



# ATEX MATS

CODE SERIES **GSTSPATEX**XXXXXXXXXX

Our GSTSPATEX mats are “simple apparatuses” intended for use in intrinsically safe systems, according to what set by the EN 60079-11:2012, art. 5.7 a standard.

The electrical circuits of such apparatuses are incapable of causing an explosion in the surrounding explosive atmospheres, therefore they do not fall into the application field of the European Directive 2014/34/EU (ATEX) (EN 60079-11:2012, Art. 5.7).

The temperature class T6 [IEC-EN 60079-11 – Simple Apparatus Form] has been assigned to the internal contacts of these mats. They can be introduced into intrinsically safe systems with “ia” protection level, for substances of groups IIA, IIB and IIC (gas or flammable vapours) and/or of groups IIIA, IIB and IIC (combustible dusts).

Depending on the types of expected Associated Apparatuses, these systems can feature the characteristics indicated below, in conformity with the EN 60079-0, 60079-11 and 60079-25 Standards and with the essential requests of the European Directive 2014/34/EU (ATEX).

## II 2GD Ex ia IIC T6 Gb / Ex ia IIIC T85°C Db

Here below is a short legend / description of the code and peculiarities of the system into which our product can be incorporated.

### TYPE OF USE

II = Apparatus / system groups for use in surface industries (no mines).

2 = ATEX category corresponding to “high” protection level.

### ZONES OF USE/POSITIONING

**Zone 1 - 21** zones with possible risk of explosive atmosphere during the normal operation of the installation / process.

**Zone 2 - 22** zones with possible risk of explosive atmosphere ONLY in case of malfunctions or faults of the installation / process.

### SUITABLE FOR USE IN THE PRESENCE OF FLAMMABLE SUBSTANCES / COMBUSTIBLES

**GD:** G = Gas/Flammable vapours and D = Combustible dusts.

**E.g.:** Product protected against potentially explosive atmospheres.

### PROTECTION LEVEL OF INTRINSIC SAFETY

**ia:** The electric circuit assures safety when power fed within the defined voltage, current and power limits, under normal working conditions, in the presence of ONE single FAULT and in the presence of TWO simultaneous and independent FAULTS.

### SUBSTANCES WHICH CAN BE PRESENT WHERE THE PRODUCT IS USED / POSITIONED

Gas or flammable vapours of **IIA, IIB** and/or **IIC** Groups.

Combustible dusts of **IIIA, IIIB** and/or **IIIC**.

### TEMPERATURE CLASS / MAXIMUM SURFACE TEMPERATURE

**T6 / 85°C**

### PROTECTION LEVEL OF THE APPARATUS (EPL) / ZONE OF POSSIBLE USE

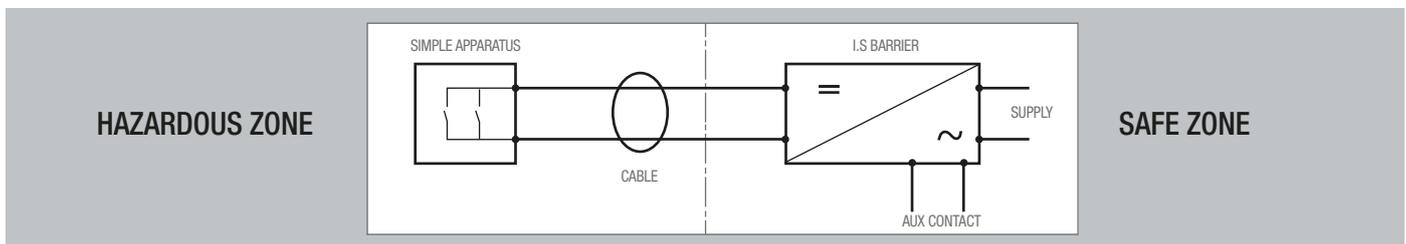
**Gb** = high protection level (for gas and/or vapours) – can be used in Zone 1 (and 2)

**Db** = high protection level (for dusts) – can be used in zone 21 (and 22).

The product is to be incorporated in an “intrinsically safe” circuit / system, interfaced to an adequately “Associated Apparatus” (Safety Barrier) for managing the electric contacts (such as, for example, our product type D5030S – D5030D) built in a “safe zone” / or internally to an “explosion proof Ex d” enclosure, adequately certified.

**WARNING:** In order to avoid the accumulation of electrostatic charges, the 4 parts which form the aluminium frame **must** be equipotentially bonded and grounded at a point, highlighted by the symbol  $\perp$ .

In case of use of metal plate covering / protecting the safety mat, the plate **must** be grounded at a point, highlighted by the symbol  $\perp$ .



| Simple Apparatus <sup>(1)</sup>                                |                         | Cable   | Barrier (1 – 2 channels)   |             |
|--|-------------------------|---|--|-------------|
| Manufacturer: Gamma System S.r.l.                              |                         | Manufacturer: Lapp Group  | Manufacturer: G.M. International S.r.l.                          |             |
| Type: <b>GSTSPATEX</b>   |                         | Type: ÖLFLEX® EB CY 300/500 V   | Type: <b>D5030S</b> (1 channel)<br>or <b>D5030D</b> (2 channels) |             |
| Rated electric characteristics<br>Un: 24 Vdc - In: up to 30 mA |                         | Formation: 4 x 0.75 mm <sup>2</sup>   | Protection mode: <b>[Ex ia Ga] IIC</b>                           |             |
| SAFETY PARAMETERS  |                         | Capacity : 160 pF/m <sup>(2)</sup><br>Capacity : 250 pF/m <sup>(3)</sup>        | Certified: <b>BVS 10 ATEX E 113 X</b>                            |             |
| Ui: 24 V   |                         | Inductance: 0.52 µH/m   | Um: 253 V  | Uo: 10.5 V  |
| Ii: 30 mA  | Pi: N.A. <sup>(4)</sup> | Length: ≤ 20 m  | Io: 22 mA  | Po: 56 mW   |
| Ci: negligible   | Li: negligible          | Total capacity (Cc) = 13.2 nF <sup>(5)</sup><br>Total inductance (Lc) = 10.4 µH | Co: 2.4 µF   | Lo: 78.3 mH |

(1) Pressure-sensitive contacts inside the safety mats | (2) Conductor / conductor | (3) Conductor / shielding.

(4) Current, obviously with Intrinsic Safety; **Not applicable to simple contacts.**

(5) Considered as “parallel” of 3 capacities: conductor / conductor + 2 x conductor / shielding.

### VERIFICATION OF THE SYSTEM SAFETY

$$U_i > U_o: \text{OK}$$

$$I_i > I_o: \text{OK}$$

$$C_i + C_c \ll C_o: \text{OK}$$

$$L_i + L_c \ll L_o: \text{OK}$$

Minimum requirement  
**Ex ib IIC T5 / Ex ib IIIC T100°C**

Requirement satisfied  
**Ex ia IIC T6 / Ex ia IIIC T85°C**