ATEX VENTILATION

DYNAIR®
INDUSTRIAL VENTILATION
La ventilazione professionale made in Italy

Technology and expertise for
professional ventilation

DYNAIR® INDUSTRIAL VENTILATION

Atex Ventilation

PRINCIPLE

ATEX is the conventional name for Directive 94/9/EC which came into force on 1 July 2003 ("ATmosphère EX-plosive") and updated by Directive 2014/34/EU. An explosive atmosphere is defined as a mixture of air and flammable gases, vapours, fumes or dust whose combustion spreads rapidly (explosion) after ignition at atmospheric pressure. The scope of the ATEX Directive includes all equipment to be installed in potentially explosive environments such as petrochemical plants or for the food production, power plants, carpentries workshops, paint booths, farms and greenhouses. Depending on the type of substance causing the hazard, explosive atmospheres are classified into:

- **G** Gas
- **D** Dust
- **H_2** Hydrogen

The user or designer is obliged to carry out on his own responsibility, the classification of hazardous areas as indicated in European Directive 1999/92/EC.

SOLUTION

An assessment of the explosion risk is required in the company/plant for the identification of places where explosive atmospheres may form. It is necessary to provide the means to prevent/to avoid them. With artificial ventilation, we can:

- reduce the size of zones, to the point of making them sometimes of negligible volume
- reduce the residence time of the explosive atmosphere when the emission ceases
- prevent the formation of an explosive atmosphere diluting the flammable substance in air below the lower explosion limit in the immediate vicinity of the SE.

The ATEX Directive establishes criteria for the equipment's classification according to the degree of protection assured. The connection between classified zone according to European Directive 1999/92/EC) and class of protection of the equipment to be used complies with the following table:

PROTECTION DEGREE		CATEGORY	USAGE AREA IN PRESENCE OF GAS	CATEGORY	USAGE AREA IN PRESENCE OF DUSTS	HAZARDOUS LEVEL OF THE OPERATIONAL ZONE
Very high		1G	Zone 0	1D	Zone 20	Explosive atmosphere ALWAYS PRESENT
MAICO ITALIA *Product range*	High	2G	Zone 1	2D	Zone 21	Explosive atmosphere PROBABLE
	Normal	3G	Zone 2	3D	Zone 22	Explosive atmosphere UNLIKELY

N.B. Equipment of a higher category may also be installed in place of equipment of a lower category.

The Directive identifies the European notified bodies authorised to examine and verify (after carrying out specific tests) of the technical documentation and to issue type certificates on equipment for use in explosive atmospheres; products in ATEX conformity of Maico Italia bear the marks:

Maico Italia range: possible ATEX markings

TABLE 1

ATEX installation zone	Zone 1 / 21 / 2 / 22
ATEX zone inside the fan	Zone 1 / 21 / 2 / 22
Equipment group	II
Equipment category	2G / 2D / 3G / 3D
Explosion protection level of equipment (EPL)	b / c
Protection mode electrical motor	Ex-d Gb / Ex-de Gb / Ex-e Gb / Ex-nA Gc / Ex-tb Db / Ex-tc Dc
Gas temperature class	T3 / T4 / T5 / T6
Gas group	IIA / IIB / IIB + H2
Dust group	IIIA / IIIB / IIIC
IP protection grade	IP 55 / IP 64 / IP65 / IP66
Standard temperature range	-20°C / +60°C (-40°C on request)
Notify body	IMQ (0051) / TÜV NORD (0044) / TÜV SÜD (0123) / TÜV AUSTRIA (0408) BV/EPS (2004)

TABLE 2

ATEX installation zone	Zone 2 / 22
ATEX zone inside the fan	Zone 2 / 22
Equipment group	II
Equipment category	3G / 3D
Explosion protection level of equipment (EPL)	b / c
Protection mode electrical motor	Ex-d Gb / Ex-de Gb / Ex-e Gb / Ex-nA Gc / Ex-tb Db / Ex-tc Dc
Gas temperature class	T3 / T4 / T5 / T6
Gas group	IIA / IIB / IIB + H2
Dust group	IIIA / IIIB / IIIC
IP protection grade	IP 55 / IP 65
Standard temperature range	-20°C / +40°C

