

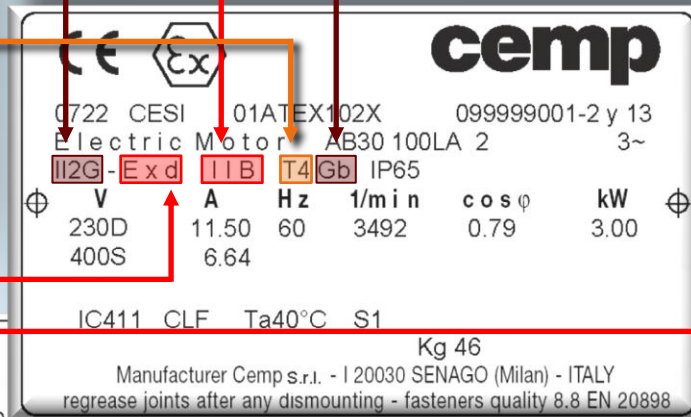
Atex: Standards Evolution

Max surface temper.	Temperature Class	Gases or vapors (Group II)		
		Explosion Group		
		IIA	IIB	IIC
450°C	T1	Acetic acid, Acetone, Ammonia, Benzene, Ethane, Methane, Propane, Toluene...	Coke-over gas, Water gas...	Hydrogen...
300°C	T2	Butane, Ethanol, Methanol, Iso-Propyl alcohol...	Ethylene, Methyl ethyl ketone, n-propyl alcohol...	Acetylene...
200°C	T3	Cyclohexane, Gasoline, Kerosene...	Hydrogen sulphide, Isoprene...	
135°C	T4	Acetaldehyde, Ether...	Ethyl ether	
100°C	T5			
85°C	T6			Ethyl nitrate

N.B. For Group I applications, equipment has rigid 150°C (coal dust) and 450°C (methane) limits rather than T classes

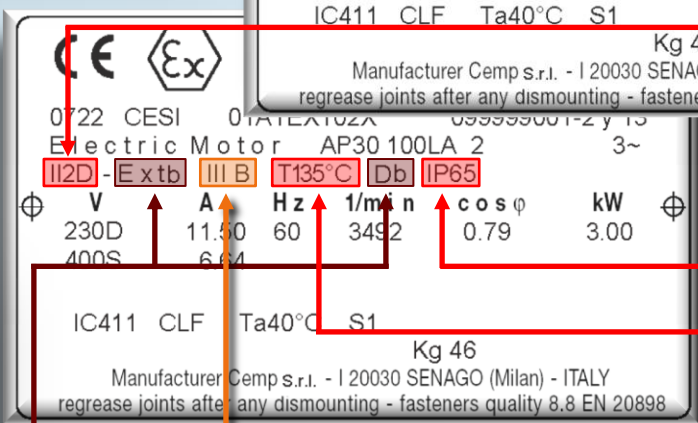
Group	Zone	Equipment		
as per 94/9/CE	Gas	Category	Group	Protection Level
II	0	1G	II	Ga
II	1	2G (or 1G)	II	Gb (or Ga)
II	2	3G (or 2G, or 1G)	II	Gc (or Gb, or Ga)
	Dust			
II	20	1D	III	Da
II	21	2D (or 1D)	III	Db (or Da)
II	22	3D (or 2D, or 1D)	III	Dc (or Db, or Da)
	Mining			
I	M1	M1	I	Ma
I	M2	M2 (or M1)	I	Mb (or Ma)

GAS



DUST

Equipment of higher categories can also be used instead of those of a lower category



Protection concepts		
1 st digit	IP	2 nd digit
Protection against harmful dust deposit	55	A jet of water squirting out of a nozzle towards the motor from all directions has no harmful effect
Protection against the penetration of dust	65	

Protection concepts				
Electrical	Symbol	EPL	Zone	IEC-EN
Increased safety	e	Gb	1, 2	60079-7
Type "n" (non-sparking)	nA	Gc	2	60079-15
Flameproof	d	Gb	1, 2	60079-1
Dust (Electrical)				
Enclosure	t	Da, Db, Dc	20, 21, 22	60079-31

Dust Equipment Group	
IIIA	Combustive flyings
IIIB	Non-conductive dust
IIIC	Conductive dust

How to calculate DUST ignition temperature

Dust ignition temperature	Cloud T _{cl}	Layer T _{5mm}
Safety temperature	T _{s1} = 2/3 T _{cl}	T _{s2} = T _{5mm} - 75k
Maximum surface temperature	T _{amm} = the lowest between T _{s1} e T _{s2}	
Motors surface temperature	≤ T _{amm}	