

ATEX approved motors

After 1st July 2003, any Ex equipment to be installed in hazardous areas must be certified to the ATEX Directive, 94/9/EC, the new standard for equipment used in potentially explosive atmospheres. ABB was the first manufacturer to have its explosion proof motors ATEX certified, with approval granted in December 1998. The table below explains how a typical hazardous area motor description is worked out.



CE marking — **CE** **0081**  **II 2 G EEx d IIB T4**

Identification of the notified body responsible for the approval. 0081 is the identification number of LCIE

The European Commission mark for **Ex** products

Equipment category

1 for Zone 0 or 20; **2** for Zone 1 or 21; and **3** for Zone 2 or 22.

Zone 0 and Zone 20 - Permanent presence of explosive atmosphere. Only specially designed electric motors can be used here.

Zone 1 and Zone 21 - Incidental presence of explosive atmosphere during normal duty.

Zone 2 and Zone 22 - Presence of explosive atmosphere only by accident, but not during normal duty

G indicates that the marking relates to gas. **D** would indicate that the marking related to dust

Flameproof EEx de – for zones 1 and 2

The motor enclosure prevents an internal explosion being transmitted to the explosive atmosphere surrounding the machine. The enclosure must withstand any pressure levels caused by an internal explosion.

Increased safety EEx e – for zones 1 and 2

Prevents sparks, arcs or hot spots during service (including starting using special control gear), that could reach the self-ignition temperature of the surrounding, potentially explosive, atmosphere

Non sparking EEx nA – for zone 2 only

Similar in construction to increased safety types, but only protecting against ignition of an explosive atmosphere, in normal operation and used within the ratings specified by the manufacturer

d = flameproof enclosure,
e = increased safety,
p = pressurised enclosure,
nA or **N** = non sparking

Dust ignition proof DIP – for zones 21 and 22

Standard winding and standard frame, special joints to avoid ingress of dust. Category 2 with IP 65 protection, Category 3 with IP 55 Protection. Temperature class T125°C.

Temperature controls

There are six temperature classes according to the maximum surface temperature of the motor

Temperature Class

T1	T2	T3	T4	T5	T6
450	300	200	135	100	85

Temperature Limit (°C)

Motor groupings

Motors and other electrical apparatus are divided into two groups - Group I for mines and Group II for other explosive atmospheres. Group II has three sub-divisions, A, B and C, according to the level of risk. Group IIC is the highest rating