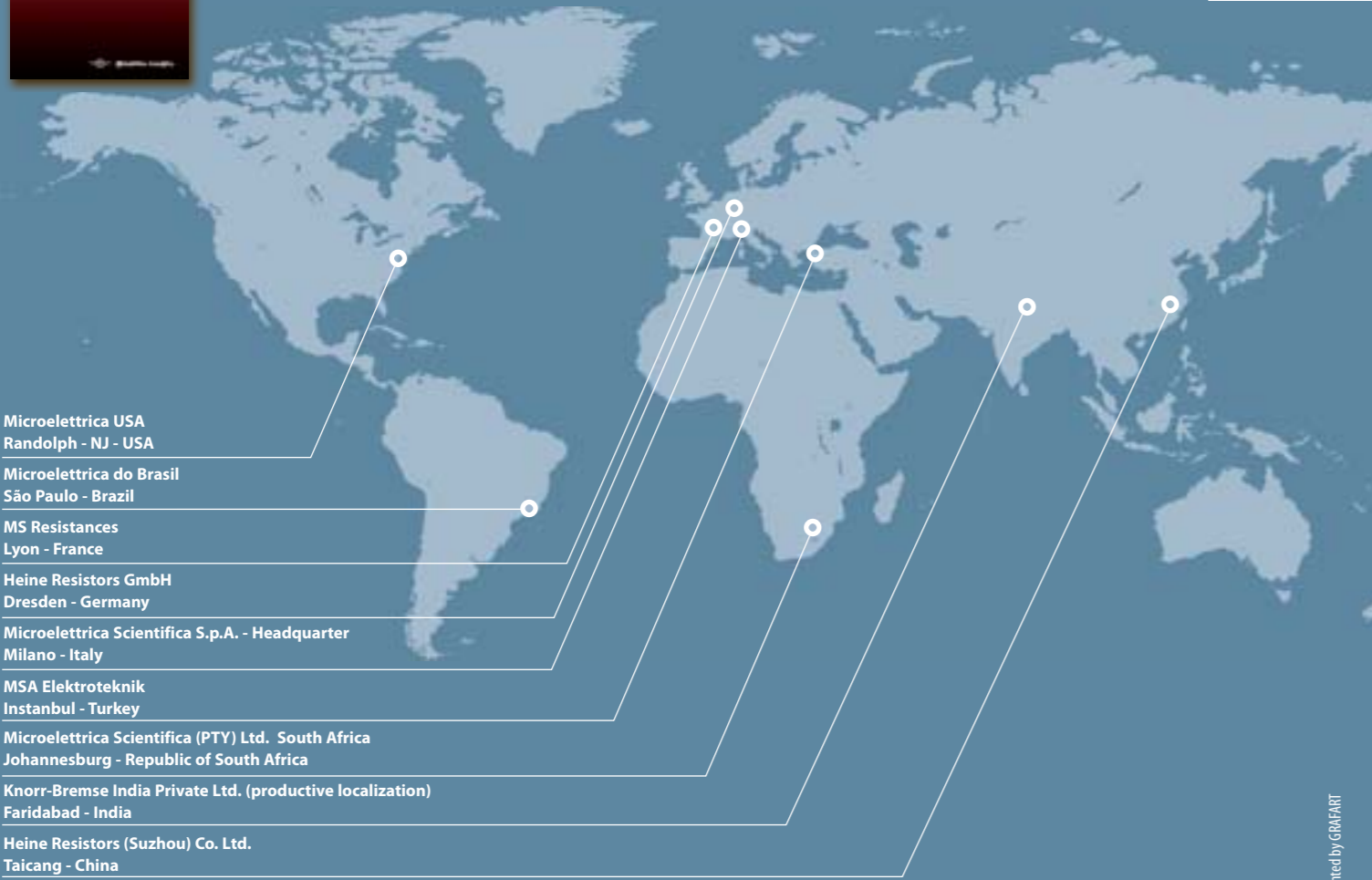


# Fans



- Microelettrica USA  
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- Microelettrica do Brasil  
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- MS Resistances  
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- Heine Resistors GmbH  
Dresden - Germany
- Microelettrica Scientifica S.p.A. - Headquarter  
Milano - Italy
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Istanbul - Turkey
- Microelettrica Scientifica (PTY) Ltd. South Africa  
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- Knorr-Bremse India Private Ltd. (productive localization)  
Faridabad - India
- Heine Resistors (Suzhou) Co. Ltd.  
Taicang - China

