ATEX GUIDELINES

Short introduction to the ATEX directive 2014/34/EU and referred standards by Atexor Oy.

ATEX EXPLAINED

ATEX SHORTLY

More information: DIRECTIVE 2014/34/EU and DIRECTIVE 1999/92/EC.

From the French ATmosphère EXplosible (Explosive Atmospheres), ATEX refers to the European Union (EU) directives regulating explosion protection. To be able to manufacture, import or distribute Ex equipment within the EU, companies must fulfill the ATEX requirements. There are two ATEX directives: the equipment directive 2014/34/EU (formerly known as ATEX 95, 94/9/EC) for manufacturers, and the workplace directive ATEX 137 (99/92/EC) for employers with Ex work areas.

For Ex equipment, ATEX defines six different zones for explosion protection: three for gas and three for dust.

ATEX certification in the EU is comparable to, for example, Inmetro in Brasil, UL in United States, KOSHA in South Korea and EAC in Russia.

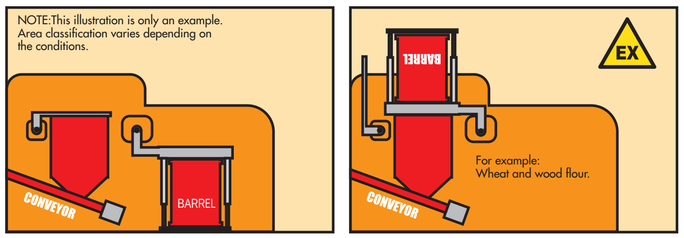
ATEX certified equipment must have the Ex logo.

Designated areas are marked with either a generic Ex Danger sign or with a zone-specific sign.

CLASSIFICATION OF HAZARDOUS AREAS (DUST)

More information: IEC/EN 60079-10-2

ZONE 20 ZONE 21 ZONE 22



EQUIPMENT EMITTING OPTICAL RADIATION (LED)

More information: IEC/EN 60079-28

Irradiance levels just outside the cover of the LED luminaire may be high. And in certain circumstances this may to cause ignition. For products intented to be used in hazardous areas precautions are necessary. Three types of protection can be applied to prevent ignitions by optical radiation in explosive areas:

a) Inherently safe optical radiation, type of protection "op is"
b) Protected optical radiation, type of protection "op pr"
c) Optical system with interlock, type of protection "op sh"

Please, read more about "op is" from our articles folder. https://www.atexor.com/downloads/

EQUIPMENT CATEGORY & EQUIPMENT PROTECTION LEVEL

See: IEC/EN 60079-10-1 and IEC/EN 60079-10-2

Area classification ZONE:		Suitable ATEX Equipment Category:	Equipment Protection Level (EPL):
GAS	ZONE 0	1G	Ga
	ZONE 1	1G and 2G	Ga, Gb
	ZONE 2	1G, 2G and 3G	Ga, Gb, Gc
DUST	ZONE 20	1D	Da
	ZONE 21	1D and 2D	Da, Db
	ZONE 22	1D, 2D and 3D	Da, Db, Dc

See: IEC/EN 60079-10-1 and IEC/EN 60079-10-2.

GAS & DUST GROUPS

DUST GROUPS

IIIA	Combustible flyings
IIIB	Non-conductive dust
IIIC	Conductive dust

GAS GROUPS

Group	Representative Test Gas
I	Methane (mining only)
IIA	Propane
IIB	Ethylene
IIC	Hydrogen

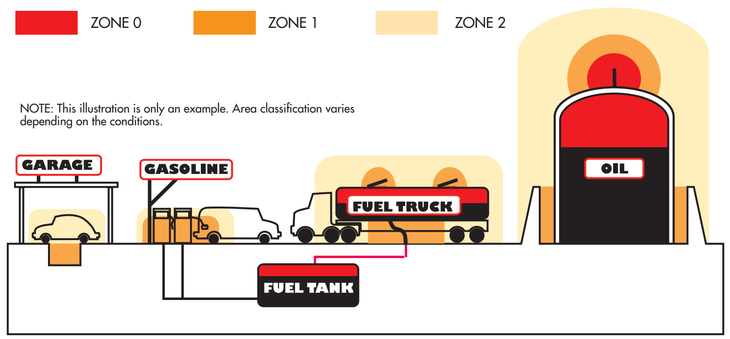
Gases are classified according to the ignitability of gas-air mixture. See: IEC/EN 60079-20-1.
Dusts are classified according to the nature of explosive dust. See: IEC/EN 60079-20-2

CLASSIFICATION OF HAZARDOUS AREAS (GAS)

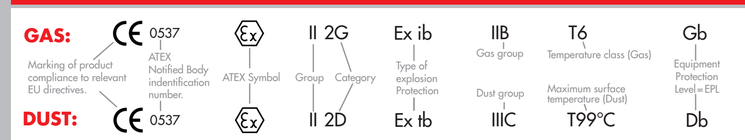
More informatIEC/EN 60079-10-1

ZONE 0 ZONE 1 ZONE 2

NOTE: This illustration is only an example. Area classification varies depending on the conditions.



TYPICAL ATEX EQUIPMENT MARKING (GAS & DUST)



ATEX CHECKLIST

TEMPERATURE CLASS (GAS)

More information: IEC/EN 60079-0

Ambient temperature:
Temperature class based on use at ambient -20°C to +40°C unless otherwise stated. There is no relationship between ignition temperature and ignition energy.

Temperature Class	Max Surface Temperature
T1	450°C
T2	300°C
T3	200°C
T4	135°C
T5	100°C
T6	85°C

TEMPERATURE MARKING (DUST)

More information: IEC/EN 60079-0

1) For **Zone 20** (EPL Da) maximum surface temperature is measured under 200mm dust layer on product.
Example of marking: T_{200} 100°C

2) For **Zone 21** (EPL Db) maximum temperature can be measured without layer of dust. Example of marking: T100°C or For Zone 21 (EPL Db) maximum temperature can be measured with layer of dust (max 200mm).
Example of marking: T_{100} 100°C

3) For **Zone 22** (EPL Dc) Maximum temperature can be measured also by two methods:
With dust layer T_{100} 100°C and Without dust layer T100°C

(Ambient temperatures are based on use at -20°C to +40°C unless otherwise stated)

INTENTED APPLICATION OF THE EQUIPMENT

More information: IEC/EN 60079-14

FIXED:	Equipment fastened to a support, or otherwise secured in a specific location when energised.
TRANSPORTABLE:	Equipment not intended to be carried by a person nor intented for fixed installation which can be moved when energised.
PORTABLE:	Equipment intended to be carried by a person which can be moved when energised
PERSONAL:	Equipment intended to be supported by a person's body during normal use.

SUFFIX "U" AFTER CERTIFICATION NUMBER

More information: IEC/EN 60079-0

"U" suffix at the end of the number of the certificate, must be used when product is Ex Component.

The symbol "U" is used to identify that component is not suitable for installation without further evaluation.

WXTQ 20 ATEX 9958U

SUFFIX "X" AFTER CERTIFICATION NUMBER

More information: IEC/EN 60079-0

"X" suffix at the end of the number of certificate, must be used when the equipment has Specific Conditions for a safe use.

Those limitations must be taken into account before use.

DDTQ 20 ATEX 7889X

ATEXOR OY Tel: +358 20 734 3250 Internet: www.atexor.com