Plastic ventilation systems

OPERATING INSTRUCTIONS

Original operating instructions

Contents:

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0. Preface to the operating instructions

These operating instructions are intended to familiarise users with plastic ventilation systems so that they will be able to use them in accordance with their intended use.
These operating instructions contain important information relating to appropriate and cost-effective operation. Compliance with this information helps to avoid danger and to reduce repair costs and downtimes.
The operating instructions must be available on site at all times and must be read and observed by all persons involved with operation, maintenance and repairs.
The relevant operating instructions for fans, gas scrubbers and similar units must be followed.
In addition to the present operating instructions and legally binding accident-prevention regulations, the generally recognised technical rules and regulations pertaining to safe and competent execution of the work must be observed.

1. Basic safety instructions

1.1 Warning symbols


Information regarding cost-effective use of the system


Details of do's and don'ts to prevent personal injuries and/or material damage

1.2 Intended use

The ventilation systems have been built according to the state of the art and the recognised safety regulations. Nevertheless, dangers to life and limb or damage to material assets may arise during use.
It is therefore extremely important that the intended use is observed and that the systems are in perfect working order. The owner must comply with the conditions given below.
Insofar as there are no separate contractual stipulations, the technical specifications in the MIETZSCH planning guideline valid at the time the contract is concluded shall apply.

a. Requirements with respect to the conveying medium and the surroundings

- The permissible temperature range shall be complied with in accordance with the pressure conditions and the material. Particular caution is required if negative pressures occur in components, particularly pipes and ducts.
- In the case of components such as throttle dampers and shut-off dampers, non-return dampers and louvre dampers, components with baffle plates etc., the permissible flow speeds must be complied with.
- The chemical resistance of the plastics used to the conveying medium must be tested.
- In the case of explosive gases, the ignition temperature and the explosion hazard zone must be taken into account. It may be necessary to use conductive plastics.
- The medium must not contain foreign particles and has to be practically dustless. Higher dust loads or impure gases with a tendency to produce deposits may cause damage, particularly on moving parts.
- Condensate must be able to drain unhindered. Disposal must be environmentally responsible.
- Fasteners must be dimensioned and mounted appropriately.
- The system must be installed so that it is free of shocks and vibrations and it must not be subjected to external mechanical stresses from connected components.

b. Requirements with respect to the mode of operation

- The system may only be operated within the limits of use specified by the manufacturer. In particular, the system may only be operated at increased or reduced system pressure or at higher temperatures after consultation with the manufacturer.
- The technical conditions for electrical connection of components with electrical units (electric motors, actuators) must be complied with.

Non-compliance with the aforementioned requirements is considered improper use. The manufacturer is not liable for any damage resulting from such non-compliance and improper use.

1.3 Organisational measures

- All installation and repair work on the system, particularly welding work, must be carried out by trained and reliable personnel only.
- Only qualified personnel are permitted to work on electrical equipment (motors, control and regulating devices etc.) (refer to DIN VDE 0105 or IEC 364).
- Repairs of explosion-proof components must be carried out by the manufacturer or in consultation with the manufacturer.
- Maintenance intervals for the system are to be specified by the owner, in consultation with the manufacturer, if necessary.
- In the event of any changes that affect safety (e.g. abnormal noises on fans and dampers, gas leaks, externally visible damage and defects), the system is to be shut down and repaired.
- All repairs must be carried out with original spare parts.
- Protective and safety devices (e.g. safety screens) must be in place and fully functional. No modifications of the system that affect safety are permitted.
- No additional, third-party fittings may be attached to the plastic components or to their fastening elements**.**

1.4 Residual risks

- Although all components, particularly the fans, are of a reliable design and their manufacture is controlled by a quality assurance system, there is still a residual risk, especially with the fans. Therefore, the vicinity of the fan must be secured so that personal injuries and material damage are excluded in the event of a malfunction or an accident. Fans with a shatter guard should be used where possible.
- Since it is not always possible to prevent leakages of small amounts of conveyed medium or condensate due to wear of the system, suitable safety measures should be implemented, depending on how dangerous the gas is.
- For high-powered systems, in particular, the sound pressure level may exceed the permissible limit value for sound immissions defined in the applicable accident prevention regulations. Suitable measures must be implemented to protect persons within this zone from noise-related injuries.

