



GREEN LIGHTING

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★ Explosion Protection Techniques

Ex 'o' "Oil Immersion" Protection - EN 50015 This is an old technique primarily used for switchgear. The spark is formed under oil and venting is controlled. (The use of hydrocarbon oil has obvious disadvantages and the method of protection is confined to the remotely hazardous area.) **Zone 2 Suitable**

Ex 'p' "Pressurized Apparatus" Protection - EN 50016 These are system methods. One maintains a positive static pressure inside the apparatus and the other a continuous flow of air or inert gas to neutralize or carry away any flammable mixture entering or being formed within the enclosure. Essential to these methods are monitoring systems and purging schedules to ensure their reliability. **Zone 2 Suitable**

Ex 'q' "Powder Filling" Protection - EN 50017 This involves the mounting of potentially incentive components in an enclosure filled with sand or similar inert powder and having a vent. It is primarily of use where the incentive action is the abnormal release of electrical energy by the rupture of fuses or failure of components such as capacitors. Usually it is used for components inside Ex 'e' or Ex 'N' apparatus and for heavy duty traction batteries. **Zone 2 Suitable**

Ex 'd' "Flameproof Enclosure" Protection - EN 50018 The potentially incentive components are contained within an enclosure into which the flammable atmosphere can enter but which will contain any resultant explosion and prevent its transmission outside the enclosure. Typically used for switch devices, small breakers, and control enclosures. **Zone 1,2 Suitable**

Ex 'e' "Increased Safety" Protection - EN 50019 Normally sparking components are excluded. Other components are designed to reduce substantially the likelihood of the occurrence of fault conditions which could cause ignition. This is done by reducing and controlling working temperatures, ensuring the electrical connections are reliable, increasing insulation effectiveness, and reducing the probability of contamination by dirt and moisture ingress. **Zone 1,2 Suitable**

