

Operating Instructions for ATEX Radial Fans

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Example

B1. Data sheet, characteristic curve, noise data

The fan must only be operated in accordance with the points and operating conditions described in the data sheet.

Excess speeds, temperatures and pressures in particular can lead to damage to the fan and danger to persons. The transport of gases other than those specified can also be dangerous due to differing combustibility or permeability.

The noise data refer to reproducible free-field conditions (VDI 3731). Higher noise levels will occur in enclosed spaces due to reflections from the walls.

B3. Direct-driven fans without belt drive

In the case of direct-driven fans, the impeller is mounted on a specially extended motor shaft. Replacement of the motor requires access to the fan housing, and must therefore be carried out only by qualified and authorised personnel.

B4. Motors for frequency-regulated operation (Option)



Motors driven via frequency converters (FC) must undergo specific type testing which allows this operating mode in a specific Ex-zone. The suitability for operation with a frequency converter and the approved speeds/frequencies (min/max) are specified in the data sheet of the fan.

Motors not approved for this purpose must not be operated via the frequency converter.

The thermistor sensors of the motors must be connected to the FC and evaluated by it.

The FC must be set so that stresses caused by rapid acceleration or braking are avoided as far as possible. For impeller diameters of less than 1 m, set the start-up time to at least 30 s. Slow regulation reduces unnecessary stresses during acceleration and frequent braking, which can lead to fatigue failures.

The fan must not be operated at resonance frequency. This speed range must be passed through quickly, and blocked on the FC for permanent operation. The resonance frequency is determined by the interaction between the fan, vibration dampers and setup conditions, and must be determined on commissioning. As a rule, no impermissible resonance occurs in the normal speed range.

The accelerations resulting from the process controls must not exceed 0.45 rad/s^2 , except when passing through the natural frequencies.

Experience has shown that in the case of very frequent speed changes with frequency-regulated operation, fatigue failures of the material can occur. Replace the impeller after a maximum of 0.5 million speed changes (this corresponds to a service life of 2 years at 4,000 operating hours/year and a change frequency of one speed change per minute). The fatigue strength is reduced by often passing through the natural frequencies during speed changes.

B5. Lubrication

Lubricants and lubrication intervals

The motor bearings are provided with permanent lubrication.

B7. Lip seal lubricant dispenser (Option)

FPM lip seal

The material of the seal is suitable for the medium and the temperature defined in the data sheet.



The transport of other gases, contamination or operation at high temperatures can lead to premature wear.

Operation at higher speeds than those specified also leads to rapid wear.

The sealing effect is impaired by wear.

The replacement of the lip seal usually requires the dismantling of the impeller, and because this is an ATEX device, must therefore be carried out only by a suitably authorised person.

To reduce wear and prevent overheating, the lip seal of fast-running shafts is lubricated with a special lubricant by a lubricant dispenser. The lubrication point must not be confused with the lubrication nipples of the roller bearings.

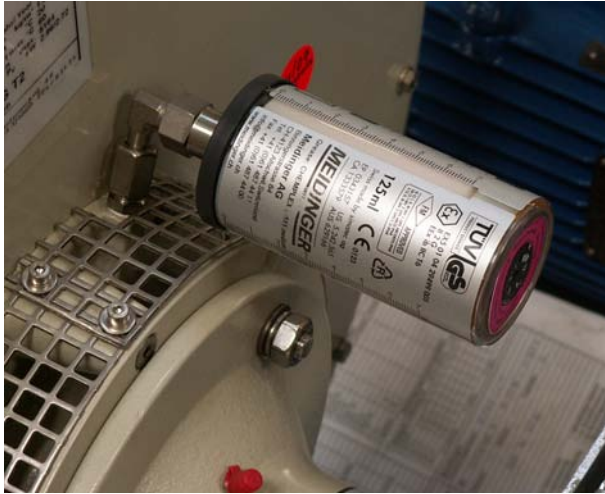
The lack of appropriate seal lubrication creates the risk of

- premature wear and consequent lack of integrity
- overheating at the lip seal beyond the permissible limit with the consequent risk of ignition.

Proper seal lubrication is therefore very important for reliable operation. Please note the following:

- Use only the special original lubricant specified. Usual greases are not suitable.
- Check the remaining grease level in the dispenser from time to time in the window at the side.
- Replace the lubricant dispenser after 12 months at the latest. In case of permanently increased temperature above 25 °C, the dispenser must be replaced earlier (e.g. at 45 °C after 6 months)
- Following a change, activate the dispenser (set to '12') and note the date of the change or activation on the dispenser. For new fans, the dispenser is usually activated at the works.

Replacement dispensers are available under the order number 70807-125.
The lubricant dispenser should not be stored for longer than 6 months before activation.



Activation: Set to '12' with 3 mm
Allen key , (12 months lubrication).