

Designation examples:

Use in gaseous atmospheres:
II 1 G EEx ia IIC T4

Use in dusty atmospheres:
II 2 DT90°C IP64

Use for mining applications:
I M2 EEx ia I

Temperature classes:

In the event of a malfunction, the maximum temperature of a surface that may be exposed to gas (in normal use with „n“ type of protection). (Should not be used for dust ex-designations.)

T1 = 450°C
T2 = 300°C
T3 = 200°C
T4 = 135°C
T5 = 100°C
T6 = 85°C

Explosion group

(Data only for devices used in areas rendered potentially explosive by gas)

I = Methane (mining)
IIA = such as Propane
IIB = such as Ethylene
IIC = most dangerous group (e.g. hydrogen)

IP Code

(Data only for devices used in areas rendered potentially explosive by dust)

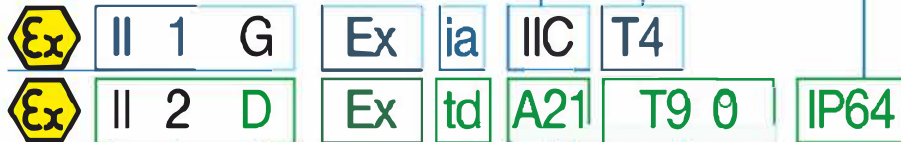
Figure 1 Contact and foreign body protection:

5 = Protection against dust deposits
6 = protection against dust penetration

Figure 2 Water protection

Protection against:

0 = (no protection)
1 = vertically falling drip water
2 = drip water on operating device inclined to 15°
3 = spray water
4 = spray water
5 = jet water
6 = strong jet water
7 = temporary immersion
8 = continuous immersion



Device group

I = Mining
II = all other explosive areas

Category

1 = can be used in Zones 0 or 20
2 = can be used in Zones 1 or 21
3 = can be used in Zones 2 or 22
M1 = Mining
(In case of firedamp, continuation of operation is possible)
M2 = Mining
(Must be switched off in case of firedamp)

Atmosphere

G = Gas
D = Dust
(Mining – no details)

Types of protection:

o = oil immersion
p = high-pressure encapsulation
q = sand encapsulation
d = pressure-resistant encapsulation
e = increased safety
ia = intrinsic safety (permitted for Zone 0*)
*depending on the device category
ib = intrinsic safety (sufficient for Zone 1 (+ 2))
ma = cast encapsulation (for Zone 0*)
mb = (sufficient for Zone 1 (+ 2))
s = special protection
n = normal operation In normal conditions (only for Zone 2)
nA = non-sparking
nC = enclosed break
nR = vapour-proof housing
nL = energy limited
nZ = high-pressure encapsulation
op = optical radiation (is, pr, sh)
tD = protected by housing (dust)
pD = high-pressure encapsulation (dust)
iD = intrinsic safety (dust)
mD = cast encapsulation (dust)

Max. surface temperature

(Data for devices used in areas rendered potentially explosive by dust - rarely also used in gas ex marking.)

Maximum temperature of a surface during a machine error (normal operation in the case of category 3 devices) that can be reached by the ex atmosphere.

Evaluation by the user:

a.) Limit temperature $1 = 2/3$ of min. ignition temperature of dust present
b.) Limit temperature $2 = \text{min. glow temperature of dust present} - 75\text{K}$
(applies for layer thicknesses of up to 5mm)

The smaller value for the limit temperature must be above the indicated max. surface temperature of the device.

Zone

Procedure for determining the housing's leak tightness (A or B)

