



SERIES 927-072  
**ITS-Ex Hazardous Zone Connectors**  
 Zone and category designations



**ATEX EXPLOSIVE ZONES AND CATEGORIES**



**Explosion Triangle**

**Purpose of explosion zone connectors and glands**

Glenair Series 927-072 ITS-Ex Hazardous Zone Connectors prevent explosions by eliminating the heat component in the explosion triangle. This is accomplished by preventing an ignition source, such as a flame or spark, from migrating through the cable or connector into a defined hazardous zone such as might be found in a petrochemical refinery or land/offshore drilling system. Hazardous zones are defined by frequency of presence of explosive gas or dust.

**Hazardous Zone Fuel Types**

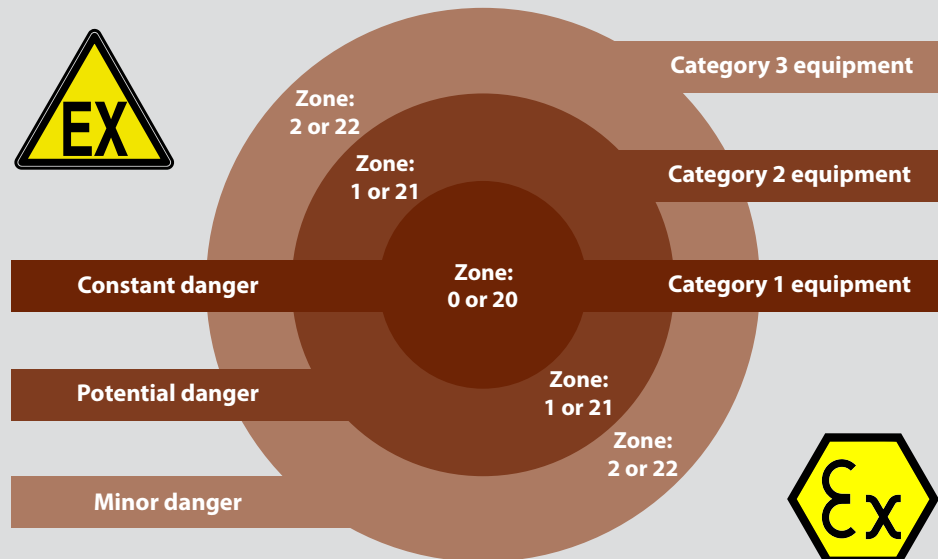
- Gas, vapor and mists : methane, butane, ethylene, hydrogen, acetylene
- Dust : aluminum, sulfur, zinc grain, coal, sugar, epoxy resin

In the ATEX 1999/92/EC directive, hazardous areas are divided into three defined zones: 0, 1, and 2. These zones are designations used to describe the likelihood that explosive mixtures of fuel and oxygen exist during normal conditions of facility operation.

Zone 0 (20)	Zone 1 (21)	Zone 2 (22)
Area in which an explosive gas (dust) atmosphere is present continuously or for long periods or frequently.	Area in which an explosive gas (dust) atmosphere is likely to occur in normal operation occasionally.	Area in which an explosive gas (dust) atmosphere is likely to occur in normal operation but, if it does occur, will persist for a short period only.

**Operator**

**Manufacturer**



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Explosive area zone classifications are used by the operator to distinguish between explosive areas and their relative levels of risk. Operators use the triangular EX mark to indicate compliance with IECEx/ATEX requirements. Manufacturers however use different classifications to describe where their products may be used. The two systems generally conform in meaning but the words and symbols change.



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Glenair Connectors 927-072 are qualified for Group IIA, IIB, IIC and for Group IIIA, IIIB, IIIC, Category 2 and Category 3.

Category 2	Category 3
Place where explosive atmosphere is likely to occur. Provides the protection level in case of failure of the connector/equipment.	Place where explosive atmosphere are unlikely to occur, or if they do occur not frequently and only for a short period of time. Provides the requisite level of protection during normal operation.

GROUP II is for explosive GASES

Group II	Gases
IIA	Acetone, ethyl alcohol, ammonia, gasoline, butane, hexane, ethanol, natural gas, methanol, propane
IIB	Acetaldehyde, propane, ethylene
IIC	Hydrogen, gas mixture containing more than 25% hydrogen, acetylene, carbon disulphide

GROUP III is for explosive DUST

Group III	Dust
IIIA	Fibers
IIIB	Non-conductive dust
IIIC	Conductive dust

**TEMPERATURE CLASSES**

Glenair Series 927-072 ITS-Ex Hazardous Zone Connectors are qualified IAW class T6 to class T1. The temperature class identifies the hottest temperature that the equipment can reach.

Temperature Class	Permissible surface temperatures of the electrical equipment	Ignition temperature of the combustible gases
T1	450 °C	> 450 °C
T2	300 °C	300 - 450 °C
T3	200 °C	200 - 300 °C
T4	135 °C	135 - 200 °C
T5	100 °C	100 - 135 °C
T6	85 °C	85 - 100 °C





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**IEC AND ATEX**

ATEX 94/9/EC directive classifies the equipment into categories 1,2,3 (Group II), based on protection level. Standard EN/IEC 60079-0 introduces EPL (Equipment Protection Level).

ATEX Group II	EPL according to IEC/EN 60079-0	
	Gas	Dust
Category 1	Ga	Da
Category 2	Gb	Db
Category 3	Gc	Dc

The relation between the ATEX 1999/92/EC and the IEC is indicated below : in the Zone 0 you could mount an equipment Ga or 1G (according to 94/9/EC ATEX).

Atmosphere	Zone	EPL	ATEX Category
Gas	0	Ga	1G
	1	Gb or Ga	2G or 1G
	2	Gc or Gb or Ga	3G or 2G or 1G
Dust	20	Da	1D
	21	Db or Da	2D or 1D
	22	Dc or Db or Da	3D or 2D or 1D

**RANGE OF APPLICATIONS**

- Automotive refuelling or petrol stations
- Oil & gas extraction
- Oil refineries
- Gas pipelines and distribution
- Chemical processing plants
- Aircraft refuelling and hangars
- Transportation
- Pharmaceuticals
- Food processing
- Metal surface grinding
- Sugar refineries
- Grain handling and storage
- Coal mining



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