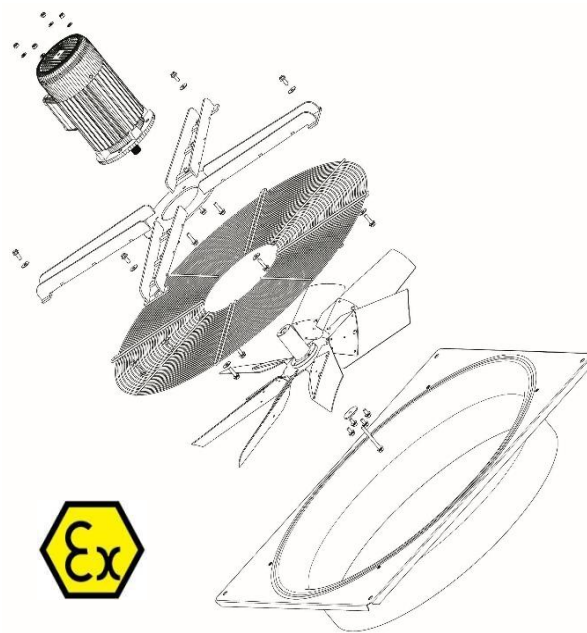


USE AND MAINTENANCE INSTRUCTION MANUAL



ATEX CERTIFIED AXIAL FAN

In writing this manual, Secureair® made the deepest attention to ensure data accuracy, nevertheless, Secureair® cannot be charged for unwanted mistakes and omissions.



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1. INTRODUCTION

Secureair® fans are designed and produced to convey air and alike and shall not be used to convey solid substances or particles suspended in fluids, nor used in different conditions. Anyway, the working conditions shall be in compliance with those they were designed and produced for (voltage, connections, category and so forth). The fans, object of this manual, are suitable to work in potentially explosive environments, in compliance with Atex Directive 2014/34/UE, group II category 2 and 3 series AT.

It is under the attendant or final user's responsibility the correct installation, operating and maintenance, by acting with all the necessary safety steps requested by the present laws, rules or regulations in force in the country where the equipment will operate. Advices, necessary to the correct use of the items of this manual, complement one another with the motor use and maintenance manual indications. AT fan series are machines suitable for zones classified with presence of gas/ vapour (zone 1) and combustible dust (zone 21). They are designed and produced in compliance with Atex 2014/34/UE directive, group II, category 2 GD, according to the European standards EN-1127-1, EN 13463-1 and EN 14986. All the electric parts of AT fans comply with Atex 2014/34/UE directive and qualified to group II, to zone 1 and 21 (category 2 GD), to the existing substances, to the surface and ambient temperature. Fans shall be installed and maintained according to the plant engineering and maintenance specifications, related to environments classified against the explosion hazard due to the presence of gas/vapour and combustible dust (example: EN 60079-14, EN 60079-17, EN 61241-14, EN 61241-17 or different national standards).

2. RECEIVING AND INSPECTION

Before shipping, all Secureair® products underwent to severe controls to ensure the highest quality levels.

The receiver is responsible to control whether the received goods comply with the order and didn't suffer any damage in shipping. After receiving the goods, Secureair® is responsible only for what considered in our commercial guarantee.

The following controls are strictly recommended:

- Control that components correspond in number and typology/description to what stated in order
- Control whether there are missing or damaged parts
- Control whether there are moving part except for those provided
- Verify whether the impeller: rotates freely without touching the other parts of the fan, it does not present local hurts and be tightly fixed to the motor shaft
- Control whether the fixing screws are correctly locked
- Fans shall be provided with: this manual, their labels and data provided in the next paragraph

Note: in doubt, refer always to what indicated in the corresponding drawings and catalogues or contact our technicians.

2.1 MOVING

Fans shall be handled by skilled staff. An incorrect moving or handling may seriously affect fans, bringing to:

- The deformation of the impeller
- The deformation of the motor support

- The deformation of the conveyor
- The deformation of the motor and its alignment

Handle fans with their original packing.

The moving equipment's shall be chosen according to the weight and typology of the materials to be moved (form, kind of package, etc..).

