halifax fan — ATEX FAN GUIDE

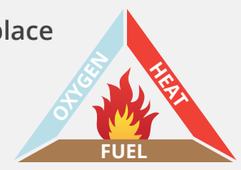
Halifax Fan design and manufacture fans in accordance with ATEX directive 94/9/EC which covers equipment and protective systems intended for use in potentially explosive atmospheres

ATEX is an Acronym for ATmospheres EXplosible:

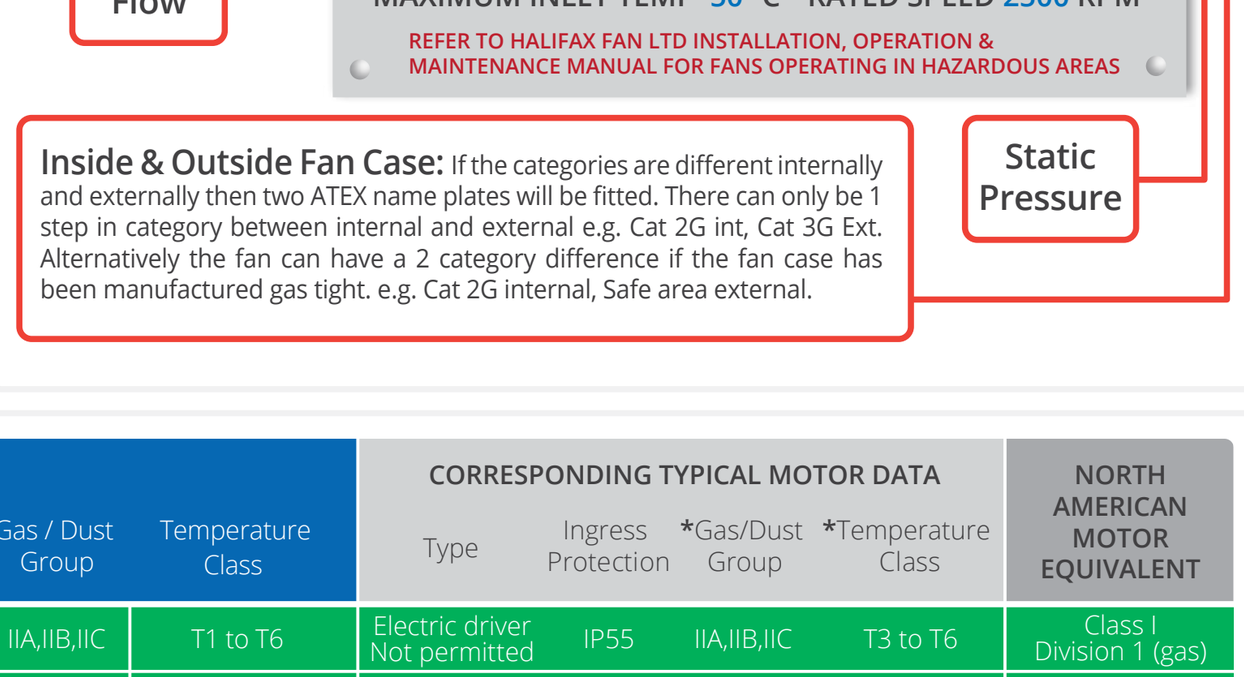
This means hazardous, or potentially explosive, environments of various categories, both gaseous (petrochemical mainly) and dusty such as flour mills, saw mills and some food processing plants.

The level of danger of an explosive condition is classified in Zones in Europe or in the USA as Classes.

Three basic requirements must be met for an explosion to take place
1. Flammable substance - **fuel**
2. Oxidizer - to produce **oxygen** or **air**
3. Source of ignition - a **spark** or **high heat**



Example of an ATEX Nameplate:



Recommended Vibration Levels:

For ATEX fans fitted with vibration monitoring

Normal Running	2.5-4mm/s
Warning / Alarm	8mm/s
Trip	12mm/s

Gas / Dust Group:

Gas/Vapour Type	Description
IIA	Butane, Petroleum, Propane, Ammonia
IIB	Ethylene, Diethyl Ether
IIC	Hydrogen, Acetylene, Carbon disulphide
Dust Type	**Description**
IIIB	**Non-Conductive** Flour, Grain, Sugar
IIIC	**Conductive** Metal Dust, Coal Dust

	INSIDE AND OUTSIDE FAN CASE						CORRESPONDING TYPICAL MOTOR DATA				NORTH AMERICAN MOTOR EQUIVALENT
	Conditions	Equipment Protection Level	ATEX classification Directive 1999/92/EC	ATEX classification Directive 94/9/EC	Gas / Dust Group	Temperature Class	Type	Ingress Protection	*Gas/Dust Group	*Temperature Class	
GAS	An explosive mixture is continuously present or present for long periods.	Ga	Zone 0	1G	IIA,IIB,IIC	T1 to T6	Electric driver Not permitted	IP55	IIA,IIB,IIC	T3 to T6	Class I Division 1 (gas)
GAS	An explosive mixture is likely to occur in normal operation.	Gb	Zone 1	2G	IIA,IIB,IIC	T1 to T6	Exd or Exde	IP55	IIA,IIB,IIC	T3 to T6	Class I Division 1 (gas)
GAS	An explosive mixture is not likely to occur in normal operation and if it occurs it will exist only for a short time.	Gc	Zone 2	3G	II	T1 to T6 *(T3 Generally Used)*	Exna	IP55	II	T3	Class I Division 2 (gas)
DUST	An explosive mixture is likely to occur in normal operation.	Db	Zone 21	2D	IIIB, IIIC	T125°C Generally	EX tb	IP6X	IIIB, IIIC	T125°C	Class II Division 1 (dust)
DUST	An explosive mixture is not likely to occur in normal operation and if it occurs it will exist only for a short time.	Dc	Zone 22	3D	IIIB, IIIC	T125°C to T135°C	EX tc	IP5X	IIIB, IIIC	T125°C-T135°C	Class II Division 2 (dust)

