



ATEX MARKING GUIDE



MINING



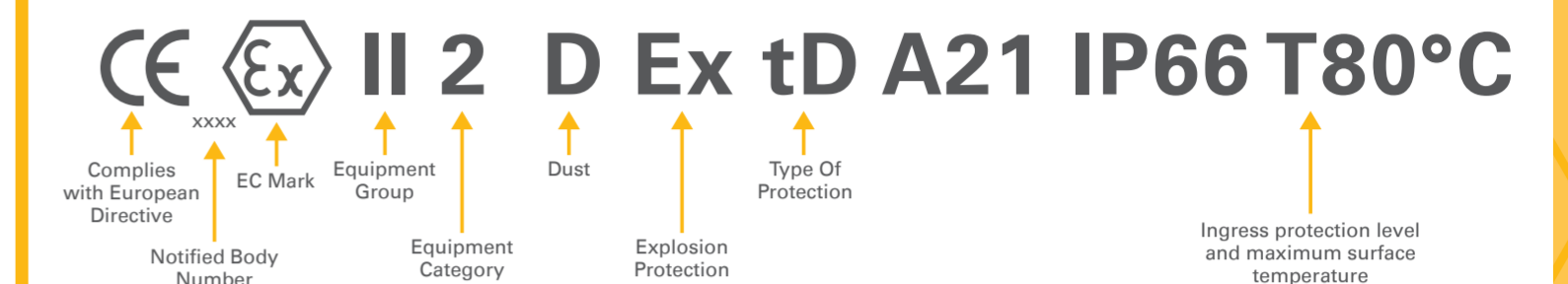
INDUSTRIAL



MARKING FOR GAS HAZARDS



MARKING FOR DUST OR AIRBORNE FIBRE HAZARDS



EQUIPMENT GROUP AND EQUIPMENT CATEGORY					
Equipment Group	Equipment Category	Protection Level	Hazard		Use
			Gas	Dust	
I Mining	M1	Very High Protection	-	-	Operable in Ex atmosphere
	M2	High Protection	-	-	De-energised in Ex atmosphere
II Industrial	1	Very High Protection	G	-	Zones 0,1,2
				D	Zones 20,21,22
	2	High Protection	G	-	Zones 1,2
				D	Zones 21,22
	3	Normal Protection	G	-	Zone 2
				D	Zone 22

TYPES OF PROTECTION - GAS		
Type of protection	ATEX Code	Standard
General Requirements	-	EN 60079-0
Intrinsic Safety	Ex ia & ib	EN 60079-11
Increased Safety	Ex e	EN 60079-7
Flameproof	Ex d	EN 60079-1
Pressurisation	Ex p	EN 60079-2
Powder Filled	Ex q	EN 60079-5
Encapsulation	Ex ma&mb	EN 60079-18
Oil Immersion	Ex o	EN 60079-6
Non-incendive	Ex n	EN 60079-15

APPARATUS GROUPS AND TEMPERATURE CLASSES FOR COMMON EXPLOSIVE GASES AND VAPOURS		
Gas/Vapour Temperature	Gas Group	Temperature Class
Acetic acid	IIA	T1
Acetone	IIA	T1
Acetylene	IIC	T2
Ammonia	IIA	T1
Benzene	IIA	T1
Butane	IIA	T2
Cumene	IIA	T2
Cyclohexane	IIA	T3
Ethanol (ethyl alcohol)	IIA	T2
Ethylene	IIB	T2
Hydrogen	IIC	T1
Methane (industrial)	IIA	T1
Methanol	IIA	T1
Petroleum	IIA	T1
Propane	IIA	T1
Toluene	IIA	T1
Turpentine	IIA	T3
Xylene	IIA	T1

TEMPERATURE CLASS	
T-Class	Max surface temp in °C
T1	450
T2	300
T3	200
T4	135
T5	100
T6	85

CLASSIFICATION OF HAZARDOUS AREAS TO EN 60079-10			
Area Classification		Zone Criteria	
Gases	Dusts		
Zone 0	Zone 20		present continuously or for long periods (>1000hrs per annum)
Zone 1	Zone 21		likely to occur in normal operation occasionally (>10hrs, <1000hrs per annum)
Zone 2	Zone 22		unlikely to occur in normal operation, if it does will only be for short periods (<10hrs per annum)

TYPES OF PROTECTION - DUST		
Type of protection	ATEX Code	Standard
General Requirements	-	EN 61241-0:2006
Protection by Enclosures	tD	EN 61241-1:2004
Protection	pD	EN 61241-4:2006
Intrinsic Safety	iD	EN 61241-11:2006
Encapsulation	mD	EN 61241-18:2004

IGNITION TEMPERATURES FOR COMMON COMBUSTIBLE DUSTS	
Dust Cloud	Ignition Temperature
Aluminium	590°C
Coal dust (Lignite)	380°C
Flour	490°C
Grain dust	510°C
Methyl cellulose	420°C
Phenolic resin	530°C
Polythene	420°C
PVC	700°C
Soot	810°C
Starch	460°C
Sugar	490°C

TYPE N ACCORDING TO EN60079-15		
Type of protection	ATEX Code	Standard
Enclosed break device	-	nC
Non-incendive component	-	nC
Hermetically sealed device	-	nC
Sealed device	-	nC
Encapsulated device	-	nC
Energy limited apparatus & circuits	-	nL
Restricted breathing enclosure	-	nR
Non sparking	-	nA

Dust Groups - IEC60079-0 (2007)	
Dust Group	ATEX Code
Combustible Flyings	IIIA
Non-conductive Dust	IIIB
Conductive Dust	IIIC

Hazardous areas are classified into zones on the basis of the frequency and duration of the occurrence of an explosive atmosphere. Durations on table are typical.

A more comprehensive list of gases and vapours is provided in IEC 60079-20.

Further information on dangerous substances and combustion potential is available at www.hse.gov.uk/fireandexplosion/about.htm

Terminals

Torches & Headlamps

Sensors & Transducers

Junction Boxes

Sounders & Beacons

Power Connectors

Earthing Connectors

Conduit

Cable Accessories

Pressure Calibrators

Loop & Multifunction Calibrators

Lighting

Machine Guarding & Safety

Enclosures

Control Relays & Signal Conversion

Power Supplies

Signal Isolation & Barriers

Multimeters

Push Buttons & Control Stations

Switches

Cable

Level Sensing

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