

► By use in explosive hazardous areas read and follow the

## special conditions and instructions for safe application

of the attached

## explosive protection information

**B1**



first and take notice of the operating instructions.

## Operating instructions

### 1. Description

#### 1.1 Intended use

The electronic pressure transmitter monitors continuously the pressure in a silo or bin.

#### 1.2 Function

Use of pressure variation in a silo or bin. The pressure on the membrane is detected and evaluated by the electronic.

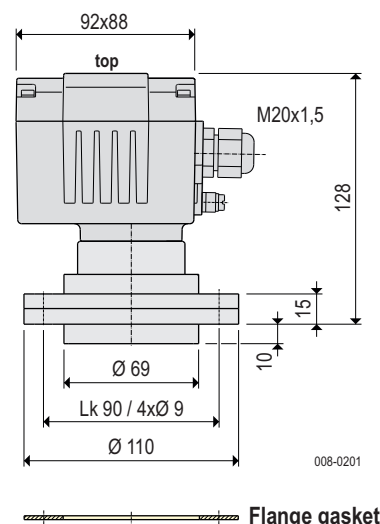
#### 1.3 Technical data

<b>Manufacturer</b>	<b>MOLLET</b>
	<b>Füllstandtechnik GmbH</b>
<b>Address</b>	Industriepark RIO 103 74706 Osterburken
<b>Name</b>	Silo pressure transmitter
<b>Type</b>	<b>MSD-A...420</b>
<b>Bulk goods temperature</b> $T_s$	-25 °C ... +75 °C
<b>Ambient temperature</b> $T_a$	-20 °C ... +70 °C
<b>Supply voltage</b> <b>supply</b>	24 V DC (12 - 28 V DC)
<b>Apparent ohmic resistance</b>	$\leq (U-11) / 0.02 (\Omega)$
<b>Output signal</b>	4 ... 20 mA
<b>Electrical connection</b> <b>Output</b>	2-wire
<b>Measuring range/relative pressure</b>	0... 100 mbar / (0 ... 10000 Pa)
<b>Linearity</b>	< 0.5 % FS
<b>Temperature error</b> <b>0-area</b>	0.02 % FS/K
<b>measuring range</b>	0.02 % FS/K
<b>Overpressure safety</b>	up to 0.5 bar
<b>Relative humidity</b> <b>acceptable</b>	0 ... 85 %
<b>Cable entry</b>	Cable gland M20x1.5
<b>Type of protection</b> <b>IP</b>	<b>IP66</b> acc. to DIN EN 60529
<b>Weight</b>	1.2-2.9 kg depending on design
<b>Maintenance</b>	none
<b>Mounting position</b>	vertical, $\pm 5^\circ$ inclination

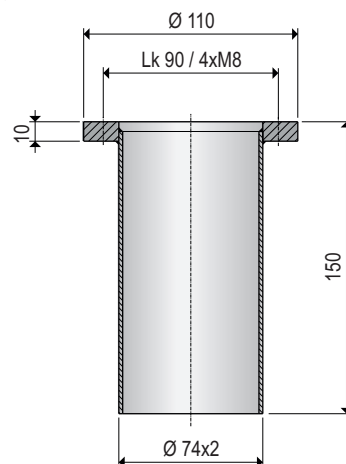
#### 1.4 Material

<b>Housing</b>	aluminium or stainless steel 1.4408 / 316 LN
<b>Flange</b>	aluminium or stainless steel 1.4571 / 316 Ti
<b>Membrane</b>	stainless steel 1.4571 / 316 Ti
<b>Flange nozzle</b>	steel

#### 1.5 Dimensions



#### 1.6 Accessory (option) Flange socket



## 2. Installation

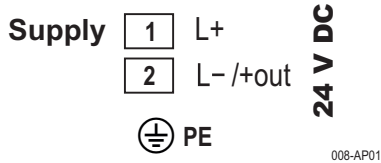
### 2.1 Preparation

- Check the membrane of visual transport damage.
- Read and follow the safety instructions and the operating instructions, before handling with the device !

### 2.2 Mounting in the vessel

- Weld the flange socket (as a option) vertical (flange horizontal) in the silo top.
- Position the pressure transmitter (flange horizontal) with the gasket at the provided flange or flange socket and fix it with 4 washers and screws M8.

