

**OPERATING INSTRUCTIONS FOR:
THE
AIRTEC RANGE
OF
SIDE CHANNEL BLOWERS**

INTRODUCTION

To ensure safe operation of your Airtec side channel blower please read this instruction manual and pay particular attention to instructions marker with the following signs: -

DANGER indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

WARNING indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

CAUTION indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injuries.

1.1 Application

The Side Channel Blower is a complete unit ready for immediate installation either as a vacuum pump or as a compressor. It is designed for handling dry air and other non-flammable, non-corrosive and non-explosive gases only.

1.2 Suction and compression pressures

The drive motor can be loaded to the total differential pressures given in the Technical Data

Blowers with limited performance curves in the high-pressure range should be fitted with the relative pressure relief valves in order to avoid an overload of the motor.

Pressure relief valves can be mounted directly on the outlet and vacuum relief valves directly on the inlet of the blower.

1.3 Temperatures

The maximum permissible combined ambient temperature and gas temperature at the inlet is 40 degrees centigrade.

2. OPERATION

2.1 Transport and storage

When lifted by a crane, the blowers must be secured at the eyebolt on the pump casing, where applicable.

Pay attention to the load bearing capacity of the hoisting equipment (see table 1 for weight data).

The rolling contact bearings should be replaced with new ones if more than four years have elapsed between delivery and machine commissioning under favourable circumstances (storage in a dry, dust free and vibration free room). Under unfavourable circumstances, this period is considerably reduced.

2.2 Installation

Airtec Side Channel Blowers can be installed and mounted in any position, horizontally or vertically. Quiet vibration free running is achieved by means of firm foundation or stable mounting conditions.

Keep ventilation gratings and opening clear.

Warning On installation or after maintenance, check that the pump rotation is correct as specified by the arrow.

Warning Do not operate the blower with the outlet blocked.

Solid particles and impurities must be eliminated before entering the blower by installing a filter on the intake side. Open intake or outlet should be fitted with corresponding protective screens.

If the blower is mounted on its cover or near to a wall, the minimum clearance to the front cover should be 30 mm.

On the discharge side, the cover, impeller, silencer housing must not come into contact with flammable materials, (e.g. paper, cloth wood, etc.).

The blower noise is reduced by built in silencers. In the case of free gas intake or exhaust, the noise can be further reduced by attaching additional silencers. In order to reduce noise emission even further, these units should not be attached to components that conduct or radiate sound (such as thin walls, metal plates etc.) if necessary, provides intermediate sound absorbent layers.

2.3 Electrical connection

DANGER The electrical power supply must be isolated in accordance with local requirements before any work is performed on the equipment.

The system voltage and frequency must be the same as stated on the rating plate. ± 5 percent voltage and ± 2 percent frequency deviations from the rated values are permitted without the necessity of de-rating the output. The links should be arranged and connected according to the circuit diagram in the terminal box. The protective earth conductor should be connected to the terminal.

CAUTION High surface temperatures of more than 70 degrees centigrade can occur at the machines. No heat sensitive parts, such as normal leads or electronic components to make contact with or be attached to them. If necessary, insulation measures must be provided!

The rated motor currents apply for 40 degrees centigrade gas inlet and ambient temperatures. At gas inlet and ambient temperatures of 25 degrees centigrade, a 6 percent higher motor current is permissible.

Select motor circuit breakers to match the rated motor current. Where converters are used in the incoming power supply, high frequency current and voltage harmonics in the motor feeders can cause electromagnetic interference. That is why shielded feeders are recommended.

Exceeding the operating speed (see rating plate) increases noise and vibration, and also shortens the useful life of bearing grease and the bearing replacement interval. To prevent damage arising from excessive speeds, it is advisable to consult the manufacturer concerning speed limits.

NOTE: AIRTEC SIDE CHANNEL BLOWERS MUST NOT BE OPERATED WITH CLOSED INTAKE OR OUTLET NOZZLES

2.4 COMMISSIONING

CAUTION If the machine is started up without being connected or fastened, for example, for test purpose the initial torque of the motor may cause the unit to move suddenly and topple over.

Note: For safe operation of the machine the following conditions, as a minimum must be observed:

The machine is assembled and operated in accordance with the data on the plate and information supplied by this manual (voltage, current, frequency, connection model, type of protection).

When frequency converters are used, operating speeds are not to exceed those permitted according to plate data.

The machine is properly assembled, aligned and connected to piping or hoses as appropriate.

The elevation of the installation location is taken into account when adjusting the pressure control valves.

The direction of rotation of the machine is as specified.

All fastening screws/bolts. Fasteners and electrical connections are tightened.

The earthing and equipotential bonding connections have been made properly.

All measures have been taken to protect against contact with moving or energized parts.

CAUTION The intake ports must be sited so that no foreign elements are sucked in and ejected through the discharge port (hazard for eyes and skin).

CAUTION When air is sucked in from the atmosphere, the intake ports must be covered with protective devices (gratings or the like) in order to

prevent foreign elements including parts of the body and clothing being sucked in.

DANGER Covers, which prevent contact with active or rotating parts, are not to be open during operation.

3 MAINTENANCE

DANGER Before any work is performed on the machine or equipment, especially covers over moving parts are removed. The machine should be properly disconnected from the power supply. Wait until the machine has stopped completely.

DANGER Do not connect the power supply until the machine has been completely assembled.

3.1 Cleaning

When there are any deposits of fluff or dust, clean the entire surface of the Airtec Side Channel Blower.

When required by the operating condition, dismantle by removing screws or nuts from compressor cover. Do not lose these nuts; they will be required for re-assembly. Remove and clean the cover. Clean impeller and housing after carefully covering rolling contact bearing, reassemble in the reverse order.

WARNING After fastening screw/bolts are removed, some parts are just in centering fittings. Even during proper dismantling it is still possible that some heavy parts may therefore suddenly become loose and drop off, possibly causing injuries and damage. Take suitable measures to secure all parts being worked on.

3.2 Lubrication

The following applies in connection with normal operating conditions (gas intake and ambient temperatures 40 degrees centigrade maximum, and permissible total differential pressure): After approximately 20,000 hours of operating, or after two and a half years at the latest, the rolling contact bearings and adjacent spaces should have the spent grease removed and be

recharged with fresh grease. About 50 percent of the free space in the rolling contact bearings and about 65 percent of the adjacent grease spaces should be fitted with grease.

Closed rolling contact bearings should be replaced with new ones; their adjacent grease spaces are not filled with grease.

The information given concerning bearing life and grease useful life applies to works fitted bearing and grease. Always avoid mixing different types of grease.