.4310 / 301
	Mounting ring	- . E Stainless steel 1.4301 / 304

Temperatures with ATEX option B5

- > Bulk solids
- > Ambient

$T_{(Process)}$	-15 °C ... +75 °C
T_a	-15 °C ... +75 °C

Signal contact

- > Switching voltage
- > Switching current

change-over contact, potentialfree
 $U_i \leq 30 \text{ V}$
 $I_i \leq 100 \text{ mA}$ } **intrinsically safe**

Response delay

none

Sensitivity

200 g ... 500 g einstellbar

Cable entry

cable gland M20x1.5

Type of protection

IP IP66 acc. EN 60529

Weight

1.85 kg

Maintenance

none

Installation

any position

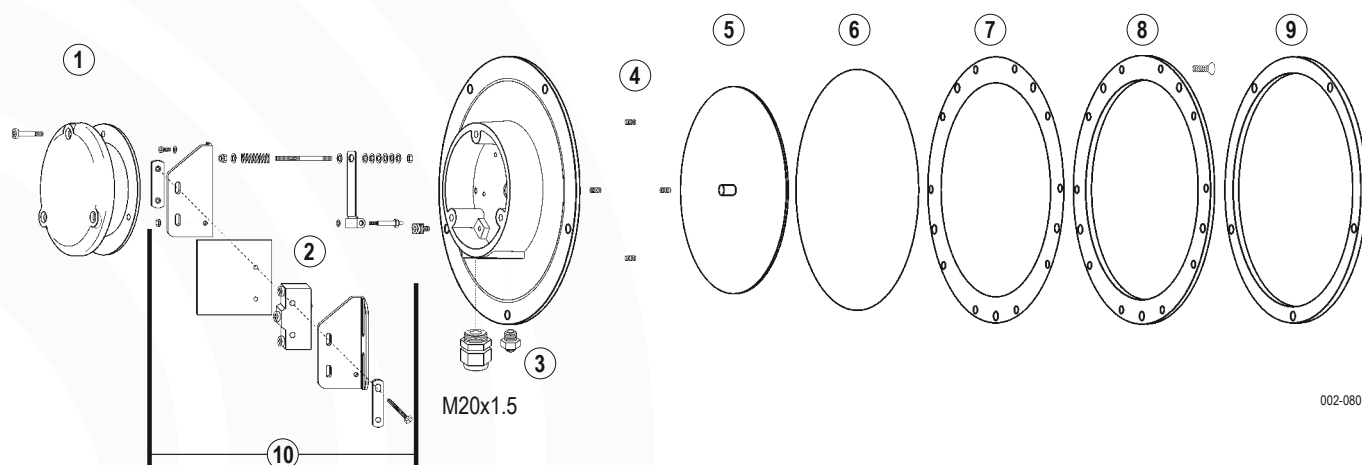
ATEX option

B5


 II 1/2D IIIC
 and
 II 2G IIC

Single parts

not available for devices with ATEX approval

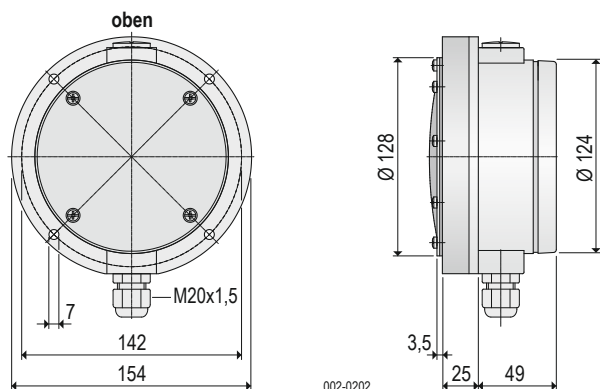


Item	Reference
1	Cap seal
2	Switch for version MFB-E.. MFB-N.. / MFB-V..
3	Filter
4	Spring
5	Membrane V . Membrane N .
6	Membrane E .
7	Seal ring
8	Mounting ring . E Mounting ring . A
9	Gasket
10	Spare part kit incl. switch for MFB-E .
10	Spare part kit incl. switch for MFB-V . / MFB-N .