Fans provided with conveyor shall be handled and positioned with the maximum care so to not deform the impeller. Do never lift fans from the impeller.

Units with the conveyor shall be moved in order to avoid damages to the conveyor itself.

Versions with short mouth may have the impeller prominent from the conveyor, take maximum care to not hurt moving parts.

Also, a little deformation can affect the fan balancing.

2.2 STORAGE

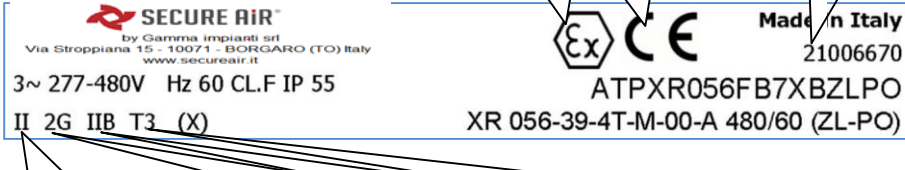
All fans are designed to be stored in the following conditions:

- Maximum storage temperatures: $-25^{\circ}\text{C}/+65^{\circ}\text{C}$
- Relative humidity: less than 60%
- Fans must be adequately protected from outdoor atmospheric agents (rain, snow, etc), stored in conveniently ventilated place and heated in order to avoid moisture and excessive humidity.
- Periodically turn the impeller in order to redistribute the ball-bearing grease and avoid corrosion
- Protect goods from external loads and vibrations
- Avoid to expose fans to corrosive substances

Note: The mechanical protection of the motor IP is guaranteed only after its installation and connection to the cable supply

2.3 LABEL DATA

The fan is supplied with a label that identifies the type and its application field; moreover, the motor has its own label, defining its operating limits, intended as electric data. The fan label does not substitute the motor label:

Manufacturer name and address	Atex Mark	CE Mark	Production batch
 <p> SECURE AIR® <small>by Gamma impianti srl</small> <small>Via Stroppiana 15 - 10071 - BORGARO (TO) Italy</small> <small>www.secureair.it</small> 3~ 277-480V Hz 60 CL.F IP 55 II 2G IIB T3 (X) ATPXR056FB7XBZLPO XR 056-39-4T-M-00-A 480/60 (ZL-PO) Made in Italy 21006670 </p>			
Explosion group I (MiG = Gas - D = Dustning)	Category and explosion atmosphere 1 zona 0/20 - 2 zona 1/21 - 3 zona 2/22	Group of gas II A, II B, IIC	Temperature class T1, T2, T3, T4, T5, T6 o T nnn c°

Note: The presence of (X) indicates that the protection grill exceeds the test of mechanical impact with energy of 4 Joule.

3. FAN CHARACTERISTICS

3.1 OPERATING CONDITIONS

Rated operating conditions of Secureair® fans are:

- Continuous duty S1, frequent on/off switching not allowed
- Ambient temperature: -20/+40°C
- Atmospheric pressure between 0,8 and 1,1 bar
- Maximum volume fraction of 21% oxygen content
- Clean air

For ambient temperatures different from standard, as well as inconstant duties, the use of specific fans tailored for such conditions shall be necessary; these shall be specified from the beginning and reported on labels.

3.2 MAXIMUM SPEED

For max rotating velocity, it is intended the synchronous rotating velocity of the motor, calculated according to the number of the poles of the motor and the rated frequency of the motor power supply

If not differently specified, fan velocity is not adjustable. Any regulation, carried out on the motor supply, in order to exceed the max velocity, is not allowed.

3.3 AIR TEMPERATURE

The temperature is a basic variable for the proper and reliable use of the fan, the values printed on labels shall not be exceeded. If foreseeable hazard rising of temperature exists, the user shall act to apply a device so to prevent dangerous situations.

3.4 BALANCING

The impellers are balanced according to ISO 1940/1-2003 grade G6.3. Fans shall run with the impeller balanced, anomalous vibrations, with frequencies equal to the number of blades for the rpm, are signs of unbalance.

