

## Maintenance instructions for Rosenberg fans



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### **COMMISSIONING PROTOCOL**

## SAFETY INFORMATION

### 1. Working instructions

#### Before any work whatsoever on the fan, the following must be in compliance:

- Tasks must be carried out only by qualified specialist personnel in compliance with these instructions and the applicable regulations.
- Use an isolator to disconnect the drive motor from the mains!
  - If there is no isolator, disconnect all the drive motor's terminals from the mains.
- Ensure that it is not possible for the fan to be started unexpectedly during maintenance or repair work (e.g. use a lockable isolator switch).
- Wait until the rotor has come completely to a standstill!
- Check the surface temperature for the danger of burns.
- Before maintenance work, use suitable media to remove harmful or dangerous materials which may have entered the fan in combination with the conveyed material.
- Carry out recommissioning only after execution of the necessary safety tests.

Excluded from the above are tasks which can be carried out only in the operational state while complying with the applicable safety and accident prevention regulations, e.g. measurement of oscillation or shock pulses, the use of lubrication equipment to relubricate bearings during operation.

Failure to comply with these items may result in risk to life and limb for the maintenance personnel. If the state of the fan means that suitable repair measures are no longer possible, then the fan must immediately be taken out of use, and possibly replaced.

### 2. Maintenance intervals

To maintain operation and safety, we recommend that at regular intervals fans are inspected for their functioning and condition by qualified expert personnel or by a specialist company, and that this is documented.

For this, the directives and safety regulations applicable to the specialist application must be complied with. Failure to comply may result in risk to life and limb for the maintenance personnel. Maintenance and inspection of fans, as per VDMA 24186-1:

#### The operator must specify and carry out regular inspections and cleaning, depending on the local conditions, especially if:

- the conveyed material can cause imbalance in the rotor, e.g. through corrosion, abrasion, or material build-up.
- wear or contamination of the housing (corrosion, abrasion, material build-up) occurs
- there are particular environmental conditions, e.g. environmental temperatures  $>40^{\circ}\text{C}$  or  $<-20^{\circ}\text{C}$ , temperature variations  $> 20\text{K}$ , sea air, or temperatures/humidities at which the creation of condensation may be expected.
- frequent changes in loads arise (! design of the motors for permanent operation S1)
- **operation is not in a fixed location**, e.g. railway operations

If required, please contact our service partner in relation to this.

The contact addresses are to be found in the attachment, or else please phone +49 (0)7940 / 142- 209 (-210).

### 3. Maintenance tasks

Type, scope, frequency, and other additional necessary activities, must be decided according to the use of the fans in the conditions predominant at the installation location. The check list below provides points of reference for the tasks to be carried out.

#### 3.1. Measures on the fan / motor

	At Regular Intervals	As Required
Confirm that the equipment is being used as intended.		X
General inspection for obvious defects	X	
Inspect the intake area, e.g. for contamination or loose parts	X	
Inspect equipment and its surface protection for contamination, damage, or corrosion, and correct it appropriately if required	X	
Inspect the rotor for damage and imbalance, and carry out oscillation measurements if necessary (see below)	X	
Ensure correct installation	X	
Inspect bearings, especially - ease and evenness of running, and lack of play - atypical running noises - grease collars, loss of oil	X	
Inspect flexible connections for leaks	X	
Confirm the correct functioning of electrical and mechanical protective devices	X	
Where necessary, confirm that the condensate drain functions correctly	X	
When cleaning to maintain correct functioning, do not use high pressure or steam jet cleaners, or aggressive cleaning agents		X
Inspect screwed connections, and tighten if required, complying with the specified tightening torques		X
Check that connection terminals and cables or sockets are tight, and that they operate correctly; fix faults appropriately where required - tightness of fit - corroded parts - damp - visible damage		X
Ensure an even gap between the rotor and the intake nozzle	X	
Ensure that maker's plate data is legible	X	

### 3.2. Measures while the fan is running, taking into account safety instructions

#### Motor

	At Regular Intervals	As Required
Check the fan for functioning, operational readiness, quiet running, and noise generation	X	
Confirm that the rotor is running in the correct direction (at all speed levels)	X	
Check the consumption of current with respect to phase symmetry	X	
Replace bearings at the end of the grease consumption period, or regrease with approved grease.		X
Where applicable, check the functioning of vibration dampers	X	
Confirm the correct functioning of electrical and mechanical protective devices	X	

At the end of the grease usage period, and also because of ageing of the grease, in standard applications it is recommended to replace the bearings after approx. 27,000 hours. For regreasable bearings, the specified regreasing intervals must be complied with.