Order code	Material
MFB-DS01	EDPM
Z-15G-B BZ-2R-A2	
395028-AVS	Brass
MFB-FR01	Spring steel
MFB-MB-VI	VITON
MFB-MB-NR	NBR
MFB-MB-VA	Stainless steel 1.4310 / 301
MFB-DS02	
MFB-HR-VA	Stainless steel 1.4301 / 304
MFB-HR-AL	Aluminium
MFB-FD01	NBR foam
MFB-EP11	
MFB-EP12	

Appliance information

Dimensions



Use

The membrane level indicator observes the level as limit switch in silos, hoppers and vessels. There it is used as level indicator for dusty, powdery, granulated and grained bulk solids with a maximum grain size of 30 mm and a bulk density from 0.3 t/m³ ... 2.5 t/m³.

Mode of operation

The bulk solids presses with its weight against the double-membrane. A tappet directly transfers the pressure from the membranes to the switch. When the bulk solids are decreasing, pressure is taken off the membranes and the switch will be interconnected.

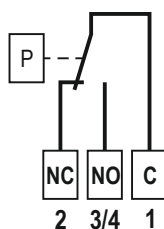
Construction

The housing, made of glass-fibre reinforced plastic, carries the two membranes which are held in place by mounting rings. The membranes are transferring the pressure via a tappet onto a switch. Sensitivity is adjustable by a spring.

Type selection

Type	Membrane	Mounting ring
MFD-NN	= NBR	Steel, galvanized
MFD-NE	= NBR	Stainless steel 1.4301 / 304
MFD-VN	= VITON	Steel, galvanized
MFD-VE	= VITON	Stainless steel 1.4301 / 304

Wiring connection



002-AP02

Technical data

Materials	Housing	GFK (glass-fibre reinforced plastic)
	Membrane	- N . NBR
	Membrane	- V . VITON
	Mounting ring	- . N Steel, galvanized
	Mounting ring	- . E Stainless steel 1.4301 / 304

Temperatures

- > Bulk solids
- > Ambient

$T_{(Process)}$ -20 °C ... +70 °C
 T_a -20 °C ... +70 °C

Signal contact

- > Loadability of signal contact
- > Switching voltage

Contact change-over contact, potentialfree
 4 A / 250 V AC
 24 V...250 V AC or
 12 V...125 V DC