ATEX Scheme

The following product range is ATEX certified by IMQ according to EN 14986:2017 and is available in construction configuration:
HYDROGEN Zone 1 II2G Ex IIB + H2 T4 Gb
GAS Zone 1 II2G Ex h IIB T4 Gb
DUST Zone 21 II2D Ex h IIIB T 135°C Db
Complete classification in TABLE 1
Upon request: 60Hz versions / Temperature classes T5 and T6

QCM ATEX
Plate mounted axial fans

- Wall or window installation
- **Diameters from 200 to 710 mm**
- **Airflow from 1,050 to 17,500 m³/h**
- Supporting frame in drawn steel sheet, with wide radius inlet cone; models 630 and 710 with epoxy-polyester powder-coated frame
- Airflow from motor to impeller
- Inlet protection guard in steel painted rod, weatherproof
- The motor includes an overtemperature protection system equipped with PTC thermistors in accordance with DIN 44081, DIN 44082, IEC 60034-11-2 and suitable for speed regulation by inverter-type controller (for three-phase version)

FCP | FCP-V ATEX
Single speed high performance centrifugal roof fans Horizontal or vertical discharge

- Roof installation for direct or ducted applications
- **Diameters from 350 to 900 mm**
- **Airflow from 3,600 to 30,000 m³/h**
- Base frame in galvanized steel sheet
- Protection guard in micro-stretched galvanized sheet protected against atmospheric agents
- Impeller with self-cleaning backward blades, with high aeraulic efficiency and low noise, in galvanized sheet
- Outer conveyor in ABS
- Motor separated from airflow
- The motor includes an overtemperature protection system equipped with PTC thermistors in accordance with DIN 44081, DIN 44082, IEC 60034-11-2 and suitable for speed regulation by inverter-type controller (for three-phase version)

CC ATEX
Ducted axial fans

- Ducted installations for applications requiring large airflows with low pressure drops (max. 700 Pa)
- **Diameters from 310 to 1,600 mm**
- **Airflow from 2,000 to 142,000 m³/h**
- Short casing in steel sheet, with fixing flanges, protected against atmospheric agents by epoxy paint
- Axial impeller with aerofoil profile blades in glass reinforce antistat polyamide and die-cast aluminium hub, sparkproof band in alluminium
- The motor includes an overtemperature protection system equipped with PTC thermistors in accordance with DIN 44081, DIN 44082, IEC 60034-11-2 and suitable for speed regulation by inverter-type controller (for three-phase version)

DIC ATEX
Forward curved blade centrifugal fans

- Ducted installations for industrial applications for low air volumes at high pressures
- **Diameters from 100 to 180 mm**
- **Airflow from 300 to 2,400 m³/h with pressures up to 1,200 Pa**
- Volute casing in steel sheet, protected against atmospheric agents by epoxy paint or in stainless steel AISI304 sheet. Easily adjustable to the required discharge angle every 45°, including 180° and 225°
- Single inlet, single gauge, forward curved impeller (sirocco type), in galvanized steel sheet or in stainless steel AISI304.
- Motor separated from airflow
- The motor includes an overtemperature protection system equipped with PTC thermistors in accordance with DIN 44081, DIN 44082, IEC 60034-11-2 and suitable for speed regulation by inverter-type controller (for three-phase version)

ATEX Scheme

DIC INOX ATEX
Forward curved blade centrifugal fans

- Ducted installations for industrial applications for low airflow with high pressures
- **Diameters from 100 to 180 mm**
- **Airflow from 300 to 2,400 m³/h with pressures up to 1,100 Pa**
- **Spiral case made of AISI 304 stainless steel (AISI 316L on request)** easily swivelling with standard LG 270° orientation
- Single inlet impeller with forward curved blades (sirocco), constant thickness, made of AISI 304 stainless steel
- Motor separated from ducted air flow
- The motor includes an overtemperature protection system equipped with PTC thermistors in accordance with DIN 44081, DIN 44082, IEC 60034-11-2 and suitable for speed regulation by inverter-type controller (for three-phase version)