### 2.3 Electrical connection

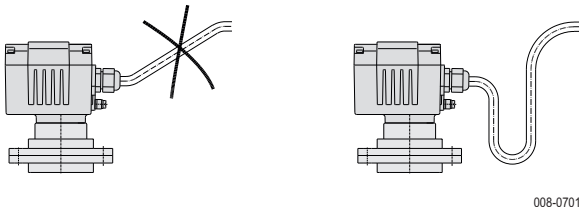


### 2.4 Cable gland

- After electrical connection, tighten the cable gland.
- Screw the cap nut, until the cable entry is closed tightly.

### 2.5 Cable run

Run the connection cable in a way that no traction can occur at the pressure detector.



## 3. Use

### 3.1 Commissioning

- Put the pressure transmitter into operation only, if the installation in the silo or vessel and the electrical connection have been done correctly.

### 3.2 Normal operation

- Use the pressure transmitter in its intended use only.
- Comply with the specifications on the data plate.
- Damaged devices must be put out of operation immediately.
- The pressure transmitter must not be modified. If there is any modification, the warranty of the manufacturer will be cancelled.

### 3.3 Inexpert handling

- Ignoring of the safety instructions and the operating instructions.
- Not intended use.
- Modification at the device.
- Violation against applicable law and standards.

## 4. Maintenance and servicing

### 4.1 Maintenance

- In case of intended use, the silo pressure transmitter needs no maintenance.

### 4.2 Servicing

- The servicing of the pressure transmitter may be carried out by the manufacturer only.

## 5. Storage

- Store the pressure transmitter dry and dust-free.
- Protect the membrane from damage.

## 6. Disposal

- The pressure transmitter can be recycled.
- The disposal applies to the valid environmental guidelines according to the location of the carrier and the local manufacturing conditions.

# Silo pressure transmitter

# MSD-A...420

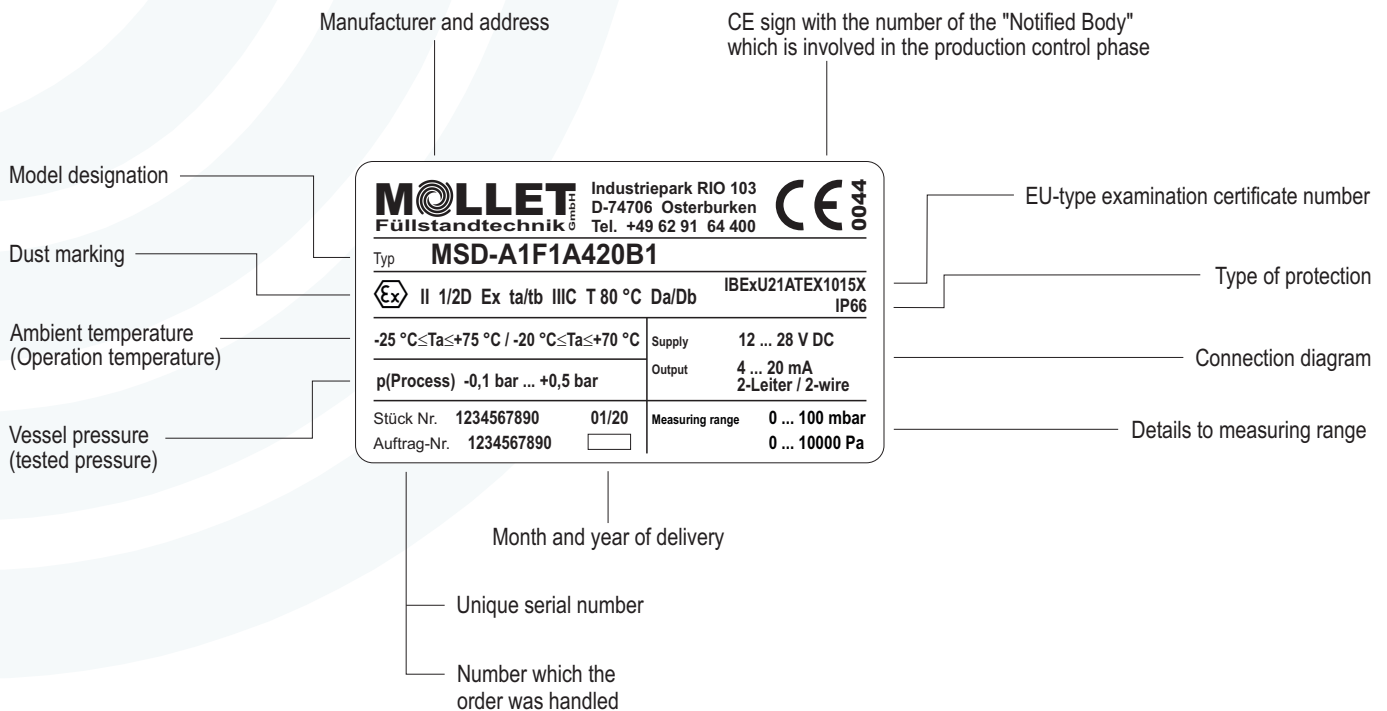
with housing made of aluminium or stainless steel