**Motor ATEX certified for in gas/dust group and temperature class will generally be the same as that for external fan case*

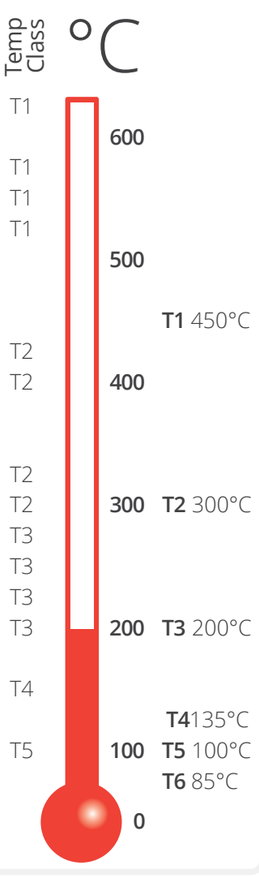
Guide to Ingress Protection Codes:

1st digit = Protection of the person against access to hazardous parts inside enclosures and protection against the ingress of solid foreign objects.
2nd digit = Protection against the ingress of moisture/liquids
3rd digit (optional) = Protection of the equipment against mechanical impact

1ST IP Nº	2ND IP Nº	3RD IP Nº
0 NO PROTECTION	0 NO PROTECTION	0 NO PROTECTION
1 PROTECTED AGAINST SOLID OBJECTS 50MM OR BIGGER	1 PROTECTED AGAINST WATER FALLING VERTICALLY (CONDENSATION)	1 PROTECTED AGAINST 0.225J IMPACT
2 PROTECTED AGAINST SOLID OBJECTS 12MM OR BIGGER	2 PROTECTED AGAINST DIRECT SPRAYS UP TO 15° (VERTICAL)	2 PROTECTED AGAINST 0.375J IMPACT
3 PROTECTED AGAINST SOLID OBJECTS 2.5MM OR BIGGER	3 PROTECTED AGAINST DIRECT SPRAYS UP TO 60° (VERTICAL)	3 PROTECTED AGAINST 0.5J IMPACT
4 PROTECTED AGAINST SOLID OBJECTS 1MM OR BIGGER	4 PROTECTED AGAINST SPRAY (ALL DIRECTIONS)	5 PROTECTED AGAINST 2.0J IMPACT
5 PROTECTED AGAINST DUST (LIMITED INGRESS)	5 PROTECTED AGAINST LOW PRESSURE JETS (ALL DIRECTIONS)	7 PROTECTED AGAINST 6.0J IMPACT
6 PROTECTED AGAINST DUST (TOTALLY)	6 PROTECTED AGAINST HIGH PRESSURE JETS (ALL DIRECTIONS)	9 PROTECTED AGAINST 20.0J IMPACT
	7 PROTECTED AGAINST IMMERSION (15CM-1M)	
	8 PROTECTED AGAINST IMMERSION UNDER PRESSURE	

Common Gas & Dusts:

	Gas Group	Ignition Temp	Temp Class
Ammonia	IIA	630°C	T1
Hydrogen	IIC	560°C	T1
Methane	IIA	537°C	T1
Toluene	IIA	535°C	T1
Grain (dust cloud)	IIIB	510°C	
Sugar (dust cloud)	IIIB	490°C	
Flour (dust cloud)	IIIB	490°C	
Ethylene Oxide	IIB	440°C	T2
Ethylene	IIB	425°C	T2
Coal (dust cloud)	IIIC	380°C	
Butane	IIA	365°C	T2
Acetylene	IIC	300°C	T2
Petroleum	IIA	247°C	T3
Hexane	IIA	233°C	T3
Kerosene	IIA	210°C	T3
Diesel	IIA	200°C	T3
Diethyl Ether	IIB	160°C	T4
Carbon Disulphide	IIC	95°C	T5



Features of ATEX Fans:

- Brass anti spark features where brass is allowed in the air stream. If brass is not allowed some other form of protection is required
- Impellers subject to 115% over speed test or designed for maximum 2/3rds yield on proof stress at operating speed
- Positive location of the impeller
- Mechanical run test
- ATEX technical file/documentation
- Temperature rise, max surface temperatures calculated
- Non sparking flexible coupling when fan has external hazardous rating
- Earthing Boss
- Technical file lodged with national body (depending on machine category)
- Vibration monitoring on some categories

Gas Tight: ATEX fans are not all required to be manufactured gas tight. They are fitted with standard close fitting shaft seals. Halifax Fan can offer gas tight and pressure tested fan cases.

** Features dependent on category and conditions*

Fan Servicing:

We offer skilled, experienced site engineers to perform the following on our own & other manufacturers fans:

Balancing: on & off-site / Vibration analysis / Troubleshooting / Commissioning guidance/assistance / Alignment of coupling, motor & drive belts / Training / Performance testing / Maintenance & refurbishment of fan equipment

We also offer comprehensive service contracts.
Service line: +44 1484 475 123 **Email:** service@halifax-fan.com

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The information in this wall chart is for guidance only and represents Halifax Fans' interpretations of the ATEX directive. See relevant directives and regulations for detailed information. Halifax Fan LTD 2014