AL ATEX
Forward curved blade centrifugal fans

- Ducted installations for industrial applications for medium airflows with high pressures
- **Diameters from 200 to 450 mm**
- **Airflow from 1,500 to 11,200 m³/h with pressures up to 1,900 Pa**
- Volute casing in folded steel sheet, protected against atmospheric agent by epoxy pain, easily adjustable with standard LG 270° orientation
- Single inlet, single width, forward curved impeller (sirocco type), manufactured in galvanized steel sheet from type 200 to 315 and in steel sheet with welded blades epoxy painted from type 355 to 450
- Brass inlet on models gauge execution IIB+H2 and steel sheet with epoxy finish on models IIB
- The motor includes an overtemperature protection system equipped with PTC thermistors in accordance with DIN 44081, DIN 44082, IEC 60034-11-2 and suitable for speed regulation by inverter-type controller (for three-phase version)

The following product range is ATEX compliant to EN 14986:2017 and is available in construction configuration:
G Gas Zone 2 II3G Ex h IIB T4 Gc
D Dust Zone 22 II3D Ex h IIIB T135°C Dc
Complete classification in TABLE 2

BOX-T ATEX
Belt driven double inlet box fans

- Belt driven double inlet centrifugal fans
- Suitable for plants where air exchange must be carried out by reducing the noise levels (20 mm thick sound-absorbing lining, made of selfextinguishing expanded polyurethane)
- **12 sizes from 7/7 to 18/18 and from 500 to 630**
- **Airflow from 2,000 to 30,000 m³/h**
- Frame in extruded aluminium profiles and removable panels in galvanized steel sheet
- High performance centrifugal fan, double inlet with forward-curved blade impeller for transmission drive, coupled to the motor by trapezoidal belts and pulleys
- Trapezoidal EPDM belts with innovative technology with bare sides MAINTENANCE-FREE

BOX-T BC ATEX
Backward-curved belt driven double inlet box fans

- Backward-curved belt driven double inlet box fans particularly suitable in installations where air replacement or filtration must be carried out and for installations that require high performance in terms of flow rates and especially pressures. They can also be combined with the UFA (Air Filtration Unit) series for increased air filtration needs, from M5 to HEPA filtration
- Indicated where low noise is required: 20 mm thick sound-absorbing lining, made of self-extinguishing expanded polyurethane
- **11 sizes from 200 to 630**
- **Airflow from 2,000 to 30,000 m³/h**
- **Pressure from 215 to 1,550 Pa**
- High performance centrifugal fan, double inlet with **backward-curved blade impeller** for transmission drive, coupled to the motor by trapezoidal belts and pulleys
- EPDM V-belts with MAINTENANCE-FREE innovative bare sidewall technology

ATEX / IECEx Scheme

The following product range is ATEX certified by TUV Austria and is tested and approved according to IECEx scheme ignition protection concept.

The range is available in configuration:
Hydrogen - Gas Ex eb IIB+H2 T3 Gb/Ex h IIB+H2 T3 Gb
Dust Ex tb IIIB T135°C Db IP64X/Ex h IIIB T135°C Db X
Complete classification in TABLE 1

DZQ Ex
Axial fans

- Wall installation
- Round plate version available on request
- **Diameters from 200 to 600 mm**
- **Airflow from 440 to 9,450 m³/h**
- Robust, maintenance-free three-phase AC motor (Model 200 available with single-phase motor)
- Galvanised sheet steel frame
- **Approvals according to ATEX and IECEx**
- Temperature monitoring via PTC thermistor built into the motor winding
- IP 64 degree of protection
- Switchable to ventilation or air extraction

DZD Ex
Centrifugal roof fans Horizontal discharge

- Roof installation for direct or ducted exhaust
- **Diameters from 250 to 600 mm**
- **Airflow from 800 to 6,510 m³/h**
- Frame, inlet cone and cover made of galvanised steel sheet
- Robust, maintenance-free three-phase AC motor
- **Approvals according to ATEX and IECEx**
- Temperature monitoring via PTC thermistor built into the motor winding
- Motor connection with connecting cable 1.7 m on pre-wired terminal block with explosion-proof protection
- IP 64 degree of protection
- Switchable to ventilation or air extraction

