

WILO 4090765 Star S21Fx CI 3 Speed Circulator Instruction Manual

This circulation pump features a cast iron body, suitable for hot-water heating systems, industrial circulation systems, cold-water systems, and air-conditioning systems. It is designed for reliability and ease of use in various applications.



Figure 1: WILO 4090765 Star S21Fx CI 3 Speed Circulator pump. This image shows the main unit with its cast iron housing and electrical terminal box.

2. KEY FEATURES

- **Cast Iron Construction:** Durable body suitable for various water systems.
- **Three Pre-selectable Speeds:** Allows adjustment of pump capacity for optimal system performance.
- **Flexible Terminal Box Position:** Can be set in 3, 6, 9, or 12 o'clock positions for versatile installation.
- **Impedance Protected Motor:** Eliminates the need for external motor protection.
- **Dual-Side Cable Entry:** Provides convenience for electrical connections.
- **Quick Connection Spring Clips:** Simplifies electrical wiring.
- **Wet Rotor Technology:** Ensures quiet and reliable operation.
- **Automatically Vented:** Designed for efficient air removal from the pump.
- **Connection Sizes:** Compatible with 1-1/2", 3/4", and 1-1/4" piping.
- **Maximum Flow Rate:** Up to 19 Gallons Per Minute (GPM).
- **Maximum Lifting Height:** Up to 21 Feet.

3. INSTALLATION GUIDE

3.1 Safety Precautions

- Always disconnect power to the circuit before attempting any installation or maintenance.
- Installation should be performed by qualified personnel in accordance with all local electrical and plumbing codes.
- Ensure the pump is installed in a location protected from freezing temperatures and excessive moisture.
- Wear appropriate personal protective equipment (PPE) during installation.

3.2 Mounting the Pump

The WILO Star S21Fx CI circulator is suitable for any installation position, provided the motor shaft remains horizontal. This ensures proper lubrication and operation of the wet rotor design. The terminal box can be rotated to 3, 6, 9, or 12 o'clock positions to facilitate wiring and access.

1. Select a suitable location for the pump, ensuring adequate space for maintenance and ventilation.
2. Install the pump into the piping system using appropriate fittings for the connection sizes (1-1/2", 3/4", 1-1/4").
3. Ensure the pump is securely mounted and supported to prevent vibration and stress on the piping.

3.3 Electrical Connection

All electrical work must comply with local codes and regulations.

1. Ensure the main power supply is disconnected before making any electrical connections.
2. Open the steel terminal box cover.
3. Route the electrical cable through one of the cable entries on either side of the terminal box.
4. Connect the power supply wires to the quick connection spring clips as indicated by the wiring diagram inside the terminal box cover. Ensure proper grounding.
5. Secure the cable to prevent strain on the connections.
6. Close the terminal box cover securely.

7. The motor is impedance protected, meaning no external motor protection device is required.

4. OPERATING INSTRUCTIONS

4.1 Initial Startup

Before starting the pump, ensure the system is filled with fluid and properly vented to remove any trapped air. Air in the system can cause noise and damage to the pump.

4.2 Speed Selection

The WILO Star S21Fx CI circulator features three pre-selectable speed stages (Low, Medium, High) to adjust the pump's capacity to match specific system requirements. To change the speed setting:

1. Locate the speed selector switch on the pump's terminal box.
2. Rotate the switch to the desired speed setting. The pump will adjust its performance accordingly.
3. Observe system performance and adjust the speed as necessary for optimal efficiency and comfort.

5. MAINTENANCE

The WILO Star S21Fx CI circulator is designed for minimal maintenance due to its wet rotor technology. However, regular inspection is recommended to ensure long-term reliable operation.

- **Visual Inspection:** Periodically check the pump and piping for any signs of leaks, corrosion, or physical damage.
- **Noise and Vibration:** Listen for any unusual noises or excessive vibrations, which could indicate air in the system or a mechanical issue.
- **System Pressure:** Monitor the system pressure to ensure it remains within the recommended operating range.
- **Cleaning:** Keep the exterior of the pump clean and free from dust or debris to ensure proper heat dissipation.
- **No Lubrication Required:** The wet rotor design means the pump is lubricated by the system fluid, and no external lubrication is necessary.

6. TROUBLESHOOTING

If the pump is not operating correctly, perform the following basic checks before contacting technical support:

- **Pump Not Running:**
 - Verify that the power supply is connected and the circuit breaker is not tripped.
 - Check electrical connections in the terminal box for looseness.
- **No Flow or Low Flow:**
 - Ensure all isolation valves in the system are fully open.
 - Check for air trapped in the system; bleed the system if necessary.
 - Inspect for blockages in the piping or pump impeller.
 - Verify the pump speed setting is appropriate for the required flow.
- **Unusual Noise (e.g., Gurgling, Humming):**
 - Air in the system is a common cause of noise; bleed the system thoroughly.
 - Check for debris in the pump housing or impeller.

- Ensure the pump is securely mounted and not vibrating against other components.
- **Pump Overheating:**
 - Ensure proper ventilation around the pump.
 - Check for system blockages or closed valves that could cause the pump to operate against excessive resistance.

7. TECHNICAL SPECIFICATIONS

Specification	Value
Brand	Wilo
Model Number	4090765
Material	Cast Iron
Style	Circulator
Product Dimensions (L x W x H)	5" x 6.4" x 6.4"
Power Source	Corded Electric
Item Weight	6 Pounds
Maximum Flow Rate	19 Gallons Per Minute
Maximum Lifting Height	21 Feet
Voltage	115 Volts
Wattage	105 Watts
Amperage Capacity	1 Amps
Item Package Quantity	1
Temperature Range	14-230 Degrees Fahrenheit
Special Features	Three speed

8. WARRANTY AND SUPPORT

For detailed warranty information, technical assistance, or to inquire about replacement parts, please contact Wilo customer service directly. It is recommended to retain your purchase receipt as proof of purchase for any warranty claims.

Please visit the official Wilo website for the most current contact information and support resources.