DELTA CONTROLS CORPORATION
SHREVEPORT ENGINEERING

EUROPEAN RATING SYSTEM FOR HOUSING AND ENCLOSURES

This is General Information Selectively Compiled by Delta Controls

INTERNATIONAL ELECTROTECHNICAL COMMISSION (IEC)

The IEC was founded in 1906 and is presently comprised of approximately 40 countries including the U.S. Its stated purpose is to establish standards for a wide variety of electrical products with the intent of encouraging international trade.

EUROPEAN AUTHORITIES

CENELEC

Cenelec (European Committee for Electrotechnical Standardization) was created to develop a harmonized set of Electrical Standards for member countries which currently include: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, and the United Kingdom. Cenelec approved equipment is approved for use in all EEC member countries.

EURONORM

Standards developed by Cenelec applying to apparatus intended for use in hazardous locations. EN50018 is the EURONORM standard for flameproof (explosion proof) equipment.

BASEEFA

(British Approvals Service for Electrical Equipment in Flammable Atmospheres). BASEEFA is the British national testing and certification authority for electrical equipment for use in flammable atmospheres other than mining. BASEEFA is the British equivalent of North American U.L., F.M., and CSA

DIN

German Engineers National Standard. DIN is the German equivalent of BASEEFA ,FM, and CSA. It provides testing and certification for many classes of devices. Electrical equipment and apparatus is one of these classes. Evaluation in accordance with EURONORM (EECS) standards is also done by this agency.

HAZARDOUS (EXPLOSION PROOF) AREAS

ZONE 0 AND 1

Locations where explosive concentrations of flammable gases, vapors, or mists are, or can be, present under normal operating conditions. Similar to U.S. Class I, Division I as defined by the U.S. National Electrical Code.

ZONE 2

Explosive concentrations are not present except when the system ruptures; generally equivalent to the U.S. Class I, Division 2 as defined by the U.S. National Electrical Code.

GROUP IIA

This group consists of such gases as propane, mixed hydrocarbons, methane, alcohols, phenols, etc. This group is roughly equivalent to Group D gases as defined by the U.S. National Electrical Code.

GROUP IIB

This group consists of gaseous compounds containing ethylene, coke oven gases, etc. This is roughly equivalent to Group C gases as defined by the U.S. National Electrical Code.

GROUP IIC

This group consists of acetylene and equivalents. It is very similar to Group A gases as defined by the U.S. National Electrical Code.

EXAMPLE: EEX #d-11A, Zone 1, IP 63 Explosion proof; methane or equivalent vapors are normally are present; unit is dust tight; hoseproof.

INGRESS (ENVIRONMENT) PROTECTION

"IP"

These standards are similar to some of the U.S. NEMA derived standards. They have been developed to help evaluate performance of an enclosure when it encounters dust and/or water in industrial applications; at voltages up to 1000 Vac.

"IP" Codes; form is: "IP-XX"

First Numeral
Proof Against Solid Bodies
0 = No protection
1 = Objects > 50mm
2 = Objects > 12mm
3 = Objects > 2.5mm
4 = Objects > 1.0mm
5 = Unaffected by dust
6 = Sealed against dust

Second Numeral
Proof Against Liquids
0 = No protection
1 = Vertically dripping water
2 = Angles at 75° to 90°; with dripping water
3 = Sprayed water
4 = Splashed water
5 = Water jets and hoses
6 = Heavy seas
7 = Temporary immersion
8 = Indefinite immersion

EXAMPLE: EECS # IP-68 Dust tight, suitable for submersion

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