- Fans
- AF/LA Series**
  - AFT Series**
  - MAP/AVP/MF/XF Series**
  - AFH Series**
  - Centrifugal fan units**
  - OR/COR/ORV Series**
  - CNX/MXF Series**
  - ATEX Fans**



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#### Applications

Vehicles

Industry

#### Tradition and Experience

COMET was established in 1975 and has since 1992 manufactured axial impellers and fans for many industrial applications. COMET products are exported to over 70 countries worldwide. Over the years COMET has expanded by increasing its line of products and its market presence in key market segments such as oil & gas, power generation, traction, naval, cooling towers, aircoolers, refrigeration. The company grew up to become one of the largest Italian Groups in the industrial ventilation market, and today it is distinguished for the products' high quality level and reliability, and for the ability to respond to critical problems with effective and long-term satisfactory solutions.

#### Quality and Know-How

Energy-saving and low-noise design concepts have always been applied to all our products, from large (12 meters) impellers for power plants, to small centrifugal units for power converters and traction motors. The design of our products is supported by hundreds of tests that have been performed over many years in both our test rooms and on-site. COMET products and components undergo extensive verifications by both calculation (F.E.M. and mechanical analysis) and test (chemical analysis, fatigue tests), before they are brought to market, to guarantee the maximum degree of reliability. All materials used are certified and traceable, especially for ATEX units. The entire production cycle of the most critical components, including the final test on 100% of the products, is carried out at our factory, with a full check of quality and production times.

#### Tailored Products

COMET's relationships with the customers has always been characterized by a high degree of co-operation, with the aim of achieving the best results and the highest mutual satisfaction. When there is the opportunity of being involved from the early stages of the project, COMET can provide a support in the definition of the product type and configuration which best suits the specific application needs. This is made possible by the philosophy that underlie COMET's activity and by the flexibility of the different series of products, which have been studied and developed to allow high degrees of personalization and wide possibilities of customized design.

#### The support of a big Group

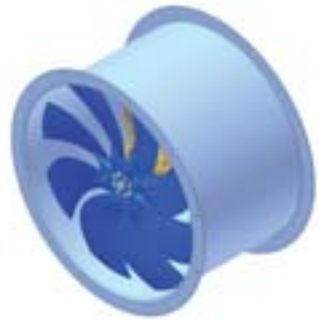
Today, COMET can directly support its customers in several areas of the world, thanks to the network of operational sites of Microelettrica Scientifica Group, which COMET joined in 2011. Manufacturing facilities are located in U.S.A., South Africa, China, India, Brasil and Turkey and they are able to provide immediate assistance and a big potential for localized manufacturing activities, always maintaining the high level of quality and skill our customers are used to.

#### Products

Ventilators	AF/LA Series
	AFT Series
	MAP/AVP/MF/XF Series
	AFH Series
	Centrifugal fan units
	OR/COR/ORV Series
	CNX/MXF Series
	ATEX Fans



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## AF/LA Series

### Applications

Aircoolers

Heat exchangers / Radiators

Cooling of electrical machines (motors, converters, inductors, generators, transformers)

Naval

Ventilation and Air Conditioning Plants

The medium performance "AF" and "LA" fan series were designed to meet the majority of cooling and ventilation requirements typical of industrial applications. They were conceived to provide the best mix of reliability, versatility, performance, quality, environmental impact and cost. All of these products have features making them easily compliant with the most widespread technical specifications and allowing significant modification based on specific customer requirements. Direct-coupling solutions with motors from 2 to 16 poles are available, to suit fan performance and noise requirements. Belt-driven solutions with larger diameters and selected speed are also available (see "AFT").

The "AF" and "LA" series are versatile and reliable, characteristics that make them the COMET's most successful products, suitable for the most frequent ventilation needs. COMET "AF" and "LA" series of fans have proved their efficiency every day in over 60 countries worldwide, in extreme climates, harsh environments and a wide range of temperatures for the most demanding operations.

These series of fans are selected using COMET's dedicated software, based upon the results of a huge number of tests performed by COMET on test tunnels and actual installations. The selection is based on five blade profiles in aluminium alloy, and others in fiberglass or polipropylene, with number of blades varying between 3 and 12 blades.

