

WHAT IS EXPROOF CRANE?

According to What Exproof Crane is Grouped and Classified ?

WHAT IS ATEX CLASS CRANE ?

ATEX directives of EU Organizations have been put into effect starting from 1 July 2003. ATEX is a word formed from the combination of the first syllables of the French words "ATmosphèresEXplosives" and means Explosive Atmospheres.

WHAT IS ATEX CERTIFICATE ?

It is an international certificate given for Industrial products (including cranes) used in explosive, flammable and easily flammable environments.

WHAT ARE THE EUROPEAN UNION ATEX DIRECTIVES?

There are two ATEX directives for equipment manufacturers and users.

First; As (ATEX 95) Equipment Directive 94/9/EC; It is the Equipment and Protective Systems Instruction produced for use in Potentially Explosive Atmospheres. In short, it is the safe equipment directive for ATEX.

Latter; (ATEX 137) As Workplace Directive 99/92/EC; Minimum Requirements Instruction for Improving Occupational Safety and Health of Employees at Potential Risk from Explosive Atmospheres. In short, it is the worker protection directive for ATEX.

Standards and practices related to explosive atmospheres (EXproof) must comply with both these ATEX directives. Common Market Countries have to harmonize and have harmonized all their relevant legislation, such as their national laws, standards, regulations, instructions, etc., with ATEX 100a and ATEX 137.

HOW IS THE ATEX LEGISLATION IN TURKEY?

In accordance with these directives, as our first regulation for ATEX in our country, "Regulation on Equipment and Protective Systems Used in Potentially Explosive Environments (94/9/AT)" entered into force on 27.10.2002 and was completely renewed on 30.12.2006. As our second regulation, "Regulation on the Protection of Employees from the Hazards of Explosive Atmospheres (99/92/EC)" entered into force as of 26.12.2003 and was completely renewed on 30.05.2013.

The deficiencies in these regulations were corrected and supported by the new OCCUPATIONAL HEALTH AND SAFETY LAW, which was approved on 20.06.2012 and published in the official gazette on 30.06.2012.

While ATEX rules have been applied as a voluntary standard since 1 March 1996, all products sold for use in explosive atmospheres have been required to be EX approved and bear the EX symbol since 1 July 2003. It is obligatory to obtain a certificate of conformity with the EU Norm for Ex protected tools.

EX CERTIFICATE OF CONFORMITY (ATEX);

It is an international document that can be issued after the product has been subjected to many tests and experiments in a long time period.

ATEX DIRECTIVES also impose serious sanctions on manufacturers and, as a result, serious financial burdens. Apart from serious tests and personnel training, every product produced in accordance with the directives according to the ATEX declaration must contain the international ATEX marking. These markings must contain information such as certificate numbers, group codes, equipment codes, usage classes (zone zones), year of manufacture, company code. This coding is not the same for every product type. It contains differences in each product..



EX MARKING:

There are special codes for each product on the equipment used in explosive, flammable and easily flammable environments. The Main Purpose here is to ensure that the personnel working in hazardous environments use the right equipment in the right area by paying attention to these codes. Not every ex-proof equipment is used and can be used in every region. It is known that explosions are often caused by choosing the wrong tool at the wrong site. Tools in the upper categories marked Ex can also be used in the subcategories. However, Ex-marked tools in the lower categories can never be used in the upper categories.

A category 1 tool can be used easily in ZONE 0-ZONE 1-ZONE 2.

ZONE CLASSIFICATION:

94/9/EC ATEX DIRECTIVE			
GROUP / CATEGORY			
CATEGORY I			
MINES	CATEGORY M1		CATEGORY M2
	Equipment continues to operate in the presence of an explosive atmosphere (I M1)		Equipment is de-energized when an explosive atmosphere is detected (I M2)
CATEGORY II			
SURFACE INDUSTRIES	CATEGORY 1	CATEGORY 2	CATEGORY 3
Gas-Ex	II 1 G (Zon 0)	II 2 G (Zon 1)	II 3 G (Zon 2)
Dust-Ex	II 1 D (Zon 20)	II 2 D (Zon 21)	II 3 D (Zon 22)

Classifying explosive environments according to their hazard status is called ZONE or ZONE. Hazardous area identification is the most important and sensitive point of explosive atmospheres. The vast majority of explosions are caused by human error at first, and then by incorrect site definitions and incorrect EX marked tool selection.

