

## HRSTAR R3G500-RA28-03

# HRSTAR R3G500-RA28-03 EC Centrifugal Fan Instruction Manual

Model: R3G500-RA28-03

## 1. INTRODUCTION

This manual provides essential information for the safe and efficient installation, operation, and maintenance of the HRSTAR R3G500-RA28-03 EC Centrifugal Fan. This fan is designed for use in various air handling applications, including Fan Filter Units (FFU), Air Handling Units (AHU), and general air conditioning systems. Please read this manual thoroughly before attempting any installation or operation.

### **Important Safety Notice:**

- Installation and maintenance must be performed by qualified personnel only.
- Always disconnect power before servicing the unit.
- Failure to follow these instructions may result in electric shock, fire, or serious injury.

## 2. PRODUCT OVERVIEW

The HRSTAR R3G500-RA28-03 is an energy-efficient EC (Electronically Commutated) centrifugal fan, engineered for optimal airflow and quiet operation in demanding industrial and commercial environments. Its robust design ensures reliable performance in FFU, AHU, and air conditioning applications.



Figure 2.1: Front view of the HRSTAR R3G500-RA28-03 EC Centrifugal Fan. This image shows the main intake opening and the fan blades visible within the housing.



Figure 2.2: Angled view of the HRSTAR R3G500-RA28-03 EC Centrifugal Fan, highlighting the impeller design and robust casing.

### 3. SPECIFICATIONS

Key technical specifications for the HRSTAR R3G500-RA28-03 EC Centrifugal Fan are detailed below:

| Feature                  | Specification  |
|--------------------------|--|
| Model Number             | R3G500-RA28-03                                       |
| Brand                    | HRSTAR (Manufactured by ebmpapst)                    |
| Voltage                  | 400 Volts (380-480VAC, 50/60Hz)                      |
| Wattage                  | 3 Watts (Nominal, actual power consumption can vary) |
| Maximum Rotational Speed | 1850 RPM   |
| Cooling Method           | Air  |
| Material                 | Copper (Internal components)                         |
| ASIN                     | B093GYRBSF   |
| UPC                      | 735252155412   |



Figure 3.1: Close-up of the product label, showing model number R3G500-RA28-03, voltage (380-480VAC), frequency (50/60Hz), and other technical data.

## 4. SAFETY INSTRUCTIONS

---

Adherence to these safety guidelines is crucial for preventing injury and damage to the equipment.

### 4.1 Electrical Safety

- Ensure the power supply matches the fan's voltage requirements (400V).
- All electrical connections must comply with local and national electrical codes.
- Use appropriate circuit protection (fuses/breakers).
- Verify proper grounding to prevent electric shock.
- Never operate the fan with damaged wiring or connectors.

### 4.2 Mechanical Safety

- Keep hands, tools, and loose clothing away from rotating parts.
- Ensure the fan is securely mounted to prevent vibration and detachment.
- Do not obstruct the air intake or exhaust.

### 4.3 Environmental Considerations

- Install the fan in a clean, dry environment, free from excessive dust, moisture, or corrosive gases.
- Ensure adequate ventilation around the fan for proper heat dissipation.
- Operating temperature limits must be observed.

## 5. SETUP AND INSTALLATION

---

Proper installation is critical for the fan's performance and longevity.

### 5.1 Pre-Installation Checks

- Inspect the fan for any visible damage from shipping.
- Confirm all necessary mounting hardware and tools are available.
- Verify the installation location meets environmental and space requirements.

### 5.2 Mounting

The fan should be mounted on a stable, vibration-free surface. Use appropriate fasteners for the weight and operating conditions of the fan. Ensure there is sufficient clearance for airflow and future maintenance.



Figure 5.1: Side view of the fan, illustrating potential mounting points and overall dimensions for installation planning.

### 5.3 Electrical Connection

Connect the fan to a 400V, 3-phase power supply. Refer to the wiring diagram provided on the fan's label or in separate documentation for specific terminal connections. Ensure all connections are tight and insulated.

- **L1, L2, L3:** Phase connections (380-480VAC).
- **PE:** Protective Earth/Ground connection.

It is recommended to install an emergency stop switch and appropriate overcurrent protection in the power circuit.

## 6. OPERATION

Once installed and electrically connected, the fan can be operated.

### 6.1 Initial Start-up

1. Double-check all electrical connections and mounting security.
2. Ensure no foreign objects are near the fan's intake or exhaust.

3. Apply power to the unit. The fan should start smoothly.
4. Monitor for unusual noises, vibrations, or smells during the first few minutes of operation. If any are detected, immediately disconnect power and investigate.

## 6.2 Normal Operation

The EC motor allows for efficient and controlled operation. The fan will maintain its set speed or airflow based on the control input (if applicable). Regularly monitor the fan's performance and the system's airflow to ensure optimal operation.

## 7. MAINTENANCE

---

Regular maintenance ensures the fan's longevity and consistent performance.

### 7.1 Scheduled Inspections

- **Monthly:** Visually inspect the fan for dust accumulation on blades and housing. Check for any loose connections or signs of wear.
- **Quarterly:** Check mounting bolts for tightness. Inspect electrical wiring for fraying or damage. Listen for unusual bearing noises.
- **Annually:** Perform a thorough cleaning of the impeller and housing. Verify motor cooling fins are clear of debris.

### 7.2 Cleaning Procedures

**Caution: Always disconnect power before cleaning.**

- Use a soft brush or compressed air to remove dust and debris from the impeller blades and internal surfaces.
- For stubborn dirt, a damp cloth with a mild detergent can be used, ensuring no liquid enters the motor or electrical components.
- Allow all parts to dry completely before re-applying power.

## 8. TROUBLESHOOTING

---

This section provides solutions to common operational issues.

| Problem                    | Possible Cause  | Solution   |
|----------------------------|---|--|
| Fan does not start         | No power supply<br>Incorrect wiring<br>Motor fault                  | Check power source and circuit breaker<br>Verify wiring against diagram<br>Contact qualified service personnel |
| Unusual noise or vibration | Loose mounting<br>Debris in impeller<br>Bearing wear                | Tighten mounting bolts<br>Disconnect power and clean impeller<br>Contact qualified service personnel           |
| Reduced airflow            | Blocked intake/exhaust<br>Dirty impeller<br>Incorrect speed setting | Clear obstructions<br>Clean impeller<br>Adjust control settings (if applicable)                                |
| Overheating                | Insufficient ventilation<br>Motor overload                          | Ensure adequate clearance around fan<br>Check for system blockages or excessive back pressure                  |

If troubleshooting steps do not resolve the issue, contact customer support or a qualified technician.

## 9. WARRANTY AND SUPPORT

The HRSTAR R3G500-RA28-03 EC Centrifugal Fan is covered by a manufacturer's warranty against defects in materials and workmanship. Specific warranty terms and duration may vary. Please retain your proof of purchase for warranty claims.

For technical support, service, or warranty inquiries, please contact your authorized HRSTAR distributor or reseller. Provide the model number (R3G500-RA28-03) and serial number (if applicable) when contacting support.