

Industry Standards Downloadable Guides

# **ATEX According to 94/9/EC Explained**

Allvalves Online Technical Support



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## ATEX info according to 94/9/EC



Flammable medium	Hazardous locations	Classification of explosion proof areas	Classification			
			Product group	Product category		
Gases, vapours, mist	Always, temporarily or often present	Zone 0	II	1G		
	Occasionally present	Zone 1	II		2G	
	Very seldom or only present for a short period	Zone 2	II			3G
Dust	Always, temporarily or often present	Zone 20	II	1D		
	Occasionally present	Zone 21	II		2D	
	Does not occur or only seldom for a short period	Zone 22	II			3D

### Classification of equipment

The ATEX directive classifies equipment into groups and categories which are defined by the marking on the equipment – see “Product marking” below.

### Classification of an area

Hazardous areas are divided into Zones (European and IECEx method) or Classes and Divisions (North American method) according to the likelihood of a potentially explosive atmosphere being present.

European & IECEx classification	Definition of zone or division	North American classification
Zone 0 (gases)	An area in which an explosive mixture is continuously present or present for long periods	Class I Division 1 (gases)
Zone 20 (dusts)		Class II Division 1 (dusts)
Zone 1 (gases)	An area in which an explosive mixture is likely to occur in normal operation	Class I Division 1 (gases)
Zone 21 (dusts)		Class II Division 1 (dusts)
Zone 2 (gases)	An area in which an explosive mixture is not likely to occur in normal operation and if it occurs it will exist only for a short time	Class I Division 2 (gases)
Zone 22 (dusts)		Class II Division 2 (dusts)



### Product marking example

An ATEX approved electrical product is marked with the following code:



II 2G Eexd IIB T4

From the breakdown of the code below it can be seen that the product is flameproof, suitable for use in zone 1 surface applications where gas group B gases may be present and the surface temperature of the product under fault conditions will not exceed 135 °C.



Explosion proof in accordance with ATEX

II

Equipment group: II surface industries.

2

Category: 2 equipment ( suitable for use in Zone 1 )

G

Gas / Dust: Suitable for atmospheres containing gas

E

European certificate in accordance with harmonised standards

Ex

Explosion-proof electrical equipment

d

Type of protection is 'Flameproof enclosure'

II

Gas Group II – surface industries

B

Gas sub group = B


T4

Temperature class T4



## Product marking

The ATEX directive requires the product to be marked with the CE mark, the 'EX' mark and the equipment coding as per table below.

Heading	Mark	Use
Explosion proof		in accordance with the ATEX directive
Equipment Group	I	For use in underground mines
	II	For use in all other places
Category	1	Equipment that is intended for use in areas where an explosive atmosphere is present continuously, for long periods or frequently
	2	Equipment that is intended for use in areas where an explosive atmosphere is likely to occur in normal operation and must ensure a high level of protection.
	3	Equipment that is intended for use in areas where an explosive atmosphere is unlikely to occur in normal operation and must ensure a normal level of protection.
Gas / Dust	G	Equipment certified for use in flammable gases
	D	Equipment certified for use where dust is present in the atmosphere
Type of Protection*	d	Flameproof
	Ia	Intrinsically Safe
	e	Increased safety
Gas Group	I	Mines
	II	Surface above ground industries



<b>Gas Group</b>	I	Mines
	II	Surface above ground industries
<b>Gas Sub Group</b>	A	Less easily ignited gases e.g. propane
	B	Easily ignited gases e.g. ethylene
	C	Most easily ignited e.g. hydrogen or acetylene
<b>Temperature Classification</b> Hazardous area apparatus is classified according to the maximum surface temperature produced under fault conditions at an ambient temperature of 40°C, or as otherwise specified. The standard classifications are as shown	T1	450°C
	T2	300°C
	T3	200°C
	T4	135°C
	T5	100°C
	T6	85°C