DZR Ex
Ducted axial fans

- Ducted installation
- **Diameters from 200 to 600 mm**
- **Airflow from 1,050 to 9,370 m³/h**
- **Approvals according to ATEX and IECEx**
- Galvanised sheet steel casing with flanges on both sides
- Robust, maintenance-free three-phase AC motor
- Temperature monitoring via PTC thermistor built into the motor winding
- IP 64 degree of protection
- Switchable to ventilation or air extraction

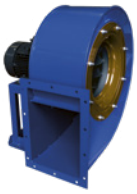
ERM Ex
Enhanced safety mixed flow fans

- In-line installation in a duct system
- **Diameters from 180 to 250 mm**
- **Airflow from 300 to 900 m³/h**
- **Approvals according to ATEX and IECEx**
- Compact design for installation in small spaces
- Housing made of anti-static, conductive plastic
- Can be fitted in any position
- Robust, maintenance-free AC motor with operating capacitor
- Ready to connect, explosion-protected terminal box mounted on the fan
- Degree of protection IP 64

Heavy duty / Special applications

The following product range is ATEX certified by TUV NORD according to EN 14986:2017 and is suitable for installation in zone 1/21 i.e. in areas in which it is necessary to guarantee high security against explosions due to the presence of flammable gas (II2G) or dusts (II2D). Complete classification in TABLE 1

PR-L ATEX
Backward curved blade centrifugal fans
FOR CLEAN OR SLIGHTLY DUSTY AIR



- Suitable for high airflow and low to medium pressures
- Suitable for multiple industrial and air conditioning applications
- **Diameters from 250 to 1,400 mm**
- **Airflow from 2,500 to 140,000 m³/h max**
- Suction nozzle with brass coating and painted sheet steel spiral case
- Connection flanges ISO 6580/EUROVENT 1-2
- Wide radius suction nozzle with brass coating
- Single inlet impeller with backward curved blades with high aeraulic efficiency, made of steel sheet and coated with epoxy paint
- For execution 1 – 9 – 12: mono-block support in cast iron with ball bearings, designed for easy lubrication. Pulleys, belts and motor support. Belt protection guard

PS-L ATEX
Backward curved blade centrifugal fans
FOR VERY DUSTY AIR

- Suitable for medium airflow and pressures
- Suitable for the extraction of sawdust, various shavings, granular materials, excluding of filamentary materials
- **Diameters from 220 to 1,400 mm**
- **Airflow from 800 to 98,400 m³/h max**
- Wide radius suction nozzle with brass coating
- Volute casing made of steel sheet and protected against atmospheric agents with epoxy paint
- Connection flanges ISO 6580/EUROVENT 1-2
- Single inlet impeller with backward curved blades with high aeraulic efficiency, made of steel sheet and coated with epoxy paint
- For execution 1 – 9 – 12: mono-block support in cast iron with ball bearings, designed for easy lubrication. Pulleys, belts and motor support. Belt protection guard

PN-L ATEX
Backward curved blade centrifugal fans
FOR CLEAN OR SLIGHTLY DUSTY AIR

- Suitable for medium airflow and medium to high pressures
- Suitable for multiple industrial and air conditioning applications
- **Diameters from 400 to 630 mm**
- **Airflow from 4,700 to 32,400 m³/h max**
- Wide radius suction nozzle with brass coating
- Single inlet impeller with backward curved blades with high aeraulic efficiency, made of steel sheet and coated with epoxy paint.
- Connection flanges ISO 6580/EUROVENT 1-2
- For execution 1 – 9 – 12: mono-block support in cast iron with ball bearings, designed for easy lubrication. Pulleys, belts and motor support. Belt protection guard

PR-F ATEX
Backward curved blade centrifugal fans
FOR CLEAN OR DUSTY AIR

- Suitable for medium-high airflow and medium-high heads
- Suitable for many applications in industrial plant engineering and air conditioning
- **Diameters from 250 to 1,400 mm**
- **Airflow from 1,000 to 110,000 m³/h max**
- Suction nozzle with brass coating and painted sheet steel spiral case
- Single inlet sheet metal impeller with backward curved blades
- Connection flanges ISO 6580/EUROVENT 1-2
- Wide radius intake nozzle
- The series includes directly coupled (4) and transmission versions (1, 9 and 12) mono-block support in cast iron with ball bearings, designed for easy lubrication

