PROTECTING YOUR PROCESS

MARKING AND MEANING OF ATEX REGULATIONS

CLASSIFICATION OF EXPLOSION HAZARDOUS ENVIRONMENTS

IEC/EN 60079-10
A place in which an explosive atmosphere consisting of a mixture with air of flammable substances in the form of gas, vapor or mist is likely to occur.

ZONE 1: Equipment continuously or for long periods in operation.
ZONE 2: Equipment occasional operation.

IEC/EN 61241-10
A place in which an explosive atmosphere, in the form of a cloud of combustible dust is likely to occur frequently in short periods or for long periods, during normal operation but, if it does occur, will persist for a short period only.

ZONE 20: Frequently occurring, or likely to occur occasionally.
ZONE 21: Likely to occur occasionally.
ZONE 22: Not likely to occur, operation is occasional but, if it does occur, will persist for a short period only.

The IEC/EN 60079-10 and EN 61241-10 respectively assist on complying with this legal requirement by describing various items such as the basics of explosion protection and the marking of explosive equipment.

"The employer or person responsible for safety shall classify places where explosive atmospheres may occur into zones in accordance with Annex I, II and III. It shall ensure that the minimum requirements laid down in Annex II are applied to these zones."

INSTALLATION AND SELECTION OF APPARATUS


Device Group I  III  Mining Equipment  Surface Industries

Application area

Equipment is certified according to the ATEX directive with an additional marking that describes the usage (i.e. class of corresponding electric equipment), to which the apparatus is approved. The category and the classification concerning the atmosphere (gas and/or dust).

The following category division applies to electric equipment:

Category 1: Very high safety measure
Category 2: High safety measure
Category 3: Normal safety measure

For use in Zone 0 Atmospheres
For use in Zone 1 Atmospheres
For use in Zone 2 Atmospheres

Additional marking according to Directive 94/9/EC (ATEX 94)

D Device Group I  III  Mining Equipment  Surface Industries

Wiring System and further requirements according to IEC/EN 60079-0.

** Equipment, *** Systems, **** ia used in Zone 0,1 and 2, **** ib used in Zone 1 and 2, **** ic used in Zone 2.

* Cenelec standards in process of being transferred to IEC/EN norms.

Applications in Zone 1 or 2****

EN 50014
EN 50015
EN 50016
EN 50017
EN 50018
EN 50019
EN 50020
EN 50021
EN 50022
EN 50028

** CENELEC standard

Use:

All applications

Use:

Control circuits, control circuits, control circuits, and control systems.

Control circuits, control circuits, control circuits, and control systems.

Control circuits, control circuits, control circuits, and control systems.

Control circuits, control circuits, control circuits, and control systems.

Transformers, transformers, and control systems.

Measurement, measurement, and control systems.

Marking code

Protection type

Type of Protection

EEx d
General requirements

Encapsulation

Gas

Protected

Type of protection

Energy-limited equipment

Non-sparking equipment

Non-sparking equipment

Energy-limited equipment

Non-sparking equipment

Non-sparking equipment

Non-sparking equipment

Non-sparking equipment

Energy-limited equipment

Non-sparking equipment

Non-sparking equipment

Equipment for particular applications

Equipment for particular applications

Different principles of protection for Zone 2

Temperature classes:

Electrical equipment of Group II is divided into following classes concerning the maximum permissible temperatures in the same manner the gases are classified on the basis of the different ignition temperatures. Highest surface temperature is indicated by the apparatus.

T 1: 85 °C
T 2: 135 °C
T 3: 200 °C
T 4: 300 °C
T 5: 350 °C
T 6: 650 °C

INSPCTION AND MAINTENANCE

DIRECTIVE 1999/92/EC (MINIMUM REQUIREMENTS FOR IMPROVING THE SAFETY AND HEALTH PROTECTION OF WORKERS POTENTIALLY AT RISK FROM EXPLOSIVE ATMOSPHERES)"