GAS-STEAM

ZONE 0 : Explosive vapor/air mixture occurs continuously or for long periods, or area where it can occur

ZONE 1: Explosive vapor/air mixture occurs from time to time or periodically and does not occur region of probability.

ZONE 2 : The probability of formation of explosive vapor/air mixture is low, it will stop for a short time when it occurs.

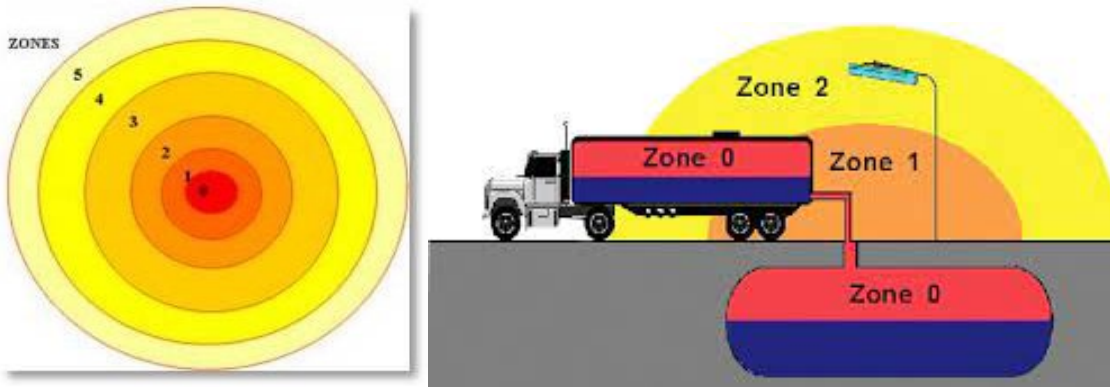
POWDER-FIBER

ZON 20 : Places where explosive dust and fiber environment is formed and likely to occur as a result of normal operation and takes a long time.

ZON 21 : Places where explosive dust and fiber environment is less likely to occur due to normal operation and takes a short time when it occurs.

ZON 22 : Places where explosive dust or fiber is not likely to occur due to normal operation, but can only occur in abnormal situations such as malfunctions and accidents, and these situations are likely to last for a very short time.

In addition, medical environments are divided into two classes such as Zone G and Zone M.



Temperature Classification of Some Gas And Steam

Temperature Class	Max. Surface Temperature °C	Max. Surface Temperature °F
T1	> 450 °C	842 °F
T2	300 450 °C	572 °F
T3	200 300 °C	392 °F
T4	135-200 °C	275 °F
T5	100 135 °C	212 °F
T6	85-100°C	185 °F