Response delay

none

Sensitivity

adjustable from 60 g ... 200 g

Cable entry

cable gland M20x1.5

Type of protection

IP IP65 acc. to EN 60529

Weight

0.73 kg

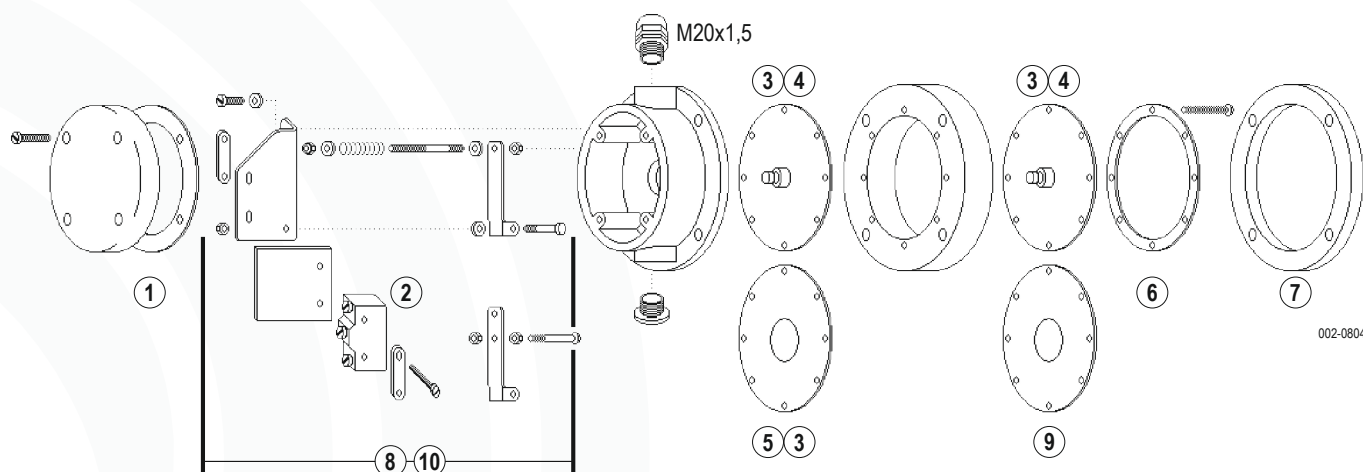
Maintenance

none

Installation

any position

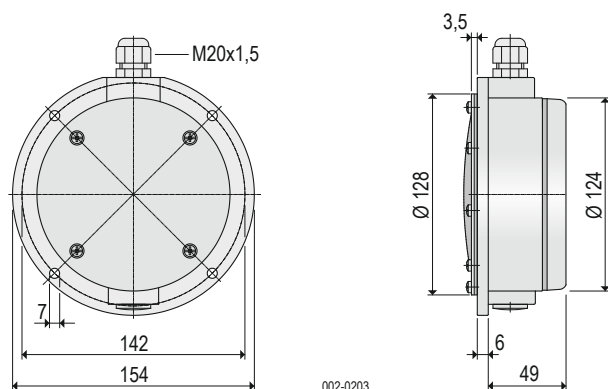
Single parts



Item	Reference	Order code	Material
1	Cap seal	MF-DS001	NBR
2	Switch	BZ-2R-A2	
3	Tappet	MF-WE001	Aluminium
4	Membrane N .	MF-MB-NR	Housing membrane or bulk solids touching membrane made of NBR
5	Housing membrane	MF-GM-NR	Housing membrane in case of VITON design
6	Mounting ring . N	MF-HR-ST	Steel, galvanized
	Mounting ring . E	MF-HR-VA	Stainless steel 1.4301 / 304
7	Gasket	MF-FD-NR	NBR foam
8	Spare part kit incl. switch	MF-EP001	Design for bulk solids touching membrane made of NBR
9	Membrane V .	MF-MB-VI	Bulk solids touching membrane made of VITON
10	Spare part kit incl. switch	MF-EP002	Design for bulk solids touching membrane made of VITON

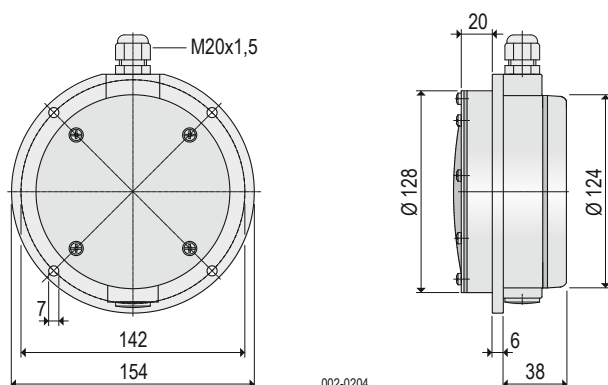
Appliance information

Dimensions MFE



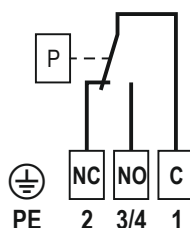
002-0203

Dimensions MFEF



002-0204

Wiring connection



002-AP01

Use

The membrane level indicator observes the level as limit switch in silos, hoppers and vessels. There it is used as level indicator for dusty, powdery, granulated and grained bulk solids with a maximum grain size of 30 mm and a bulk density from 0.3 t/m³ ... 2.5 t/m³.

Mode of operation

The bulk solids presses with its weight against the membrane. A tappet directly transfers the pressure from the membrane to the switch. When the bulk solids are decreasing, pressure is taken off the membrane and the switch will be interconnected.