2. Transport and storage

- Loading work is only to be carried out by experienced personnel. Hoisting gear and hoist attachments with sufficient load-bearing capacity are to be used.
- When transporting the system, attention must be paid to the fact that plastics can be damaged by collisions, particularly at low temperatures. The components must be properly secured against movement, tipping and collisions.
- Suitable lifting tackle is to be used for crane transport, e.g. cross beams.
- In the event of prolonged storage, plastic parts are to be protected against climatic conditions, particularly against exposure to UV radiation. Dark-coloured tarpaulins and plastic films are unsuitable for protection against climatic conditions. Exposure to intense sunlight can heat the components and thus damage them.

3. Installation and commissioning

- Before installation, check all components for damage sustained during transport.
- To ensure that no foreign matter can get into the system and thus destroy it, check that all components, particularly those upstream and downstream of the fans, are fully functional and securely mounted. Above all, this involves dampers and gate valves, but also guide vanes of elbow ducts etc.
- The fans are connected using elastic pipes. System components must not exert any mechanical loads on the fan.
- Expansion compensation must be ensured. Note that the coefficient of thermal expansion is significantly greater than that of steel (approximately 14 times greater than steel in the case of polypropylene).
- If necessary, connect condensate drainage lines.
- The electrical system for fans, actuators and the control and regulation technology must be installed by a qualified electrician according to standard practices. Check the electrical connection values (voltage and frequency).
- Check the inside of the system and remove any foreign objects that may have been left behind.

Pay special attention to forgotten tools and leftover materials.

Initial commissioning
Before commissioning, check that the system has been installed in accordance with the project and that it will be operated in accordance with the conditions of use (see Section 1.2). Cordon off the vicinity of fans so that there is no risk of personal injuries or damage to material assets if damage has been sustained during transport or due to foreign bodies.
Proceed in the same way when switching on the system after a repair or a long period of downtime.
Abnormal noises often indicate a faulty system, particularly in the case of fans. Contact the manufacturer if this occurs during the warranty period. Unauthorised manipulation and modifications void the warranty.

4. Operation and maintenance

At all times, operate the system in accordance with the safety regulations and the intended use stipulated in Section 1. Inspections must be carried out on a regular basis. The inspection intervals must be specified by the owner depending on the respective operating conditions (soiling, operating time, temperature, etc.). Account must be taken of possible hazards and damage occurring during downtime or in the event of a malfunction or an accident.
Recommended inspection interval: Every 5,000 operating hours or once a year.

The inspection must include the following:

- In the case of systems that require a specified air exchange for specific safety reasons, the volume flows must be checked and, where necessary, monitored.
- All electrical connections and equipment
- All components for obvious damage
- Fans and dampers (fire dampers according to the relevant regulations)
- Soiling and leaks

The system is to be inspected thoroughly after approximately ten years. A specialist must then decide on its further use.

5. Repair instructions

When working on the system, always switch off fans and other machinery. Take measures to ensure that they cannot be switched on during repair work. After repairs, proceed as for initial commissioning.


Cleaning fluids must not dissolve the plastics.


Do not use hard objects for mechanical cleaning.

6. Disposal

MIETZSCH plastic systems are designed to last. Disposal issues therefore only arise after many years of operation. The individual components are not regarded as hazardous waste according to current legislation.

- Scrap metal components (fasteners, screws, motors etc.) in the usual manner
- Cleaned (!) Plastic components can be disposed of as normal waste.

The owner must dispose of residual materials and deposits in the fan in an **environmentally acceptable** manner.