

FAQ ATEX PRODUCTS

Table of contents

- How can I read and understand the ATEX Codes label? 2
 - Ex 2
 - Equipment Group 3
 - Zone Category 3
 - Atmosphere 4
 - Type of Protection 5
 - Testing for Leak Tightness 6
 - Maximum Surface Temperature 6
 - IP (Ingress Protection) Code 7
- What area classifications do you have: 8
- What gas groups can you have?..... 8
- Which Classifying Temperatures do exist?..... 9

How can I read and understand the ATEX Codes label?

If you're working in an environment where there's a risk of combustion, learning to understand ATEX codes applied to equipment is essential. By learning to interpret these codes you can determine whether the equipment is safe for use, ensuring protection at all times from ignition.

We'll begin by looking at a sample code that you might see on a piece of equipment:

Ex II 2 D Ex td A21 T90° IP64

At first glance, this code may look like it means nothing at all and is just a selection of numbers and letters. In fact, it's very much the opposite. This code is broken down into several sections that give the user advice on the type of equipment and its suitability.

This article explores the meaning of each of the sections above and should help you on your way to understanding ATEX in the workplace.

Ex

Ex II 2 D Ex td A21 T90° IP64

All electrical equipment suitable for use in ATEX applications is given the Ex symbol to clearly showcase this fact.

This will most commonly be presented as the following symbol (the background/style of the symbol may vary slightly).



Look out for this symbol on your electrical equipment if you're working in a dangerous area.

Equipment Group

Ex II 2 D Ex td A21 T90° IP64

The second part of the code, shown as "II" in this example, shows the area that the equipment is meant for.

There are only two codes for this section; it can either be shown as 'I' or 'II'.

- The 'I' symbol refers to the equipment being suitable for use in mining applications
- The 'II' symbol shows that this piece of equipment is made for use in all other explosive areas

Specialist equipment for mining applications must always bear the I symbol.

Zone Category

Ex II 2 D Ex td A21 T90° IP64

After the 'II' symbol a number will be specified. This is the zone that the equipment is suitable for use in.

Every hazardous environment with a risk of combustion is given a zone rating dependant on the type of hazard. You should only use equipment specified for the zone you're working in.

The following combinations are possible:

- 1 – Can be used in zones 0 or 20
- 2 – Can be used in zones 1 or 21
- 3 – can be used in zones 2 or 22
- M1 – mining (in case of firedamp, continuation of operation is possible)
- M2 – mining (must be switched off in case of firedamp)

This table shows the type of zones.

European & IEC Classification	Definition of Zone or Division	North American Classification
Zone 0 (Gases) - "G"	An area in which an explosive mixture is continuously present or present for long periods	Class I Division 1 (Gases)
Zone 20 (Dusts) - "D"	An area in which an explosive mixture is continuously present or present for long periods	Class II Division 1 (Dusts)
Zone 1 (Gases) - "G"	An area in which an explosive mixture is likely to occur in normal operation	Class I Division 1 (Gases)
Zone 21 (Dusts) - "D"	An area in which an explosive mixture is likely to occur in normal operation	Class II Division 1 (Dusts)
Zone 2 (Gases) - "G"	An area in which an explosive mixture is not likely to occur in normal operation and if it occurs will exist only for a short time	Class I Division 2 (Gases)
Zone 22 (Dusts) - "D"	An area in which an explosive mixture is not likely to occur in normal operation and if it occurs will exist only for a short time	Class II Division 2 (Dusts)
		Class III Division 1 (Fibres)
		Class III Division 2 (Fibres)

Atmosphere

Ex II 2 D Ex td A21 T90° IP64

Explosive atmospheres are generally categorised into two sections, gas and dust.

Depending on the type of environment the fourth symbol in this list lets the user know the type of atmosphere this equipment is suitable for.

They can be:

- G – Gas
- D – Dust

Type of Protection

Ex II 2 D Ex **td** A21 T90° IP64

This symbol can be a wide variety of different types of protection. The protection level of equipment varies greatly depending on the type and environment, so learn the symbols and their meaning in the following table.

Symbol	Type of Protection
o	Oil Immersion
p	High-Pressure Encapsulation
q	Sand Encapsulation
d	Pressure-Resistant Encapsulation
e	Increased Safety
ia	Intrinsic Safety (Permitted for Zone 0*) *depending on device category
ib	Intrinsic Safety (sufficient for zone 1 (+2))
ma	Cast Encapsulation (for zone 0*)
mb	Sufficient for Zone 1 (+2)
s	Special Protection
n	Normal Operation In Normal Conditions (only for zone 2)
nA	Non-Sparking
nC	Enclosed Break
nR	Vapour-Proof Housing

Symbol	Type of Protection
nL	Energy Limited
nZ	High-Pressure Encapsulation
op	Optical Radiation (is, pr, sh)
tD	Protection by Housing (Dust)
pD	High Pressure Encapsulation (Dust)
iD	Intrinsic Safety (Dust)
mD	Cast Encapsulation (Dust)

Testing for Leak Tightness

Ex II 2 D Ex td A21 T90° IP64

This rating can be either an 'A' or 'B' value to inform the user of the procedure used for determining the housing's leak tightness. The 21 seen above refers to the zone (and can be different values depending on the zone type).