### General Characteristics

#### AF

- Impellers with aerofoil profile blades in extruded aluminium alloy low-noise type
- Adjustable blade pitch when standstill
- Three-phase motors IP55 with Class F or H insulation, 50/60Hz, 2-16 pole, from the best European manufacturers
- Casings in carbon steel, electro-welded, with anti-corrosive finishing by hot-dip galvanization

Wide range of ancillary parts and customizations

Special versions with special materials, certified components, motors according to customer's specifications.

Impellers in PPG, FRP or steel are available upon request

#### LA

- Impellers with aerofoil profile blades in PPG, low-noise type
- Three-phase motors IP55 with Class F insulation
- Casings in carbon steel, electro-welded
- Finishing by hot-dip galvanization : longer durability in harsh environment



LA



AF

### Technical Data

Series	Diameter [mm]	Air Flow	Pressure	Power [kW]
AF	400 ÷ 2400	up to 400.000 mc/h	up to 1500 Pa	0.55 ÷ 90
LA	310 ÷ 800	up to 35.000 mc/h	up to 800 Pa	0.25 ÷ 7.5



## AFT Series

### Applications

Aircoolers

Heat exchangers

Cooling towers

Condensers

Ventilation Plants

The "AFT" series fans are designed for applications requiring very high air flows and medium-low pressures, when it is impossible or unadvisable to couple the impeller direct to the motor.

They are normally used in the presence of:

- large diameters (air coolers, heat exchangers, cooling towers)
- dusty atmospheres
- high temperatures of the air flow
- low noise installations
- need to set the motor outside the air flow for access

Supports and drives are sized by COMET according to criteria based on 20 years of experience and hundreds of installations. For some models the bearing blocks are designed and built entirely by COMET.

The "AFT" series fans are selected using the COMET's dedicated software, which provides a clear and concise data sheet with operating curves, including electrical and noise level data, as well as preliminary outline drawing. The selection is based on five blade profiles, with number of blades varying between 3 and 12 blades. This versatility gives unrivalled design options when selecting a fan unit.

### General Characteristics

- Impellers with aerofoil profile blades in extruded aluminium alloy low-noise type
- Adjustable blade pitch when standstill, or autovaryable in operation
- Three-phase motors IP55 with Class F or H insulation, 50/60Hz, 2-16 pole, from the best European manufacturers
- Casings in carbon steel, electro-welded, with anti-corrosive finishing by hot-dip galvanization
- V-belt or toothed belt drive, with heavy-duty bearing blocks and external grease lines

Wide range of ancillary parts and customizations

Versions with special materials, special dimension, motors according to customer's specifications.

Impellers in PPG, FRP or fitted with anti-corrosion coatings are available upon request



AFTE

AFTN



AFTs



### Technical Data

Series	Diameter [mm]	Characteristics	Power [kW]
<b>AFTE</b>	800 ÷ 2240	Motor mounted outside the fan and the airflow	0.55 ÷ 45
<b>AFTS</b>	2000 ÷ 4800	With vertical axis, motor mounted under the fan ring on a bridge (for aircoolers)	0.55 ÷ 90
<b>AFTN</b>	1600 ÷ 2240	Motor mounted inside the fan casing, fully enclosed	0.55 ÷ 55



## MAP/AVP/MF/XF Series

### Applications

Aircoolers

Heat exchangers / Radiators

Cooling towers

Condensers

Axial Fans

COMET aluminium impellers come in 4 different construction types, aimed at satisfying numerous industrial applications. COMET manufactures 10 different blade profiles and three different impeller designs, giving rise to one of the most extensive and efficient product ranges available on the market.

The larger series can be selected for large installations with diameters up to 12 metres.

The smaller series are suitable for installation on equipments, machineries or in environments requiring ventilation or cooling, and on small and medium fan units with diameters starting from 350 mm.

