

# GPS Actuator

By Bernard Controls

The best way to find your electric actuation solution



## Protection for explosive atmosphere

- Electric actuators working in explosive atmosphere require a specific enclosure protection submitted to dedicated certification.
- According to market areas, there exists several types of explosion proof certifications:
  - European ATEX
  - International IECEx
  - US NEMA 7 & 9
  - Customs Union for Belarus, Kazakhstan and Russia
  - INMETRO for Brazil
  - CQST for China...

## Focus on ATEX European Directive

The European directive 94/9/CE states the conditions to be met for equipment items used under potentially explosive atmosphere. It classifies the installation areas according to groups and categories:

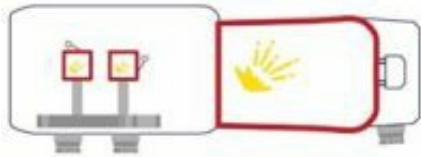
Ex de

OR

Equipment with electric connection in increased safety "e" (tight terminal box). The remaining parts of the electric equipment are in explosion proof "d" enclosure.

Explosion proof actuator. **Ex de**

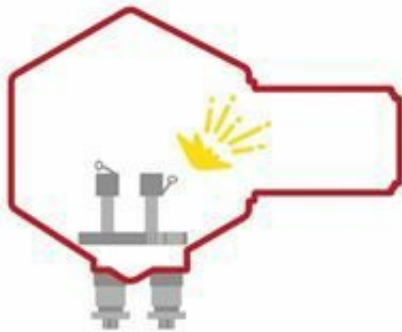
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**Ex d**

Protection by explosion proof enclosure. Connection is achieved inside the enclosure. Enclosure is resistant to internal explosion without flame path.

Explosion proof actuator. **Ex d**



**II B**

**Group I** : Equipment for underground mining.

**Group II** : Equipment for explosive atmosphere other than mining.

**A**: butane, propane,...

**B**: ethylene,...

**C**: hydrogen, acetylene

**T4**

Maximum surface temperature.

T1 = 450 °C

T2 = 300 °C

T3 = 200 °C

T4 = 135 °C

T5 = 100 °C

T6 = 85 °C

Our explosion proof products have been designed for use in GROUP II, Category 2 G (D) areas.

These products shall, among other requirements, undergo a CE type examination corresponding to the sections of the CENELEC standards EN 60079, 61241, 13463

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applicable for each product.

**BERNARD CONTROLS can offer different levels of protection such as : Ex de, Ex d, IIB, IIC, T4, T5, T6.**

**Focus on North American standards: NEMA ratings**

NEMA Class	Group	Division	T
7	I Combustible gases and vapours	Group B: Hydrogen Group C: Ether, Ethylene,... Group D: Butane, Propane,...	1 Normal conditions  Maximum surface temperature.
9	II Combustible dusts	Group E: Metal dust Group F: Coal dust Group G: Flour and other dusts	2 Abnormal conditions  T1 = 842 °F T2 = 572 °F T3 = 392 °F T4 = 275 °F T5 = 212 °F T6 = 185 °F

Explosion proof actuator **NEMA 7 or NEMA 9**