Construction

The housing carries a membrane which is held in place by a mounting ring. The membrane is transferring the pressure via a tappet onto a switch. Sensitivity is adjustable by a spring.

Technical data

Materials	Housing	GFK (glass-fibre reinforced plastic)
	Membrane	- N . NBR
	Membrane	- V . VITON
	Membrane	- E . Stainless steel 1.4310 / 301
	Mounting ring	- N Steel, galvanized
	Mounting ring	- E Stainless steel 1.4301 / 304
Temperatures		
	> Bulk solids	$T_{(process)}$ -20 °C ... +60 °C
	> Ambient	T_a -20 °C ... +60 °C
Signal contact		
	> Loadability of signal contact	change-over contact, potentialfree
	> Switching voltage	4 A / 250 V AC
		24 V...250 V AC or
		12 V...125 V DC
Response delay		none
Sensitivity with membrane made of		
	NBR	adjustable from 60 g ... 1000 g
	VITON	adjustable from 60 g ... 1000 g
	Stainless steel	adjustable from 150 g ... 2000 g
Cable entry		cable gland M20x1.5
Type of protection	EN 60529	
Weight	MFE	0.48 kg
	MFEF	0.49 kg
Maintenance		none
Installation		any position

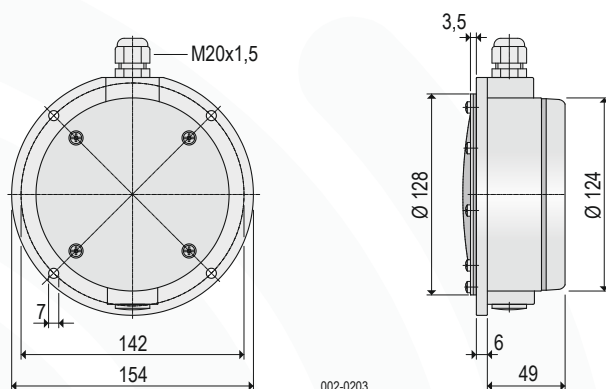
IP

IP53 if cable gland is upwards

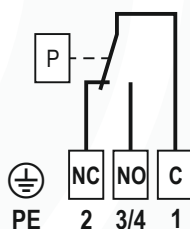
IP65 with stainless steel membrane

Appliance information

Dimensions MFE-A



Wiring connection



002-AP01

Use

The membrane level indicator observes the level as limit switch in silos, hoppers and vessels. There it is used as level indicator for dusty, powdery, granulated and grained bulk solids with a maximum grain size of 30 mm and a bulk density from 0.3 t/m³ ... 2.5 t/m³.

Mode of operation

The bulk solids presses with its weight against the membrane. A tappet directly transfers the pressure from the membrane to the switch. When the bulk solids are decreasing, pressure is taken off the membrane and the switch will be interconnected.

Construction

The housing carries a membrane which is held in place by a mounting ring. The membrane is transferring the pressure via a tappet onto a switch. Sensitivity is adjustable by a spring.

Technical data

Materials	Housing	Aluminium
	Membrane	- N . NBR
	Membrane	- V . VITON
	Membrane	- E . Stainless steel 1.4310 / 301
	Mounting ring	- N . Steel, galvanized
	Mounting ring	- E . Stainless steel 1.4301 / 304
Temperatures with ATEX option B1		
> Bulk solids	$T_{(Process)}$	-15 °C ... +70 °C
> Ambient	T_a	-15 °C ... +70 °C
Temperatures w/o ATEX option		
> Bulk solids	$T_{(Process)}$	-25 °C ... +70 °C
> Ambient	T_a	-25 °C ... +70 °C
Signal contact		
> Loadability of signal contact	Contact	change-over contact, potentialfree
> Switching voltage		4 A / 250 V AC
		24 V...250 V AC or
		12 V...125 V DC
Response delay		none
Sensitivity with membrane made of		
NBR		adjustable from 60 g ... 1000 g
VITON		adjustable from 60 g ... 1000 g
Stainless steel		adjustable from 150 g ... 2000 g
Cable entry		cable gland M20x1.5
Type of protection EN 60529		
	IP	IP40
		IP53 if cable gland is upwards
		IP66 with stainless steel membrane
Weight		0.95 kg
Maintenance		none
Installation		any position