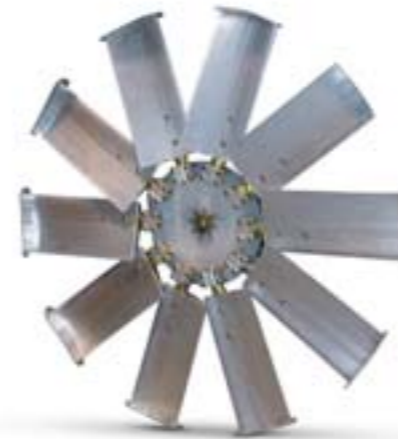
The "MAP" and "AVP" series impellers have high-efficiency and low-noise blades made of extruded aluminium alloy. All "MAP" models have variable pitch blades with motor stopped, while "AVP" impellers have variable pitch blades in operation. They were designed to provide precise and continuous adjustment of the air flow as the thermal conditions of the system vary. The blade pitch variation is controlled pneumatically and these impellers are supplied complete with rotating joint for connection to the line and with precision position valve. Special versions of all COMET impeller series are available for critical operating conditions or special environments.

The extensive production in aluminium is supported by "MF" and "XF" series of impellers, with blades made of fiberglass-reinforced plastic (FRP-GRP-PPG). These series have Very Low-Noise characteristics and are suitable for corrosive environments.

By using COMET selection software, it is possible to select the most advantageous combination of speed, number of blades and blade profile to obtain the best results in terms of noise and power consumption.

### Technical Data

Series	Blade Material	Hub Type	Blade Series	Diameter Range[mm]
MAP	Aluminium	F	12 / 1N	350 ÷ 1000
		P	1N / 2N / 3N / 31	500 ÷ 3100
		D	2N / 3N / 4N / 8N / 31 / 51	1000 ÷ 12000
AVP	Aluminium	P	1N / 2N / 3N / 31	1120 ÷ 3100
		D	2N / 3N / 4N / 8N / 31 / 51	2000 ÷ 8000
MF	FRP – GRP	D	MF	1200 ÷ 10000
XF	FRP – GRP	D	XF	2000 ÷ 12000



MAP



AVP



MF



## AFH Series

### Applications

Brake resistors

Heat exchangers / radiators

Gas turbine enclosures

Forced ventilation

Traction motors

High quality, no-compromise products for applications requiring a guaranteed and reliable component providing high pressures and precise air flows. They are most suitable for applications which require the fan to be a critical part of the system both in terms of performance and reliability. They are used in different applications such as power generation, railway, naval, cement and are always characterized by the demanding and critical nature of the service. Direct coupling solutions with motors from 2 to 8 poles are available, as well as belt-driven solutions for all cases in which it is convenient to decouple the motor from the impeller for service or maintenance. Only top quality components, sized by COMET according to criteria based on 15 years of experience and many industrial applications, are used for the manufacturing of these units. Detailed aerodynamic studies are the basis of the design of the "AFH" series fans, which feature key characteristics for use in critical applications:

- above average pressures and air flows
- reduced dimensions
- moderate noise
- high reliability
- cost effective solution

The "AFH" series is the ideal choice when looking for a high performance product of superior quality.

### General Characteristics

- Impellers with high-efficiency, low-noise aerofoil type blades, in aluminium alloy
- Three-phase motors IP55/IP65, with Class F or H insulation, 50/60Hz, suitable for inverter supply
- Casings in carbon steel, electro-welded, with anti-corrosive finishing by hot-dip galvanization
- Single or double array of fixed vanes for performance increase, optimized for the application

Wide range of ancillary parts and customizations

Versions with special materials, special dimension, motors according to customer's specifications.

Double-stage or double-impeller solutions for higher performances are available upon request



AFH

### Technical data

Series	Diameter [mm]	Characteristics	Pressure	Power [kW]
<b>AFH</b>	360 ÷ 1800	Direct drive	up to 2800 Pa (single stage) up to 4000 Pa (double stage)	0.55 ÷ 90
<b>AFTH</b>	630 ÷ 1800	Belt drive	up to 2500 Pa (single stage)	1.5 ÷ 55



## Centrifugal fan units

### Applications

Heat exchangers / radiators

Traction motors

Transformers

Converters

Ventilation plants

Filtration plants

COMET's centrifugal fan series are mainly intended for use in critical applications where guaranteed performance and high reliability are required.

The production range includes several types of fans and series of impellers, based upon our wide know-how in the design and manufacturing of dedicated and engineered fan solutions. All COMET's centrifugal units have been designed to reach high levels of reliability and versatility, and they are characterized by a compact design and wide possibilities of customization.

Impellers with straight, curved and profiled blades are available on all types of centrifugal fans. Furthermore, carbon steel, stainless steel or aluminium, can be used for the manufacturing, in order to always offer the most suitable solution to the vast majority of environmental, mechanical and noise requirements.