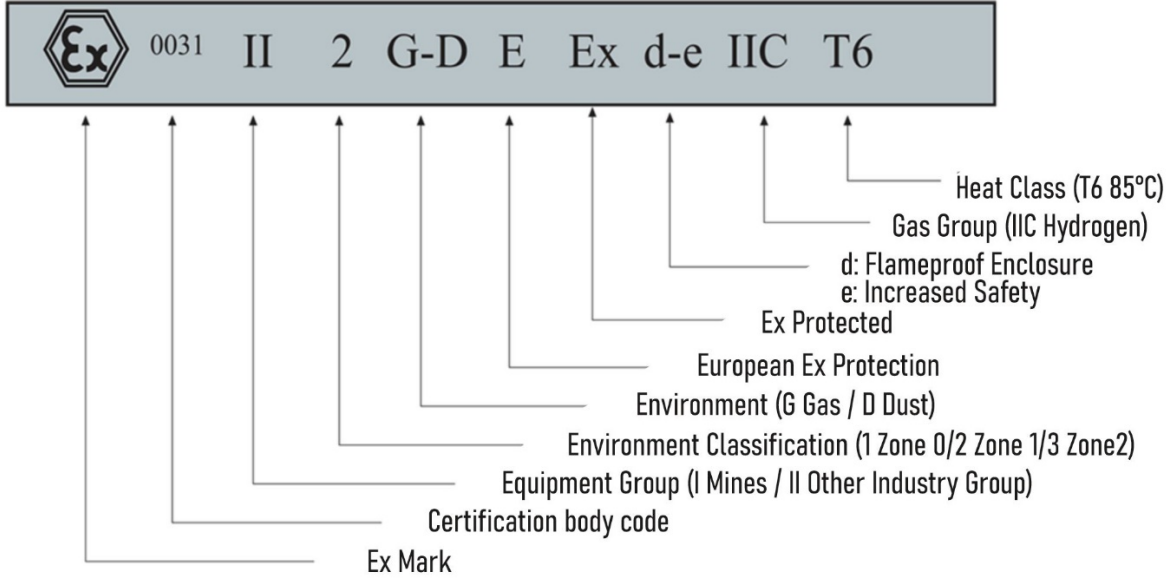
Gas Groups Classification

Working Zone	CENELEC / IEC EN 50014,IEC 79-0	Gases
Mines	I	METHANE
Industrial Facilities	IIA	PROPANE ACETONE
	IIB	ETHYLENE
	IIC	HYDROGEN

NATURAL POWDERS			
Material	Combustibility	Coalling	T Class
Cotton	560 °C	350 C	T3
Cellulose	500 °C	370 °C	T3
Tree H. Powder	400 °C	300 °C	T3
Tree Resin	500 C	290 °C	T3
Mushrooms	470 C	300 °C	T3
Paper	540 °C	300 °C	T3
Peat	360 °C	295 °C	T3
Grain	420 °C	290 °C	T3
Cocoa	580 °C	460 °C	T2
Concentrate Feed	520 C	295 °C	T3
Soy	500 °C	245 °C	T4
Tobacco	440 °C	290 °C	T3
Tea	510 °C	300 C	T3
Corn flour	480 C	450 °C	T2
Fruit Sugar	410 °C	380 C	T3
Beet Sugar	460 C	290 C	T3
Lignite	380 °C	225 °C	T4
Hard Charcoal	590 °C	245 C	T4
Skin	520 °C	310 °C	T3
linen	440 °C	230 °C	T4

CHEMICAL INDUSTRY			
Material	Combustibility	Coalling	T Class
Tyre	570 °C	-	T2
Glue Powder	510 °C	-	T2
Phenol Resin	450 °C	-	T2
Tabbi Rubber	460 °C	220 C	T4
polyethylene	360 °C	-	T3
polyamide	520 °C	-	T2
Polyester	560 °C	-	T2
Polyvinyl acetate	500 °C	340 °C	T3
PVC	530 °C	380 °C	T2
Cellyloseter	380 °C	275 °C	T3
polysaccharide	580 °C	270 °C	T4
Detergent	330 °C		T3

METAL			
Material	Combustibility	Coalling	T Class
Aluminum	530 °C	280 °C	T3
Bronze	390 °C	260 C	T4
Iron	310 °C	300 C	T3
Cu-Si alloy	690 °C	305 °C	T3
Magnesium	330 °C	410 °C	T2
Manganese	570 °C	285 °C	T3
Zinc	619 °C	440 °C	T2
Petroleum Coke	690 °C	280 °C	T3
Organisation	620 °C	385 °C	T2
Sulfur	280 °C	280 °C	T3



MAIN FEATURES OF EXPROOF CRANES

- Lifting groups are specially manufactured and ATEX certified.
- Crane Hooks and wheels are covered with a non-sparking, very durable surface coating (Bronze) or special material is used.
- Rope guides are made of non-sparking material (polyamide).
- Walking groups are specially manufactured and ATEX certified. (Motors and Gearboxes)
- The electrical components used in the whole system are Exproof and ATEX certified.