Maximum Surface Temperature

Ex II 2 D Ex td A21 T90° IP64

This values shows the highest possible temperature generated by the piece of equipment during normal operation. Since the atmosphere can ignite due to high temperature, having equipment below the ignition threshold is essential.

The following table has more information on this classification:

Temperature Classification		Maximum Surface Temperature
European/I.E.C	North American	
T1	T1	450°C
T2	T2	300°C
	T2A	280°C
	T2B	260°C

	Temperature Classification	Maximum Surface Temperature
	T2C	230°C
	T2D	215°C
T3	T3	200°C
	T3A	180°C
	T3B	165°C
	T3C	160°C
T4	T4	135°C
	T4A	120°C
T5	T5	100°C
T6	T6	85°C

IP (Ingress Protection) Code

Ex II 2 D Ex td A21 T90° IP64

Most types of test equipment come with an IP rating that shows how the casing is protected against various foreign bodies that could cause damage.

The first value, the 6 above, is either a 5 or a 6. This means:

- 5 – Protection against dust deposits
- 6 – Protection against dust penetration

The other value shows protection against water. The following numbers are possible:

- 0 – no protection
- 1 – vertically falling drip water
- 2 – drip water on operating device inclined to 15°
- 3 – water spray
- 4 – water spray
- 5 – water jet
- 6 – strong jet water
- 7 – temporary immersion
- 8 – continuous immersion (waterproof)

What area classifications do you have:

In Europe, areas are defined as a Zone depending on the type of hazard. In America, the same applies but are classified as Divisions.

The following table outlines the type of zones/divisions possible and how they are classified.

European & IEC Classification	Definition of Zone or Division	North American Classification
Zone 0 (Gases) - "G"	An area in which an explosive mixture is continuously present or present for long periods	Class I Division 1 (Gases)
Zone 20 (Dusts) - "D"	An area in which an explosive mixture is continuously present or present for long periods	Class II Division 1 (Dusts)
Zone 1 (Gases) - "G"	An area in which an explosive mixture is likely to occur in normal operation	Class I Division 1 (Gases)
Zone 21 (Dusts) - "D"	An area in which an explosive mixture is likely to occur in normal operation	Class II Division 1 (Dusts)
Zone 2 (Gases) - "G"	An area in which an explosive mixture is not likely to occur in normal operation and if it occurs will exist only for a short time	Class I Division 2 (Gases)
Zone 22 (Dusts) - "D"	An area in which an explosive mixture is not likely to occur in normal operation and if it occurs will exist only for a short time	Class II Division 2 (Dusts)
		Class III Division 1 (Fibres)
		Class III Division 2 (Fibres)

What gas groups can you have?

Gas can be extremely volatile; learning to classify the gas in an area and using equipment certified as safe for use with that gas is essential to prevent ignition.

Generally gasses are classed into two groups, Group I – Mining and Group II – Surface Industries.

Typical Gas/Material European/I.E.C Gas Group North American Gas Group

Methane	I	-
Acetylene	IIC	A
Hydrogen	IIC	B
Ethylene	IIB	C
Propane	IIA	D

Typical Gas/Material European/I.E.C Gas Group North American Gas Group

Metal Dust	-	E
Coal Dust	-	F
Grain Dust	-	G

The 'I' symbol referenced above refers to the device group as being suitable for mining. The 'II' symbol denotes use in other explosive areas. The A, B and C symbols are used to show the volatile nature of a gas in the environment. A is the least volatile, B is medium-danger and C is highly dangerous gasses such as Hydrogen. So if a piece of equipment has a IIC rating, this means it is suitable for use in highly dangerous gas environments.

Which Classifying Temperatures do exist?

Sometimes all it takes to ignite the atmosphere can be a rise in temperature. This can be anything from a hot surface to a piece of equipment gradually rising in heat during use.

All electrical equipment to be used in hazardous environments is classified according to the maximum surface temperature it will reach during use. Each piece of equipment is designed with a 'T' rating along with a number (which varies depending on American/European classifications).

The following table outlines the different classifications for temperature.

Temperature Classification		Maximum Surface Temperature
European/I.E.C North American		
T1	T1	450°C
T2	T2	300°C
	T2A	280°C
	T2B	260°C
	T2C	230°C
	T2D	215°C
T3	T3	200°C
	T3A	180°C
	T3B	165°C

	Temperature Classification	Maximum Surface Temperature
	T3C	160°C
T4	T4	135°C
	T4A	120°C
T5	T5	100°C
T6	T6	85°C

Key words per pagina: -> op elke pagina erin steken – graag allemaal aub als dat kan

- Cableheating
- Heat tracing
- Trace heating
- Electrical heat tracing
- EEx products
- EEx electrical products
- Heating products
- Self regulating heating products
- Self regulating heating
- Self limiting heating products
- Self limiting heating
- Frost protection
- Proces temperature maintenance
- Proces temperature raise up heating
- Long pipeline heating
- Vessel heating
- Roof and gutter de-icing
- Snow melting for surfaces

- Explosion proof electrical materials.
- Insulation
- Raychem
- Quintex
- Bartec
- ABB
- Dirac
- Thermon
- Eltherm
- arcoengineering

Description

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