ATEX option only with stainless steel membrane in the MFE-A-EE-B1 version

B1

Dust



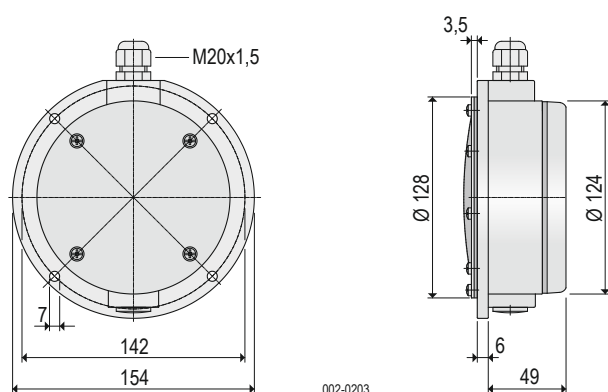
II 1/2D IIIC

Subject to modification

Appliance information

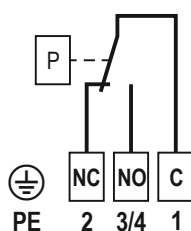
for potentially gas and dust explosive atmospheres

Dimensions MFE-A



002-0203

Wiring connection



002-AP01

Use

The membrane level indicator observes the level as limit switch in silos, hoppers and vessels. There it is used as level indicator for dusty, powdery, granulated and grained bulk solids with a maximum grain size of 30 mm and a bulk density from 0.3 t/m³ ... 2.5 t/m³.

Mode of operation

The bulk solids presses with its weight against the membrane. A tappet directly transfers the pressure from the membrane to the switch. When the bulk solids are decreasing, pressure is taken off the membrane and the switch will be interconnected.

Construction

The housing carries a membrane which is held in place by a mounting ring. The membrane is transferring the pressure via a tappet onto a switch. Sensitivity is adjustable by a spring.

Technical data

Materials	Housing Membrane Mounting ring	Aluminium - E . Stainless steel 1.4310 / 301 - E . Stainless steel 1.4301 / 304
Temperatures with ATEX option B5		
> Bulk solids	$T_{(Process)}$	-15 °C ... +70 °C
> Ambient	T_a	-15 °C ... +70 °C
Signal contact		
> Switching voltage	contact	change-over contact, potentialfree
> Switching current		$U_i \leq 30 \text{ V}$ $I_i \leq 100 \text{ mA}$ } intrinsically safe
Response delay		none
Sensitivity		adjustable from 150 g ... 2000 g
Cable entry		cable gland M20x1.5
Type of protection		IP IP66 acc. to EN 60529
Weight		0.95 kg
Maintenance		none
Installation		any position

Type selection

Type	Membrane	Mounting ring
MFE-A-EE-B5	= Stainless steel 1.4310 / 301	Stainless steel 1.4301 / 304