ATEX Heavy duty / Special applications

PQ-L ATEX
Backward curved blade centrifugal fans
FOR CLEAN OR DUSTY AIR

- Suitable for medium airflow and medium to high pressures
- Suitable for industrial plants for the transport of solid materials mixed with air, chips and sawdust with the fan not being traversed by material
- **Diameters from 400 to 1,400 mm**
- **Airflow from 2,900 to 79,200 m³/h max**
- Wide radius suction nozzle with brass coating
- Connection flanges ISO 6580/EUROVENT 1-2
- Single inlet impeller with backward curved blades with high aeraulic efficiency, made of steel sheet and coated with epoxy paint
- The series includes directly coupled (4) and transmission versions (1, 9 and 12) with mono-block support in cast iron with ball bearings

PY-L ATEX
Backward curved blade centrifugal fans
FOR PNEUMATIC TRANSPORT, DUSTING, DRYING, PRESSURISATION

- Suitable for small and medium airflow and high and very high pressures
- Suitable for industrial plants such as foundries, pasta factories, furnaces, chemical industry, etc
- **Diameters from 400 to 1,000 mm**
- **Airflow from 500 to 9,000 m³/h max**
- Wide radius suction nozzle made of sheet steel and protected against atmospheric agents with epoxy paint
- Single inlet impeller with backward curved blades with high aeraulic efficiency, made of steel sheet and coated with epoxy paint
- Connection flanges ISO 6580/EUROVENT 1-2
- Directly coupled (4) and transmission versions (1, 9 and 12) with mono-block support in cast iron with ball bearings

PV-L ATEX
Backward curved blade centrifugal fans
FOR CLEAN AIR

- Suitable for small and medium airflow with high and very high pressures
- Suitable for application in industrial plants for pneumatic, smoke or fine dust conveying
- Suitable for conveying solid materials mixed with air, chips and sawdust, with the fan not passing through the material
- **Diameters 350 to 1,000 mm**
- **Airflow from 250 to 33,000 m³/h max**
- Wide radius suction nozzle with brass coating
- Single inlet impeller with backward curved blades with high aeraulic efficiency, made of steel sheet and coated with epoxy paint
- Connection flanges ISO 6580/EUROVENT 1-2
- Directly coupled (4) and transmission versions (9 – 12) with one-piece bearing housings made of cast iron

The following product range complies with ATEX Directive EN 14986:2017 and is suitable for installation in zone 2/22 i.e. in areas in which it is necessary to guarantee a normal security against explosions due to the presence of flammable gas (II3G) or dusts (II3D). Complete classification in TABLE 2

PR-AC ATEX
Centrifugal fans in plastic material

- Ducted installations for extracting corrosive (non-abrasive) or high humidity fumes and vapours
- **Diameters from 200 to 600 mm**
- **Airflow from 1,000 to 17,500 m³/h**
- Made of technopolymers with technical and mechanical characteristics that guarantee a longer life cycle in comparison to different types of metals
- Antistatic and self-extinguishing polypropylene volute
- Single inlet impeller, in Polypropylene, with backward curved blades and aluminium hub (protected from the fluid)
- Motor support in epoxy painted steel sheet
- Available in LG or RD rotation, adjustable orientation in 8 positions (standard orientation 270°)

ICA ATEX
Centrifugal fans in plastic material

- Ducted installations for extracting corrosive (non-abrasive) fumes and vapours
- **Airflow from 540 to 7,100 m³/h**
- **Diameters from 120 to 350 mm**
- High performance impeller, in polypropylene, with forward curved blades
- Volute in antistatic polypropylene
- Anti-sparking construction
- Inlet connection and motor support supplied as standard
- Adjustable orientation in 8 positions
- Available in LG0 rotation only

HEADQUARTERS AND PRODUCTION PLANTS
Lonato del Garda - Brescia

MAICO
Italia

Maico Italia S.r.l. Via Maestri del Lavoro, 12

25017 Lonato del Garda (Brescia) Italia

Tel. +39 030 9913575 | sales@maico-italia.it

www.maico-italia.it

Membro di:

Seguici

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www.dynair.it

6DE1131 05-2024