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› R3G500-FA28-03 Ebm Papst EC Centrifugal Fan User Manual

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R3G500-FA28-03 Ebm Papst EC Centrifugal Fan User Manual

Model: R3G500-FA28-03

1. INTRODUCTION

This manual provides essential information for the safe and efficient operation, installation, and maintenance of the Ebm Papst R3G500-FA28-03 EC Centrifugal Fan. Please read this manual thoroughly before installation and operation to ensure proper use and to prevent damage or injury. Keep this manual for future reference.

2. SAFETY INFORMATION

Always observe the following safety precautions to reduce the risk of electric shock, injury, or fire:

- Ensure that all electrical connections are made by a qualified electrician and comply with local and national electrical codes.
- Disconnect power to the fan before performing any installation, maintenance, or troubleshooting.
- Do not operate the fan with damaged wiring or if the fan itself is damaged.
- Keep hands, hair, and loose clothing away from moving parts during operation.
- Ensure proper ventilation around the fan to prevent overheating.
- The fan is designed for specific voltage and frequency. Verify compatibility before connection.
- Wear appropriate personal protective equipment (PPE) during installation and maintenance.

3. PRODUCT OVERVIEW

The Ebm Papst R3G500-FA28-03 is an EC Centrifugal Fan designed for ventilation and heat dissipation applications. It features a robust design with a die-cast aluminum electronics housing and a PP plastic impeller, offering a high degree of protection (IP55).

Key features include:

- **Model:** R3G500-FA28-03
- **Brand:** Ebm Papst
- **Type:** EC Centrifugal Fan

- **Motor:** M3G150-FF
- **Nominal Voltage:** 400VAC (380/480VAC range)
- **Power Consumption:** 2850W
- **Current Draw:** 4.4A
- **Degree of Protection:** IP55



Figure 3.1: Front view of the R3G500-FA28-03 EC Centrifugal Fan, showing the impeller and housing.



Captain Fan

Figure 3.2: Rear view of the fan, highlighting the motor assembly and mounting features.



Figure 3.3: Side profile of the fan, illustrating its compact design.

4. SETUP AND INSTALLATION

Proper installation is crucial for the fan's performance and longevity. Refer to the technical drawing for precise dimensions and mounting points.

4.1 Pre-Installation Checks

- Unpack the fan carefully and inspect for any shipping damage.
- Verify that the power supply (400VAC, 50/60Hz) matches the fan's requirements.
- Ensure the mounting surface is stable and capable of supporting the fan's weight.
- Confirm adequate clearance for airflow and maintenance access.

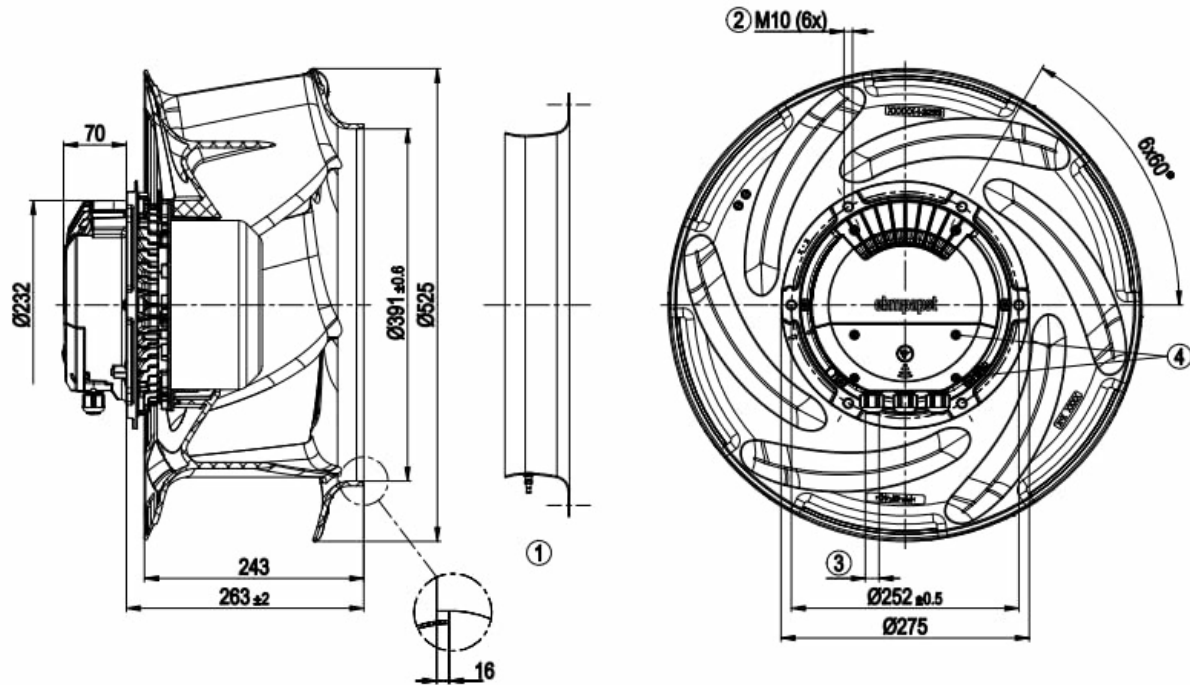
4.2 Mounting

The fan should be securely mounted using appropriate fasteners. Refer to Figure 4.1 for detailed dimensions and

mounting hole locations.