# Dust



# Explosion protection information and supplement to the operating instructions

## Type plate details



**Marking in accordance with ATEX and DIN EN IEC 60079-0**

Silo pressure transmitter for use at the boundary from zone 20 to zone 21.

 **II 1/2 D Ex ta/tb IIIC T80°C Da/Db**

Equivalent to **valid ATEX-Product-Directive**

Equipment group **II** = everything except mining

Equipment category **Category 1** for zone 20, 21 and 22  
**Category 2** for zone 21 and 22

**/** = Silo pressure transmitters, which are installed on the boundary between different zones

**D** = Dust - Type of explosive atmosphere

the **Ex** symbol according to DIN EN IEC 60079-0

**t** = Protection by enclosure

**a** = Device with „very high“ protection standard . . . . for zone 20, 21 and 22

**b** = Device with „high“ protection standard . . . . . for zone 21, and 22

**IIIC** for flammable conductive dust, flammable non-conductive dust and flammable fibres and flyings

**T..°C** maximum surface temperature

**Equipment Protection Level (EPL)**

Type of explosive atmosphere **D** = Dust

**a** = Device with “very high level of protection” for use in potentially explosive atmospheres where in normal operation, foreseeable or infrequent faults/malfunctions no ignition hazard is given.

**b** = Device with “high level of protection” for use in potentially explosive atmospheres where in normal operation or foreseeable faults/malfunctions no ignition hazard is given.

Order code **B1**

Marking: II 1D / 2D



## Equipment category appropriation by zones

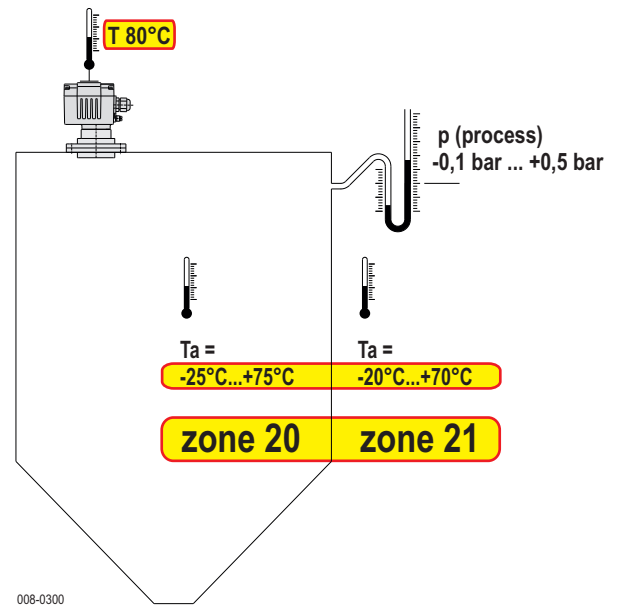
Silo pressure detector for use on the boundary from zone 20 to zone 21.

### Ambient temperatures $T_a$

The ambient temperature  $T_a$  defines the maximum operating temperature of the detectors. Inside the vessel this is process temperature (the air or the bulk goods temperature) nearby the device.

### Maximum surface temperature $T$

The maximum surface temperature means the hottest point at the equipment.