3.5 CORROSION RESISTANCE

Fans are not designed to resist to corrosion agents, except specific inquiries in the order.

4. INSTALLATION

The correct installation of the fans avoids further problems during their standard operating. The installation shall not be made in presence of potentially hazardous atmosphere. Fans shall be grounded; consider that painted parts don't guarantee an earthing better than one mega-Ohm, thus, they are not suitable as components for grounding. Power supply shall be made by skilled staff, following all the instruction reported on the instruction manual. Fans shall be protected by the entrance of external solid particles by mean of a system with protection IP 20, at least. If installed in ducts, it's necessary to consider appropriate protections according to EN 294 standards.

DECLARATION OF CONFORMITY

Secureair® by GAMMA IMPIANTI SRL declares, under its responsibility, that the axial fans of AFPX Series complies with Directive 2006/42/EC and Directive 2014/34/UE (ATEX) requirements and they can be used in zone with the possible presence of explosive atmospheres according to the classification enclosed in EN 1127-1:2011 standards.

The construction of the fans is in compliance with the suitable applicable standard norms hereon: EN 1127-1:2011, EN 80079-36:2016, EN 80079-37:2016, EN 14986:2017

The technical documentation of reference of the product, as considered by the Directive 2014/34/UE enclosure VIII, is available at Secureair® by GAMMA IMPIANTI SRL via Stroppiana, 15 Borgaro Torinese (TO) Italy and, for the fans of the category 2, the same one is filled by the notified corporate body 0948(TÜV) with number Secureair® 002/13.



4.1 FAN FIXING

Take care of the following points:

- The fan casing shall be of a substantially rigid design and made in order to avoid the rise of vibrations as well as resonance phenomena
- All foresee fixing points shall be used
- While tightening bolts, be sure not bend or deform any part of the fan.
- Fix the fan on a flat surface, with no difference in level that makes the fan work in a forced position

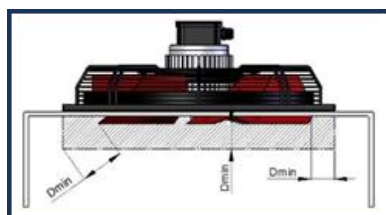


In case of assembly of fan with high conveying panel with horizontal axis, either in sucking (Q) or blowing (H) version, suitable motor shall be considered, since the weight could deform the conveyor and alter the minimum gap required (see 4.4).

If the fan is connected to a duct, this shall be metallic and antistatic.

4.2. FIXING OF FAN WITH PROMINENT IMPELLER

Fans with prominent impeller shall be mounted so that the minimum distance between the impeller and the other parts of the equipment, where fan is fixed, shall never be less than 20mm.



4.3. FAN SUPPLY CONNECTION

Mounting, supply connection and set-up shall be carried out by skilled staff following the indications printed in the motor manual. In case of motors provided with thermal protection, their use is strictly recommended, so to avoid further danger. Fix the connection cable of the fan to prevent danger for tearing. Secureair® technical department is at your disposal to clear doubts.

4.4 MINIMUM DISTANCE IMPELLER/CONVOYER (Minimum gap)

The minimum distance between the impeller and still parts shall be calculated according to the following formula:

$$\text{Gap minimum} = \frac{\text{ØImpeller}}{100} - \frac{\text{ØShaft}}{10} \quad \text{where} \quad \text{ØImpeller} = \text{Impeller Diameter}$$

$$\text{ØShaft} = \text{Motor shaft diameter (max 13 mm)}$$

However, Gap minimum shall not be below 2 mm

Example of calculation of Gap minimum

$$\text{ØImpeller} = 800 \text{ mm} \quad \text{Gap minimum} = \frac{800}{100} - \frac{19}{10} = 8 - 1,9 = 6,1 \text{ mm}$$

$$\text{ØShaft} = 19 \text{ mm}$$

In this case, the impeller shall be distant at least 6,1mm, in the whole circumference, from still parts.

