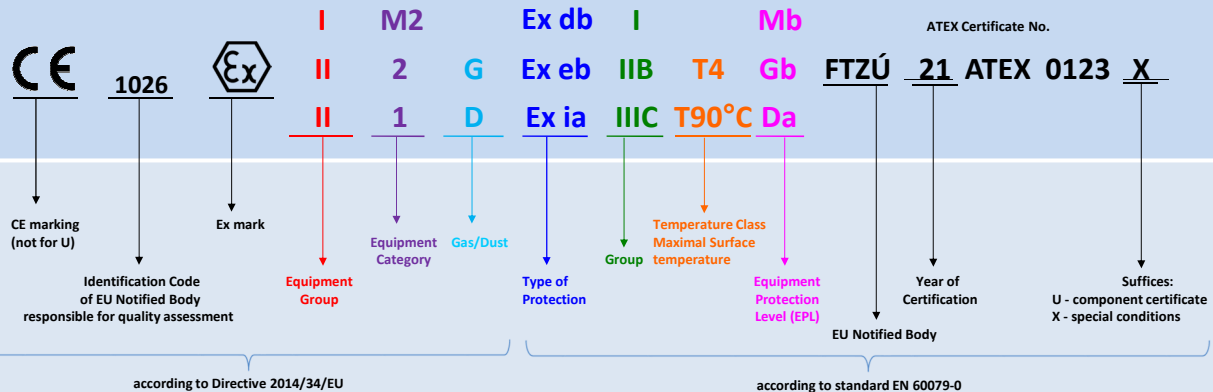




ATEX Coding

Electrical Equipment



A potentially explosive atmosphere exists when a mixture of air gases, vapours, mists, or dusts combine in a way that can ignite under certain operating conditions. Equipments and protective systems intended for use in potentially explosive atmospheres ATEX cover a range of products, including those used on fixed offshore platforms, petrochemical plants, mines, and flour mills, amongst others.

The ATEX Directive 2014/34/EU covers equipment and protective systems intended for use in potentially explosive atmospheres. The Directive defines the essential health and safety requirements and conformity assessment procedures, to be applied before products are placed on the EU market. It is aligned with the New Legislative Framework policy, and it is applicable from 20th April 2016, replacing the previous Directive 94/9/EC.

Groups according to EN 60079-0	
Group I	Mines susceptible to firedamp and coal dust
	Methane
Group II	Explosion gas atmosphere
Subdivisions	Typical gas
IIA	Propane
IIB	Ethylene
IIC	Hydrogene
Group III	Explosion dust atmosphere
Subdivisions	Typical dust
IIIA	Combustible flyings
IIIB	Non-conductive dust
IIIC	Conductive dust

Zones according to EN 60079-10-1 or 2			
Explosive atmosphere	Classification based upon the frequency of the occurrence and duration of an explosive atmosphere		
	Continuously, longterm or frequently	Occasionally	Not likely to occur and for short period only
Gas	Zone 0	Zone 1	Zone 2
Dust	Zone 20	Zone 21	Zone 22

Temperature class from EN 60079-0	Maximum surface temperature	Ignition temperature from EN 60079-20-1
T1	450°C	600°C Methane, 560°C Hydrogen
T2	300°C	450°C Propane, 372°C Butane
T3	200°C	280°C Benzine, 210°C Kerosine
T4	135°C	175°C Diethylether
T5	100°C	-
T6	85°C	90°C Carbon Disulphide

Area	Equipment				
EN 60079-10-1	Directive 2014/34/EU				Standard EN 60079-0
EN 60079-10-2					
Zone	Group	Category	Letter	EPL	Group
-	I	M1	-	Ma	I
-	I	M2	-	Mb	I
0	II	1	G	Ga	II
1	II	2	G	Gb	II
2	II	3	G	Gc	II
20	II	1	D	Da	III
21	II	2	D	Db	III
22	II	3	D	Dc	III

Types of protection for electrical equipment in explosive atmospheres					
Type of protection	Symbol	Zone	Diagram	Main application	Standard
General requirements	-	0 20 1 21 2 22			EN 60079-0
Flameproof enclosure	da db dc	0 1 2		pelister sensing heads switchgears, control systems, motors, transformers, luminaires	EN 60079-1
Pressurized enclosure	px, pxb py, pyb pz, pzb	1 21 1 21 2 22		switchgears, control cabinets, analysers, large motors	EN 60079-2
Powder filling	q	1		sensors, power supplies, display units	EN 60079-5
Liquid immersion	o, ob oc	1 2		transformers, starting resistors	EN 60079-6
Increased safety	e, eb ec	1 2		junction boxes, squirrel-cage motors, terminals, control stations	EN 60079-7
Intrinsic safety	ia ib ic	0 20 1 21 2 22		sensors, actuators, detectors, electronic equipments	EN 60079-11
Type "n"	nC nR nA	2 2 2		electrical equipments for Zone 2	EN 60079-15
Encapsulation	ma mb mc	0 20 1 21 2 22		sensors, control and signalling units	EN 60079-18
Optical radiation	op is op pr op sh	0 20 1 21 2 22		optical communication parts of equipments	EN 60079-28
Protection by enclosure	ta tb tc	20 21 22		motors, junction boxes, control stations, luminaires	EN 60079-31

IPXX protection according to IEC 60529	
First digit	Second digit
Protection against solid foreign objects	Protection against ingress of water with damaging effects
0 No protection	0 No protection
1 $\phi \geq 50$ mm	1 Vertically dripping water
2 $\phi \geq 12.5$ mm	2 15° angled dripping water
3 $\phi \geq 2.5$ mm	3 Spraying water up to 60°
4 $\phi \geq 1.0$ mm	4 Splashing water in all directions
5 Dust protected	5 Water low pressure jets in all directions
6 Dust tight	6 High pressure water jets
	7 Temporary submersion
	8 Permanent submersion
	9 High pressure and high jet water temperature



Physical Technical Testing Institute, s.p.

Contacts	We are	We offer
Pikartská 1337/7 71607 Ostrava – Radvanice Czech Republic	Authorized body AO 210 EU Notified Body No. 1026 Accredited Certification Body according to EN ISO/IEC 17065 Accredited testing laboratory according to EN ISO/IEC 17025 Accredited "A" Inspection Body according to EN ISO/IEC 17020 Approved IECEx Scheme ExCB and ExTL	In area of potentially explosive atmospheres: Testing, certification, inspection of equipments and protective systems. Training, technical advice, quality system approval, technical file storage, assistance with ATEX Directive implementation.