3. TECHNICAL DATA

3.1 Product drawing



All dimensions in mm.

1	Accessory part: Inlet ring 50355-2-4013 with pressure tap (k-factor: 375) not included in scope of delivery
2	Max. clearance for screw 20 mm
3	Cable diameter min. 4 mm, max. 10 mm, tightening torque 4 ± 0.6 Nm (The tightening torque is designed for PVC cables. If the cable materials are different, the tightening torque may have to be adjusted)
4	Tightening torque 1.5 ± 0.2 Nm

Figure 4.1: Technical drawing showing fan dimensions and mounting details. Note the M10 (6x) mounting points.

4.3 Electrical Connection

Connect the fan to the power supply using a 4-Pin power connector. Ensure correct polarity and secure connections. The nominal voltage is 400VAC, with a range of 380/480VAC. The fan draws 4.4A at 2850W power consumption.

- Always disconnect power before making electrical connections.
- Use appropriately sized wiring for the fan's current draw.
- Ensure all connections are insulated and protected from environmental factors.

5. OPERATING INSTRUCTIONS

Once installed and connected, the fan is ready for operation. The fan operates at a speed of 1900 RPM. The direction of rotation is clockwise when viewed toward the rotor.

Refer to the nominal data and technical data tables below for detailed operating parameters.

3.2 Nominal data

Motor	M3G150-FF
Phase	3~
Nominal voltage / VAC	400
Nominal voltage range / VAC	380 .. 480
Frequency / Hz	50/60
Method of obtaining data	ml
Status	prelim.
Speed (rpm) / min ⁻¹	1900
Power consumption / W	2850
Current draw / A	4.4
Min. ambient temperature / °C	-40
Max. ambient temperature / °C	40

ml = Max. load · me = Max. efficiency · fa = Free air
 cs = Customer specification · ce = Customer equipment
 Subject to change

3.4 Technical description

Size	500 mm
Motor size	150
Rotor surface	Painted black
Electronics housing material	Die-cast aluminum
Impeller material	PP plastic
Number of blades	6
Direction of rotation	Clockwise, viewed toward rotor
Degree of protection	IP55
Insulation class	"F"
Moisture (F) / Environmental (H) protection class	H1
Ambient temperature note	Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), use must be made of a fan design with special low-temperature bearings.

Figure 5.1: Operating instructions with nominal data and technical specifications.

5.1 Ambient Temperature Considerations

The fan is designed for a minimum ambient temperature of -40°C and a maximum of +40°C. Occasional start-up at temperatures between -40°C and -25°C is permitted. For continuous operation at ambient temperatures below -25°C (such as refrigeration applications), a fan design with special low-temperature bearings must be used.

6. MAINTENANCE

Regular maintenance ensures optimal performance and extends the lifespan of your Ebm Papst fan.

6.1 Cleaning

- Periodically inspect the impeller and housing for dust, dirt, or debris accumulation.
- Disconnect power before cleaning.
- Use a soft brush or compressed air to remove dust. For stubborn dirt, a damp cloth with mild detergent can be used, ensuring no moisture enters electrical components.
- Ensure the fan is completely dry before reconnecting power.

6.2 Inspection

- Check for any signs of wear or damage to the impeller blades or housing.
- Inspect electrical wiring for fraying, cracks, or loose connections.
- Listen for unusual noises during operation, which may indicate bearing issues or imbalance.

The motor uses ball bearings, which are typically sealed and require no lubrication. If unusual noises persist, professional inspection may be required.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
Fan does not start	No power supply; Incorrect wiring; Motor fault	Check power connection and circuit breaker; Verify wiring against diagram; Contact support if motor fault is suspected.
Fan runs but with reduced airflow	Blocked intake/exhaust; Dirty impeller blades	Clear any obstructions; Clean impeller blades as per maintenance section.
Excessive noise or vibration	Loose mounting; Damaged impeller; Bearing wear	Tighten mounting bolts; Inspect impeller for damage; Contact support for bearing issues.
Overheating	Insufficient ventilation; Overload; High ambient temperature	Ensure adequate airflow around the fan; Verify load is within specifications; Check ambient temperature.

8. SPECIFICATIONS

Detailed technical specifications for the R3G500-FA28-03 EC Centrifugal Fan.

Parameter	Value
Model	R3G500-FA28-03
Brand	Ebm Papst
Type	EC Centrifugal Fan
Motor	M3G150-FF
Nominal Voltage	400VAC
Nominal Voltage Range	380/480VAC
Frequency	50/60Hz
Speed	1900RPM
Power Consumption	2850W
Current Draw	4.4A
Min. Ambient Temperature	-40°C
Max. Ambient Temperature	+40°C
Electronics Housing Material	Die-cast aluminum
Impeller Material	PP plastic
Degree of Protection	IP55
Insulation Class	B
Motor Bearing	Ball bearing
Power Connector Type	4-Pin
Cooling Method	Air
Compatible Devices	Desktop, Gaming Console, Graphic Cards, Receiver
UPC	758328520433

9. WARRANTY AND SUPPORT

All units supplied are fully tested to ensure quality and performance. While specific warranty details are not provided in this manual, for any inquiries regarding product specifications, troubleshooting, or support, please contact your supplier or the manufacturer, Ebm Papst. The supplier, Captain Fan, specializes in ventilation and heat dissipation products and industry control accessories.

For further assistance, refer to the contact information provided by your point of purchase.