ATEX option

B5


 II 1/2D IIIC
 and
 II 2G IIC

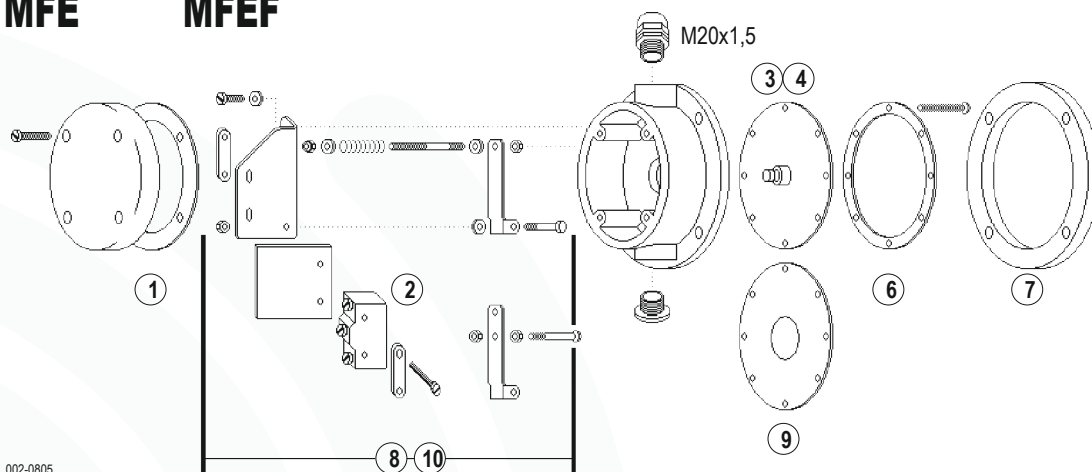
Subject to modification

Single parts

not available for devices with ATEX approval

MFE

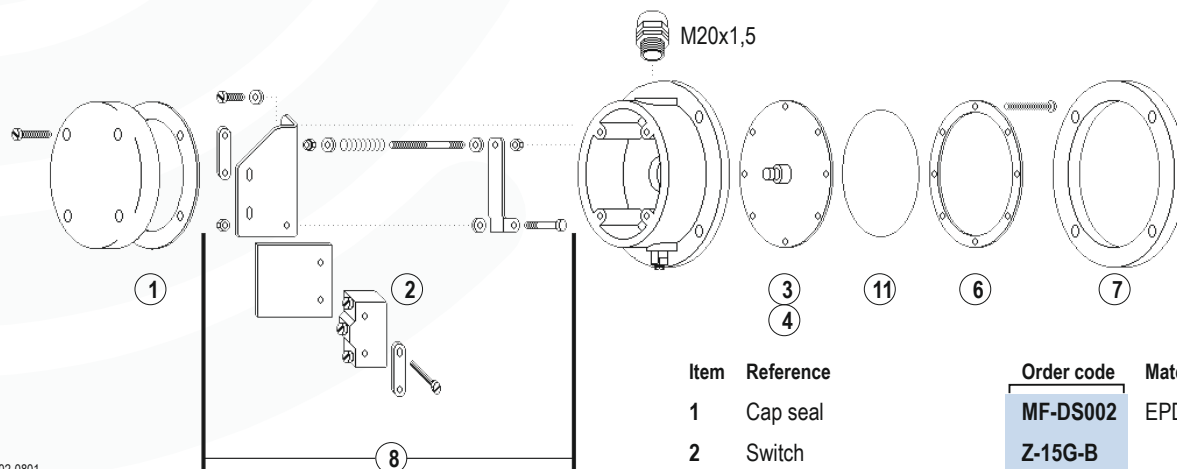
MFEF



002-0805

Item	Reference	Order code	Material
1	Cap seal	MF-DS001	NBR
2	Switch	BZ-2R-A2	
3	Tappet	MF-WE001	Aluminium
4	Membrane N .	MF-MB-NR	Bulk solids touching membrane made of NBR
6	Mounting ring . N Mounting ring . E	MF-HR-ST MF-HR-VA	Steel, galvanized Stainless steel 304
7	Gasket	MF-FD-NR	NBR foam
8	Spare part kit incl. switch	MF-EP001	Design for bulk solids touching membrane made of NBR
9	Membrane V .	MF-MB-VI	Bulk solids touching membrane made of VITON
10	Spare part kit incl. switch	MF-EP002	Design for bulk solids touching membrane made of VITON

MFE-AEE



002-0801

Item	Reference	Order code	Material
1	Cap seal	MF-DS002	EPDM
2	Switch	Z-15G-B	
3	Tappet	MF-WE001	Aluminium
4	Sealing	MF-MB-NR	NBR
6	Mounting ring . E	MF-HR-VA	Stainless steel 304
7	Gasket	MF-FD-NR	NBR foam
8	Spare part kit incl. switch	MF-EP003	
11	Membrane E .	MF-MB-VA	Stainless steel 301