



Issue 25, Sep 2019

## INTRINSIC SAFE AND EXPLOSION PROOF EQUIPMENT

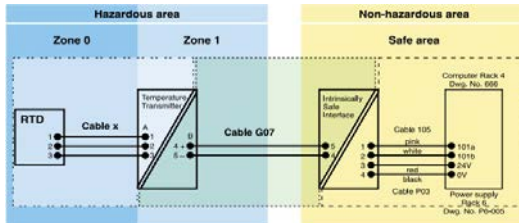
### DEFINITION:(Intrinsic Safe)

**Intrinsically safe equipment** is defined as "equipment and wiring which is incapable of releasing sufficient electrical or thermal energy under normal or abnormal conditions to cause ignition of a specific hazardous atmospheric mixture in its most easily ignited concentration."

**Advantage** – considerably cheaper than comparable flame proof / explosion proof equipment, no special cabling required. Live maintenance permitted, no need to shut down the plant

**Disadvantage** – only suitable for low power equipment e.g. sounders, beacons and smoke detectors (which must be certified

Intrinsically Safe)



### DEFINITION:(Explosion Proof)

The equipment is simply contained in a heavy protective enclosure, usually made of die cast steel, occasionally plastic. If heat or sparks from faulty equipment within the enclosure ignite flammable gas present with it the resulting explosion is contained within the enclosure

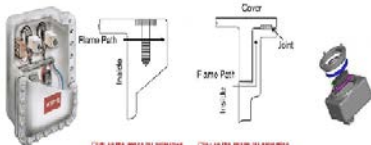
Additionally, the NEC states that equipment must meet the temperature requirements of the specific application in which it is to be installed. This means that the operating temperature of the motor (and its enclosure) or other component cannot be greater than the lowest ignition/combustion temperature of the gases or dusts in the atmosphere where the component is to be installed.

**Advantage** – simple to design the system, suitable for high power equipment

**Disadvantage** – equipment becomes extremely heavy & expensive; opening the enclosure while powered is not permitted

### Flame Proof Equipment(IEC 60079-1):

IEC 60079 series of standards contains specific requirements for the construction and testing of electrical equipment with the type of protection Flameproof enclosure 'd', intended for use in explosive gas atmospheres for Group I (mining) or Group II (non-mining) Gas Group IIA, IIB and IIC. The requirements of this standard are supplemented by IEC 60079-0 'General requirements for all electrical apparatus.



### Difference between EX&FP

Explosion Proof	Fire Proof
ANSI/UL1203	IEC 60079
Covers both Gas and Dust requirements	Gas/Vapor specific.
Has ingress and weatherproofing requirements for enclosures	Has no implicit requirement for IP rating, or similar.

Please Send your answers by email to:

[hse@aimsgt.com](mailto:hse@aimsgt.com)

Areas that are considered hazardous because of the presence of combustible fibers:

- a) Class I
- b) Class II
- c) Class III
- d) Hazardous
- e) None of the above

**Prepared By: Sadik pm**

### Last Month HSE Quiz

Answer: Option C

- ✓ Sudeep Palkar ✓ Alamgir Mallick
- ✓ Mohd Adil Shah ✓ Mohammed Majid
- ✓ Joe David ✓ Muhammed. P.K.
- ✓ Sayed Soltan ✓ Vivish N V

**Congratulations!**