Check the fan regularly for mechanical oscillations, and document them. Maximum vibration velocity in a radial direction to the bearings or the bearing shield of the motor:

- Rotors with nominal diameters >315 mm: 4.5 mm/s.
- Rotors with nominal diameters up to 315 mm: 7.1 mm/s

#### 4. Replacement parts

Use only original replacement parts as per the fan-specific replacement parts list created by Rosenberg Ventilatoren GmbH. This can be generated upon request. If unapproved replacement parts or auxiliary materials are used, Rosenberg Ventilatoren GmbH accepts no liability whatsoever, and all guarantee claims are nullified.

Replacement parts in mint condition must be used, especially for components susceptible to ageing, such as roller bearings, rubber parts, or flexible connections.

#### 5. Measures for extended periods of disuse

For extended transport durations, and intervals of several months between delivery and commissioning:

- Keep and transport fans and motors in dry conditions, protected from dust and the elements. Block intake and outlet openings.
- Store fans and motors free from vibration (prevent damage to roller bearings).
- Intensively move the fan rotor and drive motor at short intervals (prevent corrosion inside the roller bearings caused by lack of movement, work the grease in).
- During commissioning, pay attention to bearing noise.
- For periods of disuse greater than 1 year, replace installed bearings.
- Maximum environmental temperature during storage is 80°C

## 6. Commissioning protocol

Especially when operating several identically built fans, for monitoring and early recognition of possible system errors it is recommended to record the relevant data for the fans during initial commissioning. Please request a commissioning protocol if required.

Defects which are developing can be recognised in good time and avoided, by means of preventative measures. Especially in sensitive applications which require high dependability, it is recommended to monitor critical values such as vibrations, flows, rotational speeds, or temperatures.

## 7. Tightening torques

Recommended tightening torques for bolts of strength class 8.8 [Nm]							
M4	M5	M6	M8	M10	M12	M16	M20
2.5	6	10	25	49	86	210	320

Recommended tightening torques for taper lock bushes				
1210	1610	2012	2517	3020
16	16	27	40	75

Recommended tightening torques for cable screw glands							
	M12	M16	M20	M25	M32	M40	M50
Metal	5	8	10	12	15	18	20
Plastic	1.5	2	4	4	6	6	8

## 8. Disposal

Removed components and parts which are no longer needed should be sent for recycling. Lubricants, auxiliary materials, or electronic components should as a rule be disposed of only by authorised specialist companies.

If disposal is carried out incorrectly, there may be environmental damage, for which Rosenberg Ventilatoren GmbH accepts no responsibility whatsoever.

## 9. Further documentation

Fan-specific operating instructions  
Motor-specific operating instructions  
Changing ball bearings for Rosenberg motors  
Example of spare parts list  
Faults list  
Commissioning protocol (in the attachment)

## 10. Manufacturer's address

Rosenberg products are manufactured to the state of the art at the time of delivery, and comply with the applicable regulations. Extensive material, functional, and quality testing ensures great effectiveness and a long working life.

For all questions relating to our products, please contact the manufacturer of your air technology equipment, our subsidiaries, or us directly at:



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# COMMISSIONING PROTOCOL

## Fan / order data:

Item number: \_\_\_\_\_  
 Fan designation: \_\_\_\_\_  
 Order number: \_\_\_\_\_  
 Equipment designation: \_\_\_\_\_  
  
 Conveyed material: \_\_\_\_\_  
 Frequency inverter operation: \_\_\_\_\_  
 Direction of rotation: \_\_\_\_\_

## Parameters:

Environmental temperature [°C]: \_\_\_\_\_  
 Temperature of conveyed material [°C]: \_\_\_\_\_  
 Voltage / frequency [V / Hz]: \_\_\_\_\_  
 Current L1 / L2 / L3 [A]: \_\_\_\_\_  
 Rotational speed [1/min]: \_\_\_\_\_  
 Noise level at a distance of 1m [dB]: \_\_\_\_\_  
 Total vibration velocity 1\* / 2\* / 3\* [mm/s]: \_\_\_\_\_

## Peak vibration

Measurement no. / f [Hz] / v [mm/s]

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

## Winding resistance [Ohm]

U1-U2 / V1-V2 / W1-W2

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Description of measurement location 1\* \_\_\_\_\_  
 Description of measurement location 2\* \_\_\_\_\_  
 Description of measurement location 3\* \_\_\_\_\_

Installation location: \_\_\_\_\_ Date: \_\_\_\_\_ Tester: \_\_\_\_\_