COMET can also provide a wide range of ancillary parts and complete systems, which include filters, dampers, supporting frames, noise insulating systems, and more.

### General Characteristics

- impellers in carbon steel, stainless steel or aluminium, with straight, curved or profiled blades
- three-phase motors IP55/IP65, with Class F or H insulation, 50/60Hz, suitable for inverter supply
- fan cowls in carbon steel or stainless steel, electro-welded
- finishing by 3-layers epoxy-pack painting, certified for 500 hours salt mist test resistance

Wide range of ancillary parts and customizations  
 Versions with special materials, special dimension, motors according to customer's specifications.

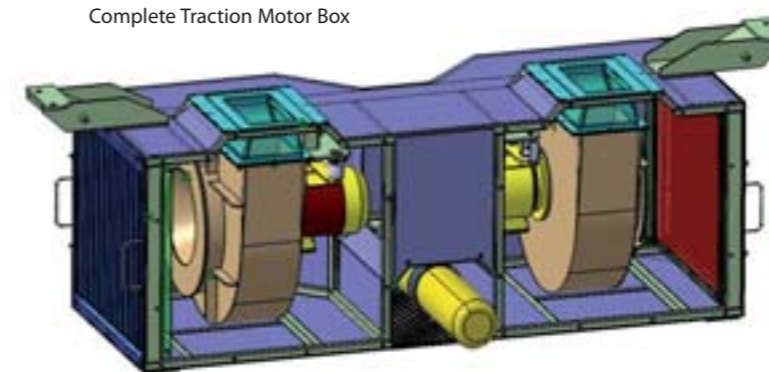
Double-inlet or double-impeller solutions are available upon request



Double-Inlet Centrifugal



CCF

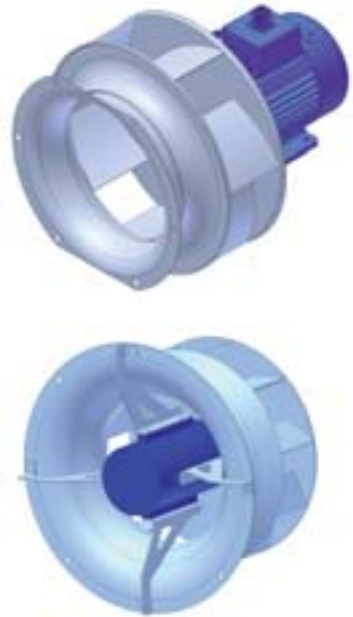


Complete Traction Motor Box



### Technical Data

Serie	Diameters [mm]	Characteristics	Pressure	Power [kW]
CCF	150 ÷ 700	Centrifugal with straight/curved/profiled blades	up to 5000Pa	0.18÷ 30



## OR/COR/ORV Series

Ideal products for applications requiring a very compact and high-performance solution, the open-running centrifugals (OR Series) eliminate some typical limits of the traditional centrifugal fans. The compact dimension and the absence of a preferential direction of the airflow make these fans very useful wherever high pressures must be generated in a small space and a 90° change of direction of the airflow is not recommended. They are the optimal solution for the forced ventilation of limited environments (like boxes containing electrical or electronic equipments).

ORV Series fans are fitted with a simplified housing to separate the motor from the flow generated by the fan (e.g. applications with air temperature higher than 60°C).

Ready-to install and innovative, the COR Series features an extremely compact design, due to an exclusive fixation system of the electric motor.

Derived from the technology of COMET's centrifugal fan units, the impellers used on OR/COR/ORV Series can be made of carbon steel, aluminum or stainless steel, with straight, curved or profiled blades.

### Applications

Heat exchangers / radiators

Traction motors

Transformers

Converters

Ventilation plants

### General Characteristics

- Three-phase motors IP55/IP65, with Class F or H insulation, 50/60Hz, suitable for inverter supply
- Impellers in carbon steel, stainless steel or aluminium, with straight, curved or profiled blades
- Finishing by 3-layers epoxy-pack painting, certified for 500 hours salt mist test resistance
- Special motors and special fixation system for COR Series

Versions with special materials, special dimension, motors according to customer's specifications.



