

ATEX 2014/34/EU

Marking Explosion Protected Equipment

smart
GasDetection
Technologies



Classification and Marking of Hazardous Areas						
Flammable substances	Temporary behavior of the explosive medium	Zone	Marking of equipment		Equipment protection level (EPL)	Diagram for spatial determination
			Group	Category		
Gases Vapors Fumes	permanent, long-lasting or frequently present	0	II			
	occurs occasionally	1	II	1G	Ga	
	should not occur, only rarely and briefly	2	II		2G	
Dust	permanent, long-lasting or frequently present	20	II			
	occurs occasionally	21	II	1D	Da	
	should not occur due to swirled up dust, seldom/short term	22	II		2D	
Methane Dust	very high protection	Mining	I			
	high protection	Mining	I	M1	Ma	

Classification into Explosion Groups and Temperature Classes									
Explosion group	Examples depending on explosion group and temperature class								
	I	IIA	IIB	IIC	methane (free of coal dust deposits)	-	-	methane (with coal dust deposits)	-
methane ethane propane i-butane acetone toluene ammonia propylene ethyl acetate					n-butane ethanol methanol i-pentane isopropanol 1-butene i-octane cyclohexane n-butane	gas kerosene diesel fuel oil pentane n-hexane cyclohexane	acetaldehyde butyraldehyde	-	-
coal gas carbon monoxide acrylonitrile					ethylene oxide 2-butene 1-propanol butadiene 1,4-dioxane	nonane dimethyl ether ethyl glycol hydrogen sulphide	diethyl ether dibutylether	-	-
				hydrogen	acetylene	-	-	-	carbon disulphide
				T1 < 450 °C T2 < 300 °C T3 < 200 °C T4 < 135 °C T5 < 100 °C T6 < 85 °C					
				Devices can be used according to their certification for temperature classes T1 to T6. The temperature class shows the maximum permissible surface temperature of the equipment. For dust explosion protection the maximum surface temperature is indicated directly (e.g. T80 °C).					
				Temperature Classes					

Notified Bodies		
Identification number	Land	Notifizierte Stelle
0158	Germany	BVS (Dekra Testing & Certification)
0102	Germany	PTB
0589	UK	SIRA

Year	Guideline	Test Number
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0158
II 2G Ex db IIC T6 Gb
II 2D Ex tb IIIC T80°C Db
BVS 19 ATEX 1234 X

Protective principle	ignition protection type	Label	Use in zone	Symbol	CENELEC
Contain the explosion	Flameproof enclosure	Ex d	da db dc	0, 1, 2 1, 2 2	EN 60079-1
No arcs, sparks, or hot surfaces	Increased safety	Ex e	eb ec	1, 2 2	EN 60079-7
Limit energy of sparks and temperature	Intrinsic safety	Ex i	ia ib ic	0, 1, 2, 20, 21, 22 1, 2, 21, 22 2, 22	EN 60079-11 EN 60079-25 EN 60079-27
Keep flammable gas out	Pressurized encapsulation	Ex p	pxb pyb pzc	1, 2, 21, 22 1, 2, 21, 22 2, 22	EN 60079-2
Keep flammable gas out	Encapsulation	Ex m	ma mb mc	0, 1, 2, 20, 21, 22 1, 2, 21, 22 2, 22	EN 60079-18
Keep flammable gas out	Oil encapsulation	Ex o	ob oc	1, 2 2	EN 60079-6
Contain the explosion	Sand encapsulation	Ex q	qb	1, 2	EN 60079-5
Technically easier implementation of other Protection principles - Use only in zone 2	Analogue marking Type - nP≠Ex p	Ex n	... nP ...	2 2 2	EN 60079-15
Dust explosion protection	Protection by housing	Ex t	ta tb tc	20, 21, 22 21, 22 22	IPxx EN 60079-31
Limit energy of sparks and temperature	Inherent safe optical radiation	Ex op	is	0, 1, 2, 20, 21, 22	EN 60079-28
Keep flammable gas out	Protected optical radiation	Ex op	pr	1, 2, 21, 22	EN 60079-28
Keep flammable gas out	Optical system with locking mechanism	Ex op	sh	1, 2, 21, 22	EN 60079-28

Principle of Protection; Types of Protection; Standards - EN 60079-0 General Requirements

Explosion group	Dust groups
IIIA	Conductive dust
IIB	Non-conductive dust
IIC	Combustible flyings

e.g.: IP67

IP	Solid particle protection	Liquid protection	IP
8	-	Permanent immersion	8
7	-	Temporary immersion	7
6	Dust-tight	Strong jet	6
5	Dust-protected	Protected against water jets	5
4	Objects > Ø 1.0 mm	Protected against splash water	4
3	Objects > Ø 2.5 mm	Protected against spray water	3
2	Objects > Ø 12.5 mm	Drip water with 15° inclination	2
1	Objects > Ø 50 mm	Protected against dripping water	1
0	No protection	No protection	0

Housing Protection IEC EN 60529

Conditions	Label
The equipment can be used without restriction	-
Special requirements must be observed when using the equipment	X
The equipment is an Ex component with partial certification and therefore cannot be used on its own	U
CE conformity is certified with installation in a complete piece of equipment	

Additional Information



GMA200-MW4
© II (2) G



CC33 Aluminium:
without horn © II 2G Ex db IIC T6 Gb
with horn © II 2G Ex db Ib IIC T4/6 Gb



CC22 exc:
© II 3G Ex nA db IIC T4 Gc



Micro 5 G222E:
© II 1G Ex Ia IIC T4/T3 Ga



Polytor III G999C/G999S:
© II 2G Ex Ia db IIC T4 Gb
© II 1G Ex Ia IIC T4 Ga
© II 1G Ex Ia da IIC T4 Ga
© I M1 Ex Ia da I Ma



GfG - Gesellschaft für Gerätebau mbH
Klönnestraße 99 | 44143 Dortmund | Germany

Phone: +49 231 56400-0
E-mail: info@gfg-mbh.com

GfGsafety.com