

Marking of explosion-proof equipment according to ATEX 2014/34/EU

Classification and marking of potentially explosive atmospheres

Flammable material	Temporary behaviour of explosive atmosphere	Classification of hazardous areas	Equipment group	Equipment category	Equipment protection level (EPL)
Gases, mists, vapours	Continuously, for long periods or frequently	Zone 0	II		
	Likely to occur occasionally	Zone 1	II	1G	Ga
	Unlikely to occur or likely to occur infrequently or for short periods only	Zone 2	II		2G 3G
Dusts	Continuously, for long periods or frequently	Zone 20	II		
	Likely to occur occasionally	Zone 21	II	1D	Da
	Unlikely to occur or likely to occur infrequently or for short periods only	Zone 22	II		2D 3D
Methane, carbon dust	Continued operation in case of explosion hazard	Zone 20	I		
	Shutdown in case of explosion hazard	Zone 21	I	1M	Ma
				2M	Mb

Classification into explosion groups and temperature classes

Explosion group	Examples depending on - explosion group - temperature class
IIA	Ammonia Methane Ethane Propane
	Ethyl alcohol Cyclohexane n-butane
IIB	City gas Acrylonitrile
	Ethylene Ethylene-oxide
IIC	Hydrogen
	Acetylene
	Petrol Diesel Fuel oil n-hexane
	Ethyl ether
	Acetaldehyde
	Ethylene glycol Hydrogen sulphide
	Carbon disulphide

Temperature class	Temperature range
T1	< 450 °C
T2	< 300 °C
T3	< 200 °C
T4	< 135 °C
T5	< 100 °C
T6	< 85 °C



Product use depending on temperature class (T1 to T6). The temperature class indicates the max. permissible temperature of the exposed surface of the product. For dust explosion protection, the max. surface temperature is indicated directly (e.g. T80 °C).

Temperature classes

Notified bodies ¹⁾	
Code number	Notified body
0102	PTB (Germany)
0158	EXAM (Germany)
0589	BAM (Germany)
0600	EECS (UK)
0637	IBExU (Germany)
0344	KEMA (Netherlands)
0081	LCIE (France)
0518	SIRA (UK)
0044	TÜV (Germany)

*Explosion-proof device cable entries, explosion-proof plugs and explosion-proof threaded adapters do not need to be marked with the temperature class or maximum surface temperature in °C.

Example

II 2 G Ex db eb IIC T6* Gb NB¹⁾ 18 ATEX 1001 X

II 2 D Ex ta IIIC T80°C* Da IP 66/68

Protection principle	Type of protection	Code	Symbol	To use in zone	CENELEC	IP	Protection against solids/dust	Protection against water	Application	Code
Prevents transmission of explosion outside	Flameproof enclosure	Exd	da db dc	0, 1, 2 1, 2 2	EN 60079-1	IIIA	Flammable fibres		For common use	
Prevents high temperatures and sparks	Increased safety	Exe	eb ec	1, 2 2	EN 60079-7	IIB	Non-conductive dust			
Low current/voltage supply, sparks and temperatures	Intrinsic safety	Exi	ia ib ic	0, 1, 2, 20, 21, 22 1, 2, 21, 22 2, 22	EN 60079-11	IIC	Conductive dust			
Positive pressure device	Pressurized enclosure	Exp	pxb pyb pzc	1, 2, 21, 22 1, 2, 21, 22 2, 22	EN 60079-2		Dust classification	8 - Continuous immersion	For use under special conditions	
Positive pressure device	Encapsulation	Exm	ma mb mc	0, 1, 2, 20, 21, 22 1, 2, 21, 22 2, 22	EN 60079-18			7 - Temporary immersion		
Parts immersed in oil to isolate from explosive atmosphere	Liquid immersion	Exo	ob oc	1, 2 2	EN 60079-6			6 - Totally protected against dust Powerful jetting	X	
Prevents transmission of explosion outside	Powder filling	Exq	qb	1, 2	EN 60079-5			5 - Dust - limited ingress Jetting		
As above, but for use in zone 2	Type of protection	Exn	nC nR	2 2	EN 60079-15			4 - Solid objects > 1 mm Splashing		
Dust explosion proof	Protection by enclosure	Ext	ta tb tc	20, 21, 22 21, 22 22	EN 60079-31			3 - Solid objects > 2.5 mm Spraying	This part is an Ex component and certified as such and is therefore not suitable for use on its own. CE conformity is achieved by incorporation into equipment	U
								2 - Solid objects > 12.5 mm Dripping (15° tilted)		
								1 - Solid objects > 50 mm Vertically dripping		
								0 - No protection No protection		