The Gap Minimum permits to calculate the minimum diameter of the conveyer, if used. In fact:

$$\text{Øminimum conveyer} = \text{ØImpeller} + 2 * \text{Gap minimum in the previous example: } \text{Øminimum conveyer} = 800 + 2 * 6,1 = 812,2 \text{ mm}$$

4.5 AIR FLOW AND ROTATING DIRECTION

Check if impeller runs according to the correct rotating direction and produces an air stream toward the right direction, in compliance with order.

4.6 SAFETY INSTRUCTIONS

Secureair® fans are components of equipment's or ventilating sets; they shall operate only after being correctly installed and equipped with the necessary protections suitable to deny access, also accidentally, to the parts under tension, as well as to the moving parts. The user shall take care that the equipment's, where Secureair® fans are to be installed, respect the safety directives corresponding to their use and in compliance with the laws of his Country. Each fan shall be provided with a safety switch to cut off power supply connection.

4.7 ADDITIONAL SAFETY DEVICES FOR DUSTY AMBIENTS

The fans of Group II, Category 2, suitable in atmospheres with presence of dust (2D), shall be provided with a system for the control of vibrations, which disconnects the fan from the electric supply in case of presence of vibrations potentially hazardous in compliance with ISO 14694. Such a device shall be neither neutralized nor moved and periodically shall be tested.

5. MAINTENANCE

The fan maintenance shall be made by skilled and trained staff. Do not start any maintenance or control operation before disconnecting the power supply. All moving parts shall be motionless.

Do not carry out any maintenance operation in presence of potentially explosive atmosphere

The fan shall be monitored for at least two working hours, in order to value the presence of vibrations or anomalous noises and whether the values of voltage and input current do not exceed the label data.

After the first 24 working hours:

- Check the correct locking of bolts
- Check the free movement of the impeller, which shall not rub against the conveyer or move along the motor shaft
- Check the presence of anomalous deposits of dust or whatever else on the fan

5.1 ORDINARY MAINTENANCE

In order to guarantee fan correct operating, a regular maintenance is necessary.

As general rule, on respecting the limits of use and the standard operating conditions, carry out, at least four times in a year, the following operations:

- Verify levels of noise and vibrations; anomalous values are index of malfunction
- Control the presence of corrosion on the structure
- Clean the machine and, mainly, the impeller; so, to avoid dust deposits that can be a source of risk. Dust deposits on all components shall not exceeds 2 mm in thickness.
- Verify and restore the correct locking of bolts

Note: During the cleanness of the impeller, take care to not endanger its balance. In any case, do not remove the impeller; i ts removal voids its compliance with directive and all warranties.

6. WARRANTY

1. Fans by Secureair® are guaranteed for:
 - a) 24 months if the end user is a consumer in the terms described in the current Legislative Decree No. 206/2005;
 - b) 12 months from the date of delivery if the end user is a professional in the terms described in the current Legislative Decree No. 206/2005.
2. Secureair® binds the granting of the guarantee to the verification of faults or defects of the components by making the product available for a minimum period (not less than ten days) necessary for the identification of the cause of defects and to the fact that such defects, are shown by Secureair® as manufacturing defects.
3. Secureair® warranty applies only to the product; no compensation of any kind is contemplated for downtimes causally not attributable to Secureair®.
4. The date on which the guarantee is issued will relate to the accompanying tax document. In the absence of the same, Secureair® reserves the right to set the date of manufacture.
5. Upon expiry of the warranty, the costs for spare parts and labor necessary for reparation, are charged to the customer.
6. Labeling is an integral part of the product. Its absence, even partial, will undermine the warranty.
7. The warranty is limited to the reparation or replacement ex-warehouse.
8. Secureair® warranty does not cover:
 - Checks, maintenance, repairs due to normal wear.
 - Incorrect or non-compliant installation or failure to use electrical control devices.
 - Damages from transport and / or handling, if done by Secureair®, not claimed on delivery.
 - Installation and dismantling services at buyer's facilities, transport costs of the product and travel expenses, subsistence and accommodation costs of technical support personnel when requested by the customer.
 - Improper use.
 - Power supply not "provided" by the plate data.



- Damage or manipulation of unauthorized personnel.
- Vandal acts and damages from atmospheric agents.
- No use of safety devices.