COR



OR

### Dati tecnici

Series	Diameters [mm]	Characteristics	Pressure	Power [kW]
<b>OR</b>	150 ÷ 500	Open-Running Centrifugal (Plug-Fan)	up to 3000Pa	0.18÷ 22
<b>COR</b>	200 ÷ 500	Compact Open-Running Centrifugal, with fixing plate	up to 2500Pa	0.37÷ 15
<b>ORV</b>	200 ÷ 500	Open-Running Centrifugal with simplified housing	up to 3000Pa	0.55÷ 22





## CNX/MXF Series

### Applications

Traction motors

Brake resistors

Forced ventilation systems

Designed to combine the high pressure levels obtained by the centrifugal fans with the advantages of size and ease of installation given by the axials, the CNX and MXF series are based on COMET's decades of experience in the design and production of high-performance axial fan units.

The CNX and MXF Series provide maximum pressures which are 50% higher than those of the correspondent axial, in their typical range of airflows. This is achieved with dimensions comparable to those of a conventional axial fan.

Besides the advantage in terms of performances, these products also offer distinct low-noise characteristics. Sound emissions are comparable to centrifugal units, allowing in many cases to avoid the use of silencers or reducing the impact of noise insulation systems.

This is offered together with the usual flexibility of design and construction which characterizes COMET's products, making them suitable for the most demanding applications and critical duties.

### General Characteristics

- impellers in carbon steel, stainless steel or aluminium, with straight, curved or profiled blades
- three-phase motors IP55/IP65, with Class F or H insulation, 50/60Hz, suitable for inverter supply
- casings in carbon steel or stainless steel, electro-welded
- finishing by 3-layers epoxy-pack painting, certified for 500 hours salt mist test resistance, or hot-dip galvanization
- single or double array of fixed vanes for performance increase, optimized for the application

Wide range of ancillary parts and customizations

Versions with special materials, special dimension, motors according to customer's specifications.



CNX



CNX

### Technical Data

Serie	Diameters [mm]	Characteristics	Pressure	Power [kW]
CNX	400 ÷ 1400	Centraxial	up to 4500Pa	1.5÷ 55
MXF	300 ÷ 800	Mixed-Flow	up to 4000Pa	1.5÷ 45



# ATEX Fans

## Applications

Refineries

Chemical plants

Turbines

Plants and installations with presence of dangerous gas or dust

Most of COMET's fans can be supplied in the ATEX certified version (Directive 94/9/EC).

Series AF/AFT/AFH/AFTH/CNX are always available in ATEX versions.

All these fans are equipped with motors and components of leading brands and are rigorously certified.

Materials and components are checked and recorded for complete traceability.

Design, manufacture and testing are carried out by COMET in accordance with the procedures established by the COMET ATEX Technical File, filed with ICIM (ATEX Notified Body).

COMET products are certified for the following categories :

- Group II, category 3G
- Group II, category 3D
- Group II, category 2G
- Group II, category 2D

The general characteristics and the performances of the products do not vary when they are produced in the ATEX versions. At the same time, it is still available an high grade of customization according to the installation needs and the project specifications.

## General Characteristics

- impellers in carbon steel, stainless steel, aluminium, FRP or PAGAS
- three-phase motors IP55/IP65, with Class F or H insulation, T3 / T4, Ex-N / Ex-d, 50/60Hz, suitable for inverter supply
- casings in carbon steel or stainless steel, electro-welded, with bolted anti-spark track
- finishing by 3-layers epoxy-pack painting, certified for 500 hours salt mist test resistance, or hot-dip galvanization
- cables and electrical components made by leading brands and certified
- ATEX certificate and running test report is supplied with each unit

Wide range of ancillary parts and customizations

Versions with special materials, special dimension, motors according to customer's specifications.

ATEX



## Technical Data

Series	Diameters [mm]	Characteristics	Power [kW]
<b>AF-Ex</b>	400 ÷ 2400	Medium-performance direct drive Axial	0.55÷ 90
<b>AFT-Ex</b>	1000 ÷ 4800	Belt driven Axial	1.5÷ 75
<b>AFH-Ex</b>	400 ÷ 1800	High Performance Axial	1.1÷ 90
<b>AFTH-Ex</b>	200 ÷ 700	Belt-Driven High Performance Axial	0.55÷ 30
<b>CNX-Ex</b>	400 ÷ 1400	Centr axial	1.5÷ 55