Labelling of explosion proof equipment

Classification and labelling of explosion proof areas

Flammable medium	Hazardous locations Probability of a potential explosive atmosphere occuring	Classification of explosion proof areas	Product classification: Product group	Product category		
Gases, vapours, mists	Always, temporarily or often present	Zone 0	II	1G		
	Occasionally present	Zone 1	II		2G	
	Very seldom or only present for a short period	Zone 2	II			3G
Dusts	Always, temporarily or often present	Zone 20	II	1D		
	Occasionally present	Zone 21	II		2D	
	Does not occur or only seldom for a short period	Zone 22	II			3D

Classification of areas, hazardous due to flammable gases, vapours, mists

Explosion group	Examples depending on - explosion group - temperature class					
IIA	Ammoniak Methan Ethan Propan	Ethylalcohol Cyclohexene n-Butane	Petrol Diesel fuel Fuel oil n-Hexane	Acetaldehyd		
IIB	City gas Acrylic nitrile	Ethylene Ehtylenoxyd	Ethylglycol Carbon hydrogen	Ethylether		
IIC	Hydrogen	Acetylene				Carbon disulphide

Attention: this list is only an extract of possible flammable mediums and makes no claim to be complete!

Temperature class	
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 - T6). The temperature class indicates the max. temperature of the exposed surface of the product. At dust explosion proof is the max. surface temperature direct shown.(e.g. T80°C)

Official institutes

Country (Example)	code number	Institute Notified Body
Germany	0102	PTB
Germany	0158	EXAM

Example:

CE 0158

II 2G Ex d ia IIC T6 PTB 04 ATEX 1028 -

II 2D Ex tD A21 IP66 T80 °C

Protection principle	Type of protection	Code	Symbol	To use in zone	CENELEC
Prevents transmission of the explosion outside	flameproof enclosure	Ex d		1 or 2	EN 60079-1
Prevents high temperatures and sparks	increased safety	Ex e		1 or 2	EN 60079-7
Low current/voltage supply	intrinsic safety	Ex i Ex iD		0, 1 or 2*	EN 60079-11 EN 61241-11
Positive pressure device	pressurised apparatus	Ex p Ex pD		1 or 2	EN 60079-2 EN 61241-4
Encapsulated	moulding	Ex m Ex mD		1 or 2	EN 60079-18 EN 61241-18
Parts immersed in oil to isolate from explosive atmosphere	oil immersion	Ex o		1 or 2	EN 60079-6
Prevents transmission of explosion outside	powder filling	Ex q		1 or 2	EN 60079-5
As above, but for use in zone 2	protection „n“	Ex n		2	EN 60079-15
Dust explosion proof	protection „tD“	Ex tD		20, 21 22	EN 61241-1

Protection principle - Type of protection - CENELEC regulations, Basic rule EN 60079-0

IP	Protection against solids/dust	Protection against water
8	-	protected against long periods of immersion
7	-	protected against the effects of temporary immersion
6	totally protected against dust	protected against strong jets of water
5	protected against dust - limited ingress	protected against low pressure jets from all directions
4	protected against solids objects > 1 mm	protected against sprays from all directions
3	protected against solids objects > 2,5 mm	protected against direct sprays up to 60° from vertical
2	protected against solids objects > 12,5 mm	protected against direct sprays up to 15° from vertical
1	protected against solids objects > 50 mm	protected against vertical falling drops of water
0	no protection	no protection

Ingress Protection EN 60529

Application	Code
For common use	-
For use under special circumstances	X
This product is an Ex-certified component for use in a complete system.	U

Further information

* **ia** in zones 0, 1 and 2 **ib** in zones 1 and 2