

Fans for Hazardous areas

ATEX



Potential Industries:

Chemicals, petrochemicals,
oil transformation, gas distribution,
electricity production,
pharmaceuticals,
waste water treatment,
spray booth cabins,
agriculture (storage, silos),
wood transformation...

FläktWoods

Centripal EU: a complete **ATEX** certified range

Some useful information about directive 94/9/EC:

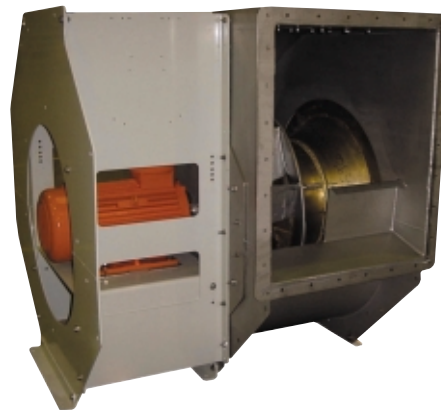
Applicable since July 1st 2003. All new installations have to conform to this new regulation. All existing installations have to be analysed and risk assessed using this new code by the end of June 2006. This European directive is applicable on all electrical equipments, and rotating machineries which are installed in an hazardous area.

It is responsibility of the end user and his installer to define precisely the zone in which the fan is going to run. Zone can be different inside and outside the fan. Category of machinery has to correspond to the more dangerous zone.

Correspondence between fan categories and **ATEX** zones:

Fan category	Corresponding zone
1 G / 1 D	0 and 20
2 G / 2 D	1 and 21
3 G / 3 D	2 and 22

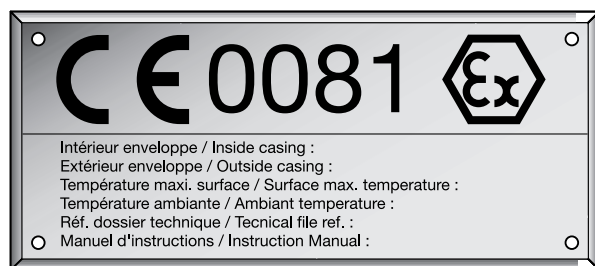
G = GAS , D = DUST.



i For categories 2G, 2D, 3G and 3D corresponding to zones 1, 2, 21 and 22, our registered certificate number **ATEX** is: **ST M 07 TEC 2885**

Additional elements of manufacturers file, following the directive:

Additional name plate:



And include:

- Scaled drawing with elements description, weights and centre of gravity indications...
- Certificates of conformity **ATEX**.
- Balancing certificate.
- Tightness certificate for a ducted/ducted configuration.
- Vibration test report.
- Over-speed test report.
- Storage instructions.
- Starting and maintenance manuel.

Some other construction details imposed by the directive for steel impellers for example are:



- Fully welded construction.
- Carbon shaft: carbon has the ability to be worn is on first start up without burning, as the seal is perfectly adjusted to the motor shaft. This means that there is no risk of ignition during start up.
- Anti-spark linings in brass protecting all rotating parts: cooling disk, pulleys, shafts, hubs...
- Brass inlet cones for a maximum safety, combined with a minimum distance between rotating and static parts.
- All bolted parts are also linked to each other via a stainless steel earthing system.
- All electrical equipment has to be **ATEX** certified: motors, temperature detectors, vibration monitoring (compulsory for 2D zones)...
- Pulleys to be balanced, belts to be made in an anti-static material.



ATEX motor choice



Dust environments:

Motors are certified zone 21 or 22. Depending if dust is conductive or not, protection mode is going to be IP 6X or 5X (generally IP 65 or IP 55).

Gas environment:

If danger is unlikely to happen, likely to happen or permanent, motor can be of a spark-proof design, explosion proof design, or prohibited.

Motor choice in a dust environment:

Azardous area	Danger zone	Protection level of equipment	Motor category	Protection mode
Continous danger	20	Very high	1D	Prohibited
Likely to happen	21	High	2D	IP 6X
Unlikely to happen	22 Conductive dust	Normal	3D	IP 6X
Unlikely to happen	22 Non conductive dust	Normal	3D	IP 5X

Motor choice in a gas environment:

Azardous area	Danger zone	Protection level of equipment	Motor category	Protection mode
Permanent danger	0	Very high	1G	CEI EN 50284
Likely to happen	1	High	2G	EEx-d EEx-de EEx-e
Unlikely to happen	2	Normal	3G	EEx-nA

For the gas environments, additional data to be considered is surface temperature of the motor itself, depending on a gas transported or ambient:

Group	T1 450 °C	T2 300 °C	T3 200 °C	T4 135 °C	T5 100 °C	T6 85 °C
I	Methan (mines)	-	-	-	-	-
IIA	Aceton, Acetic Acid, Ammoniac, Methan, Methanol, Propane, Toluene	Butane, Ethyl alcohol	Cyclohexane, Kerosen, THF	Acetaldehyde	-	-
IIB	Koke gas, Water gas	Ethylene	Hydrogen Sulphide	Ethyl ether	-	-
IIC	Hydrogen	Acetylene	-	-	-	Nitrate ethyl



Fläkt Woods is also proposing a complete range of axial flow fans ATEX certified.

Fläkt Woods is among the first fan producers to offer a full range conforming to this new standard. A lot of customers in agriculture, dangerous material storage, chemicals, petrochemicals have already trusted our unrivalled know how.



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