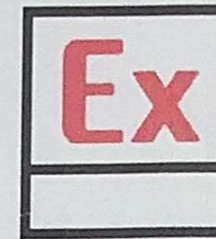




GUIDE TO HAZARDOUS LOCATIONS

Explosive Gas & Dust Atmospheres



Ex-PROTECTA

The technology to safeguard your projects

ELECTRICAL EQUIPMENT FOR HAZARDOUS, CORROSIVE AND DUSTY ENVIRONMENT

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Electrical Protection Concepts						
Type		Standard		Protection Concept	Zone	
		IEC/EN/IS	IEC/EN		Gas	Dust
Gas	Dust	Gas	Dust		Gas	Dust
		60079-0		General Requirements		
Ex d		60079-1		Flameproof	1	
	Ex taD Ex tbD Ex tcD		60079-31	Dust Ignition Protected Enclosure		20 21 22
Ex px Ex py Ex pz	Ex pD	60079-2	61241-2	Pressurized	1 2	21/22
Ex q		60079-5		Powder Filled	1	
Ex o		60079-6		Oil Filled	1	
Ex e		60079-7		Increased Safety	1	
Ex ia Ex ib Ex ic	Ex iaD Ex ibD Ex icD	60079-11	61241-11	Intrinsic Safety	0 1 2	20 21 22
Ex nA Ex nL Ex nR		60079-15		Non-Sparking Limited Energy Restricted Breathing Enclosed Break	2	
Ex nC						
Ex ma Ex mb Ex mc		60079-18		Encapsulation	0 1 2	20 21 22

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

Ingress Protection (IP)	
Hazardous area equipment generally requires IP rating of IP54 to IP66. Higher rating is not recommended.	
DUST: IP 5x - dust protected IP 6X - dust tight	
WATER: Protected Against IP x4 - splashing water IP x5 - water jets IP x6 - powered water jets IP x7 - temporary immersion IP x8 - continuous immersion	
See IEC/EN/IS 60529 for full definition of IP ratings.	

Equipment Protection Level	
Symbol	Suitable For Zone
Ga	0
Gb	1
Gc	2
Da	20
Db	21
Dc	22
Ma	Energized
Mb	De-Energised*

NEMA v/s IP Enclosure			
NEMA Type	3, 3S & 13	4 & 4X	6 & 6P
Equivalent IP	IP 54	IP 56	IP 67

Area Classification		
Gas	Dust	Hazardous Area
Zone 0	Zone 20	Frequently Present
Zone 1	Zone 21	Present in Normal Condition
Zone 2	Zone 22	Present in Abnormal Condition

Gas Group	
Gas Group	Representative Test Gas
I	Methane (Mining only)
IIA	Propane
IIB	Ethylene
IIC	Hydrogen

Gases are classified according to Ignitability of gas-air mixture. Refer IEC/EN/IS 60079-20.

Dust Group	
Dust Group	Type of Combustible Dust
IIIA	Combustible Flying
IIIB	Non-conductive Dust
IIIC	Conductive Dust

Code for Users		
Subject	Gas	Dust
Flammable Data	IS/IEC 60079-20	IEC 61241-2-1,2 & 3
Area Classification	IS/IEC 60079-10-1	IEC 60079-10-2
Selection & Installation	IS/IEC 60079-14	
Inspection & Maintenance	IS/IEC 60079-17	
Repair & Overhaul	IS/IEC 60079-19	

Marking

Manufacturers Name & Address

Protection Concept

Type Identification

National Statutory Approval (PESO)

Gas Group

Temperature Class

Ingress Protection

EPL

Electrical Rating

Ex-PROTECTA
305/306 G.I.D.C. VITHAL UDYOGNAGAR - 388121 (INDIA)
Email: exprotecta@exprotecta.com Web: www.exprotecta.com
DO NOT OPEN WHEN ENERGIZED
Exd IIB+H2 T6 IP - 65 Gb
CML-7661382

CAT NO. 462.027.6142 SL NO. 09/355
CERT. NO. CIMFR/TC/P/H42 Dated : 23.04.2008
CCOE. NO. P221062/1 RATING 300A 415V AC

Indian National Quality Mark

Year of Manufacturing & Serial Number

Type Test Certificate Number