CE marking of motors used in explosive atmospheres in compliance with ATEX

FACT FILE

M11 GB Rev 1, March 2002

TECHNICAL NOTES

What is the ATEX Directive?

The ATEX Directive, 94/9/EC, gives essential safety requirements to be fulfilled by all equipment, both electrical and non-electrical, installed anywhere in hazardous areas within the EU. Protection is also ensured by Directive 1999/92/EC (ATEX 137), regarding protection of workers potentially at risk from explosive atmospheres.

The ATEX directive ensures essential safety requirements are fulfilled in explosive and dusty atmospheres

What does it mean for motor users?

The ATEX Directive governs the use of motors in potentially explosive atmospheres containing gas, as well as atmospheres containing combustible dust.

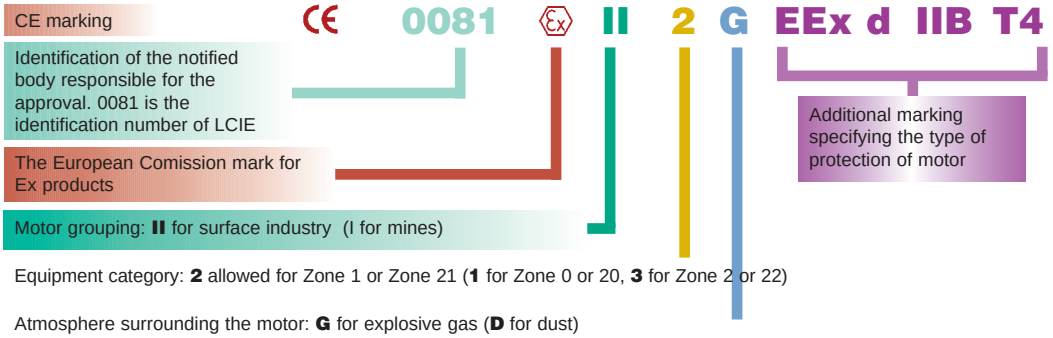
Compliance with the ATEX Directive means new essential requirements:

- Reinforced safety aspects
- Safer design, not only for normal operations but also in starting conditions
- More demanding testing procedures
- Specific quality assurance for the design and the manufacturing process
- Use in VSD application based on clear rules
  - Second name plate
  - Certified loadability curves
  - Bearing currents controlled against external sparking

How do I know if a motor is ATEX Certified?

To ensure that a motor is approved to the appropriate Directive, users need to check the directive number, which appears in the CE Declaration of Conformity delivered with the motor. Depending on the zone where the product is used, the number of the notified body can be stamped after the CE mark (mandatory for use in Zone 1 or Zone 21) as below:

A typical hazardous motor description could look like this:



The European Union has decided against extending the transition period for the new standard relating to equipment for use in potentially explosive atmospheres, ATEX, beyond 1st July 2003. This means that after this date, any Ex equipment to be installed in hazardous areas must be ATEX certified. ABB was the first manufacturer to have its explosion proof motors ATEX certified, with approval granted in December 1998.

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What is CE Marking?

The CE-Marking affixed to the product is a manufacturer's statement that the product complies with the Directive. The CE mark shows that the product has been manufactured according to a certain design and procedure and acts like a passport that allows a product to be installed anywhere in the EU. It provides reassurance for buyers both inside and outside the EU that the motor or machine conforms to the latest standards.

How are hazardous atmospheres classified?

Atmospheres are classified into zones. Zones 0, 1 and 2 refer to gas, while Zones 20, 21 and 22 refer to dust.

Zone 0 / 20:	Permanent presence of explosive atmosphere - no motors are allowed
Zone 1 / 21:	Incidental presence of explosive atmosphere during normal duty
Zone 2 / 22:	Presence of explosive atmosphere only by accident but not during normal duty

What type of motors can be used in these atmospheres?

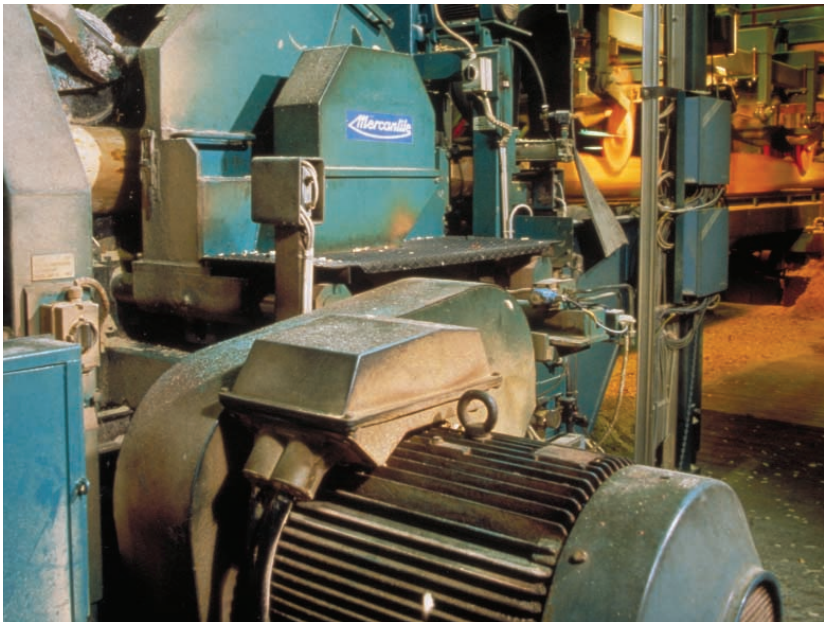
Ex motors are used in many industries, such as chemical, oil and gas, food, pharmaceuticals and industries handling cereal, animal feed, paper, wood and coal.

The design must meet high safety requirements to prevent any risk of ignition of explosive atmospheres, even under fault or in recognised overload conditions. Testing and certification by Notified Bodies ensures that the requirements are met.

For motors the design depends on the type of protection used:

- Flameproof: EEx d or EEx de for Zone 1 and 2: Equipment Category 2
- Increased safety: EEx e for Zone 1 and 2: Equipment Category 2
- Pressurised motor: EEx p (e) for Zone 1 and 2: Equipment Category 2
- Non-sparking: EEx nA for Zone 2 only: Equipment Category 3
- DIP: Dust Ignition Proof with IP 65 protection for Zone 21 or Zone 22 in case of conductive dust. Equipment Category 2
- DIP: Dust Ignition Proof with IP 55 protection for Zone 22. Equipment Category 3

If the atmosphere contains dust as well as gas, the motor needs to fulfil the requirements for both.



The ATEX directive covers equipment in areas with combustible dust, as well as gas

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