

# IECEX Marking Scheme for Explosion Protected Equipment [GAS]

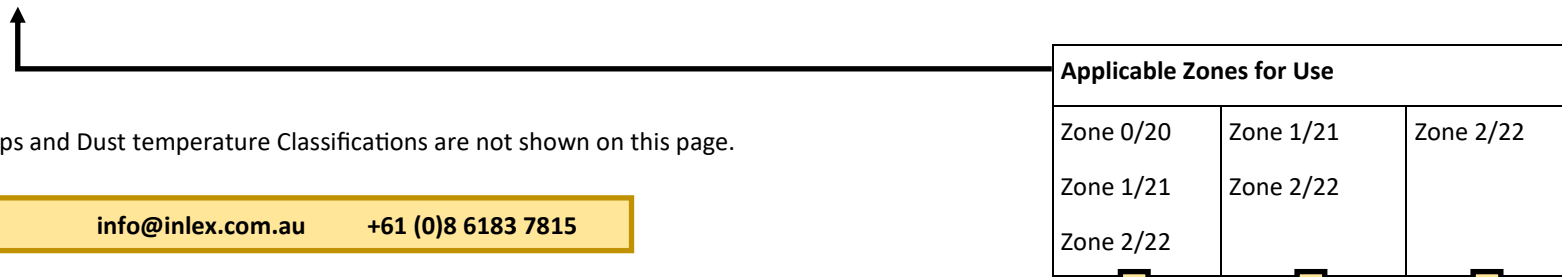


Gas Groups		
IIA	IIB	IIC
Permitted Equipment Group		
IIA, IIB, IIC	IIB, IIC	IIC

Temperature Class	Maximum Surface Temperature	Permitted Temperature Classes
T1	450 °C	T1 to T6
T2	300 °C	T2 to T6
T3	200 °C	T3 to T6
T4	135 °C	T4 to T6
T5	100 °C	T5 to T6
T6	85 °C	T6

Use of the Operating Equipment	
No X or U	No restrictions on operating the
With X	Specific conditions of use apply to the equipment as dictated by the certificate.
With U	Denotes a Component Certificate. Conformity is certified when used in an overall equipment

**GAS** Ex db eb IIB T4      Gb IECEX ExCB 11.1234X  
**DUST** Ex tc      IIB T120 °C Dc IECEX ExCB 11.1234X



Note: Dust Groups and Dust temperature Classifications are not shown on this page.

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Applicable Zones for Use		
Zone 0/20	Zone 1/21	Zone 2/22
Zone 1/21	Zone 2/22	
Zone 2/22		

IECEX Protection Concepts							
Protection concept	Principle of Protection	Applicable Flammable Materials	Example Applications	Very High Protection	High Protection	Enhanced protection	Standards
General Requirements	-	Gases, Vapours (G) and Dusts (D)	All Applications	-	-	-	IEC 60079-0
Flameproof Enclosure	Propagation of an explosion inside to the outside is excluded	Gases and Vapours (G)	Control Stations, Motors, Fuses, Switchgear	Ex da	Ex db	Ex dc	IEC 60079-1
Increased Safety	Avoidance of arcs, sparks and excessive temperature	Gases and Vapours (G)	Junction and Connection Boxes, Enclosures, Motors	-	Ex eb	Ex ec	IEC 60079-7
Protection by enclosure	Explosive dust atmosphere kept at a distance from the ignition source	Dusts (D)	Junction and Connection Boxes, Enclosures, Motors	Ex ta	Ex tb	Ex tc	IEC 60079-31
Intrinsic Safety	Limitation of energy as well as arcs and temperature	Gases, Vapours (G) and Dusts (D)	Measurement and Control Technology, Sensors, Actuators	Ex ia	Ex ib	Ex ic	IEC 60079-11 IEC 60079-25
Pressurization	Explosive atmosphere kept at a distance from the ignition source	Gases, Vapours (G) and Dusts (D)	Switch and Control Stations, Motors, Computers	-	Ex pxb, Ex pyb	Ex pzc	IEC 60079-2
Encapsulation	Explosive atmosphere kept at a distance from the ignition source	Gases, Vapours (G) and Dusts (D)	Coils for Motors or Relays, Solenoids	Ex ma	Ex mb	Ex mc	IEC 60079-18
Liquid Immersion	Explosive atmosphere kept at a distance from the ignition source	Gases and Vapours (G)	Transformers, Relays, Control Stations	-	Ex ob	Ex oc	IEC 60079-6
Powder Filling	A propagation of an explosion inside to the outside is excluded	Gases and Vapours (G)	Capacitors, Relays, Transformers	-	Ex q	-	IEC 60079-5
Enclosed Construction Restricted Breathing	Protection principles adapted for Zone 2	Gases and Vapours (G)	Zone 2 Applications	-	-	Ex nC Ex nR	IEC 60079-15
Inherent Safe Optical Radiation	Limitation of optical energy radiating in the explosive atmosphere	Gases, Vapours (G) and Dusts (D)	Optical Devices, Laser Scanners, Light Barriers	Ex op is	-	-	IEC 60079-28
Protected optical radiation	Explosive atmosphere is kept distant from source	Gases, Vapours (G) and Dusts (D)	Fibre-Optic Systems	-	Ex op pr	-	IEC 60079-28
Optical system with interlocking	Explosive atmosphere is kept distant from source	Gases, Vapours (G) and Dusts (D)	Fibre-Optic Systems	-	Ex op sh	-	IEC 60079-28

This document is produced as a guide only. Any reference should be made in conjunction with the applicable standards and any local regulations. Information correct at the time of creation