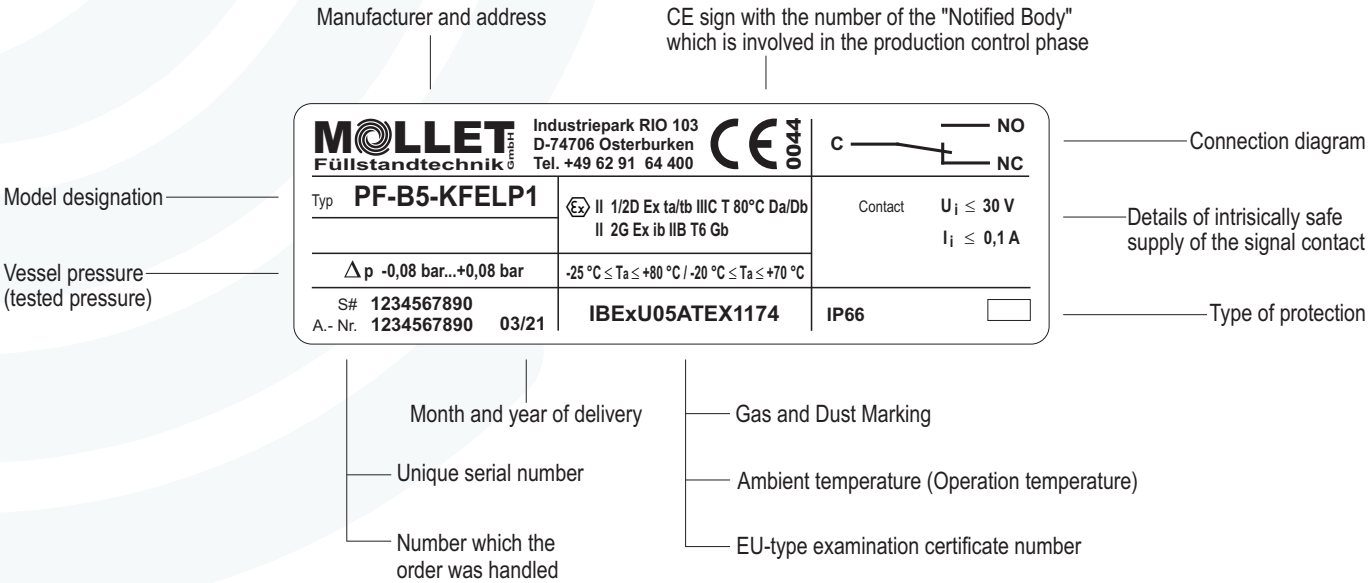
Pendulum level indicator
Level limit switch for bulk goods

PF

Gas+ Dust

Explosion protection information
and supplement to the operating instructions

Type plate details B5
Gas+Dust and **hybrid mixtures**



MOLLET
Competence in explosion protection

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

Pendulum level indicator for use on the boundary from zone 20 to zone 21.

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

/ = Level indicators, 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)

D = Dust - Type of explosive atmosphere

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.

Pendulum level indicator for use in zone 1.

Equipment category Category **2** for zone 1 and 2

G = Gas - Type of explosive atmosphere

i = Protection by intrisically safe

b = Device with „high" protection standard. . . . . .for zone 1 and 2

IIB for all flammable gases except hydrogen, acetylene and carbon disulphide

Temperature class **T6** = 85°C

Equipment Protection Level (EPL)

G = Gas - Type of explosive atmosphere

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 **B5**

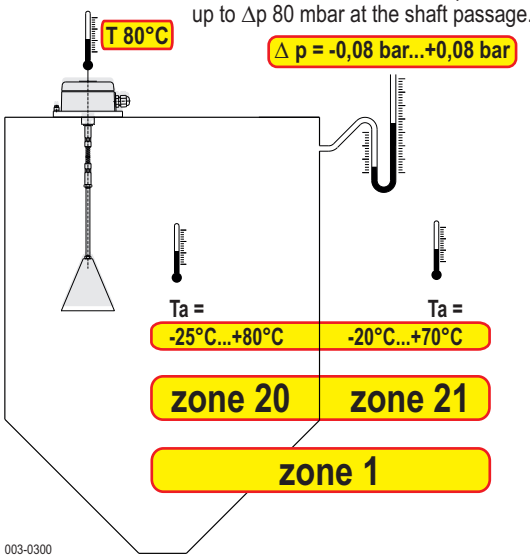
Marking: **II 1D / 2D**
II 2G

Gas+Dust Ex and **hybrid Mixtures**

Equipment category appropriation by zones

Pendulum level indicator for use on the boundary from zone 20 to zone 21 and in zone 1.

The device can be installed in the walls of vessels with deviating atmospheric conditions with a difference in pressure up to Δp 80 mbar at the shaft passage.

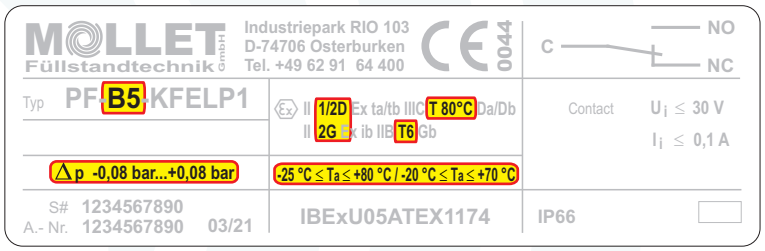


Ambient temperatures Ta

The ambient temperature **Ta** defines the maximum operating temperature of the indicators. 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.
The device matches with temperature class **T 6.**



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. **ATTENTION!**
   For load limitation a certified barrier or a certified isolation amplifier with an intrinsically safe circuit at least for the category “ib” has to be connected in series, which is certified for gases of explosion group IIB.

5. The device with an intrinsically safe electric circuit can be used in dusty explosive hazardous areas too.

6. Using the device in ambient temperatures > +60 °C, the applied connection cables have to be made for temperatures of min. +80 °C.

7. 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.

8. The cable gland were screwed and protected at the factory. Please check if the cable gland have loosened during on the mounting or at the transport. When it is loosened, it has to be fitted again.

9. 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.

10. The earth connection of the device has to be installed in such a way that mechanical damage will be excluded.

11. Using the level indicator in the silo wall under deviating atmospheric conditions, the maximum difference in pressure at the shaft passage must not exceed 80 mbar and the working temperature at the shaft passage has not to exceed +80 °C.

12. The device may be put into operation with built-in cap-sealing and when it is closed, only.

13. Tear-off danger! Don´t pour on the measuring cone. In case of full indication the filling process has to be stopped immediately.

14. The cone has to be in stainless steel, in case of existing combustible dusts with a minimum ignition energy less than 3 mJ or with a minimum ignition temperature under +300 °C (BAM assessment).

15. Take notice of the requirements of DIN EN 60079-14, DIN EN 60079-17 and DIN EN 1127-1, especially regarding the dust deposits and temperatures and follow the pertinent rules and regulations.

16. **Hybrid Mixtures**
    The level indicator is approved for the use in hybrid mixtures.