<b>MOLLET GmbH</b> Füllstandtechnik		Industriepark RIO 103 D-74706 Osterburken Tel. +49 62 91 64 400		0044	
Typ <b>MSD-A1F1A420 B1</b>					
II <b>1/2D</b> Ex ta/tb IIIC <b>T 80 °C</b> Da/Db		IBE <sub>x</sub> U21ATEX1015X IP66			
<b>-25 °C ≤ Ta ≤ +75 °C / -20 °C ≤ Ta ≤ +70 °C</b>		Supply 12 ... 28 V DC			
<b>p(Process) -0,1 bar ... +0,5 bar</b>		Output 4 ... 20 mA 2-Leiter / 2-wire			
Stück Nr. 1234567890 01/20		Measuring range 0 ... 100 mbar			
Auftrag-Nr. 1234567890		0 ... 10000 Pa			



## Special conditions and instructions for safe application

1. The installation, maintenance, initial operation, removal and repair have to be controlled resp. checked by an “authorized person” for explosion protection.
2. For the electrical connection you have to take notice of the local and statutory requirements and/or the VDE 0100.
3. Take notice of the specifications on the data plate.
4. A fuse (with max. 4A) has to be connected in series to the voltage supply.
5. As soon as the device will be brought into the explosion hazardous area it has to be mounted immediately at the precaused place and a cable has to be brought into the cable gland.
6. Using the device in ambient temperatures  $> +60\text{ °C}$ , the applied connection cables have to be made for temperatures of min.  $+80\text{ °C}$ .
7. The cable gland and the plug screw were screwed and protected at the factory. Please check if they have loosened during on the mounting or at the transport. When it is loosened, it has to be fitted again.
8. To secure the type of protection, the screw nut of the cable gland has to be fixed at the installation with a torsional force of min. 5.0 Nm.  
**ATTENTION!** If it will be fastened too strong, the IP-protection can be affected.
9. The earth connection of the device has to be installed in such a way that mechanical damage will be excluded.
10. The device may put into operation with intact cap-sealing and when it is closed, only.
11. Switch off the power supply, before opening the device. (touchdangerous voltage)
12. In case of existing combustible dusts with a minimum ignition energy less than 3 mJ or with a minimum ignition temperature under  $+300\text{ °C}$  (BAM assessment), the parts in contact with the dust must be made of stainless steel.
13. Take notice of the requirements of DIN EN 60079-14, DIN 60079-17 and DIN EN 1127-1, especially regarding the dust deposits and temperatures and follow the pertinent rules and regulations.

## EU-Konformitätserklärung EU-Declaration of Conformity

Wir/We

**MOLLET Füllstandtechnik GmbH**

Industriepark RIO 103  
D-74706 Osterburken  
Tel. 06291 64400 Fax 06291 9846

erklären in alleiniger Verantwortung, dass das Produkt:  
declares under our sole responsibility, that the product:

### Silo-Druckmessgerät / Silo pressure measuring device

Typ/Type **MSD-A...4..**

den folgenden Europäischen Richtlinien entspricht:  
conforms with the following European directives:



**Richtlinie 2014/30/EU** (EMV-Richtlinie) / **Richtlinie 2014/35/EU** (Niederspannungsrichtlinie)  
**Directive 2014/30/EU** (Directive EMC) / **Directive 2014/35/EU** (Low voltage directive)

Angewandte harmonisierte Normen oder normative Dokumente:  
Applied harmonized standards or normative documents:

**DIN EN 61010-1:2020**

**DIN EN 60529:2014**

**DIN EN 61326-1:2013**

Und die Geräte mit  - Kennzeichnung entsprechen zusätzlich der folgenden Europäischen Richtlinie:  
And the devices with  - marking conform additional with the following European directive:

**ATEX-Richtlinie**

**ATEX directive**

**2014/34/EU**

Je nach Ausführungsvariante angewandte harmonisierte Normen oder normative Dokumente:  
Depending on the design applied harmonized standards or normative documents:

**DIN EN IEC 60079-0:2019**

**DIN EN 60079-31:2014**

EG-Baumusterprüfbescheinigungsnummer:  
EU-Type Examination Certificate:

**IBExU21ATEX1015X**

Ausgestellt von:  
Issued by:

IBExU Institut für Sicherheitstechnik GmbH, 09599 Freiberg (0637)

Qualitätssicherung:  
Quality assurance:

TÜV NORD CERT GmbH, 30159 Hannover (0044)

Osterburken, den 05.02.2021



Wolfgang Hageleit  
Geschäftsführer / managing director

Diese Erklärung darf nur unverändert weiterverbreitet werden.  
This declaration is only allowed to hand out in unchanged form.