

# Hydraulics Online

## ATEX Quick Reference Guide



## What is ATEX?

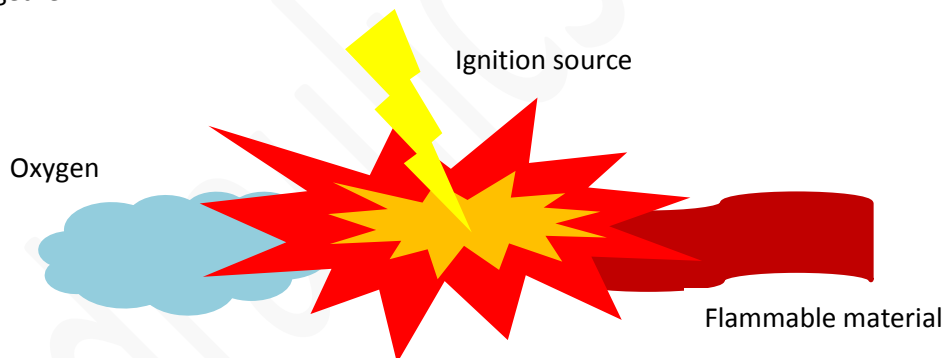
**ATEX** is the framework for controlling explosive atmospheres that may exist in (part of) a room, or a restricted indoor or outdoor space, and the standards of equipment and protective systems used in them:

- **ATEX 95** (for equipment and protective systems, equipment directive 94/9/EC) was introduced in 1995 and an 8 year transition period was given for manufacturers to comply;
- **ATEX 137** (for the protection of workers, workplace directive 99/92/EC) was introduced in 1999 with a 4 year transition period granted for employers to comply. Both Directives came into effect on 1st July, 2003.

**!** The ATEX 95 (equipment 94/9/EC) directive is applicable until 19th April 2016, when it will be replaced by a new directive: Directive 2014/34/EU harmonises the laws of the EU Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres.

## Why do we need ATEX?

Many substances need very little energy to react and cause a fire or explosion; the most flammable substances are gases and vapours. Flammable solids could be dust, fibre or flock. An explosion may occur if three elements of the explosion react together:




## Where can the potential hazards occur?


- Ignition sources: sparks, flames, electric arcs and hot surfaces;
- Static electricity: these charges can end up resulting in a dangerous discharge;
- Leakage Currents: overheating surfaces are capable of provoking an ignition and dangerous corrosion;
- Overheating: if two parts of a rotating system were to contact each other, overheating may occur;
- Pressure compensation operators: equipment and protective systems must be fitted with integrated measuring, control and regulation devices;
- Power failure: in the event of a power failure, some equipment and protective systems can experience additional risks;
- Connections: equipment and protective systems must be fitted with suitable cable and conduit entries;
- Radiation: Electromagnetic waves, optical radiation, ionising radiation and ultrasound.


## ***How are hazardous areas classified?***

- **ATEX Zone 0** – An explosive (gas, vapour or mist) atmosphere is present continuously for long periods or frequently;
- **ATEX Zone 1** – An explosive (gas, vapour or mist) atmosphere is likely to occur in normal operation;
- **ATEX Zone 2** – An explosive (gas, vapour or mist) atmosphere is not likely to occur in normal operation, but if it does occur, will persist for a short period only;
- **ATEX Zone 20** – An explosive (dust) atmosphere is present for long periods or frequently.
- **ATEX Zone 21** – An explosive (dust) atmosphere is likely to occur in normal operation occasionally.
- **ATEX Zone 22** – An explosive (dust) atmosphere is not likely to occur but, will persist for a short period only.

## ***What equipment is available to ensure safety?***

 **CATEGORY 1 Equipment:** For Zone 0 (gas) or Zone 20 (dust) atmospheres - ensures a very high level of safety when operated correctly, even in rare fault situations.

 **CATEGORY 2 Equipment:** For Zone 1 (gas) or Zone 21 (dust) atmospheres - designed to ensure a high level of safety during repeated error situations or normal equipment fault situations.

 **CATEGORY 3 Equipment:** For Zone 2 (gas) or zone 22 (dust) atmospheres - designed to ensure a normal level of safety, during normal operation. The manufacturer's declaration of conformity will often suffice and third party approval is not required.

## ***What are the equipment marking and documentation requirements?***

Manufacturers must ensure that the following information is marked on the product in addition to the "Ex" symbol:

- Manufacturer's name and address;
- "CE" marking to show compliance with European Directive;
- Serial or type marking;
- Serial number (if applicable);
- Year of manufacture;
- Equipment group and class (1, 2 or 3);
- Marking of the gas (G) and/or the dust class (D);
- Other markings related to the safe use of the product, e.g. a temperature rating (a "T" marking), and occasionally a gas group.

ATEX equipment manufacturers must also supply the correct documentation to show that their product(s) are suitable for use within explosion proof areas in the EU. These documents are the: EU Declaration of Conformity for products or the Certificate of Conformity for components.