

## Wilo 4190420

# Wilo Star S 33 FC Circulating Pump User Manual

Model: 4190420

## 1. INTRODUCTION

The Wilo Star S 33 FC 4190420 is a three-speed hydronic radiant floor circulating pump designed for efficient water circulation in various heating applications. Its robust cast iron housing and built-in motor protection ensure long life and reliable performance. This pump is suitable for closed-loop radiant heating, snow melting systems, baseboard, radiator, and fan coil heating applications.

Key features include:

- Fixed flanges for secure installation.
- Cast iron housing with built-in motor protection.
- Versatile application across radiant heating, hydronic heating, fan coil heating, and solar systems.
- Whisper-quiet operation, ideal for sound-sensitive environments.
- Includes two gaskets (O-rings) and a removable check-valve.
- UL/CSA listed for safety and compliance.

## 2. SAFETY INFORMATION

**WARNING:** To reduce the risk of electric shock, consult the instruction manual for proper installation and operation.

Always disconnect power before servicing the pump.

**CAUTION:** The pump surface can become **HOT** during operation. Avoid direct contact to prevent burns. Allow the pump to cool before handling or performing maintenance.

- Ensure all electrical connections comply with local codes and regulations.
- This pump is designed for indoor use only.
- Do not operate the pump without water.
- Only qualified personnel should perform installation and maintenance.

## 3. PRODUCT OVERVIEW AND COMPONENTS



Figure 1: Wilo Star S 33 FC Circulating Pump. This image shows the main body of the pump, its electrical connection box, and the speed selection dial. The green cast iron housing is visible, along with the product label detailing specifications and warnings.

The Wilo Star S 33 FC pump consists of several key components:

- **Cast Iron Housing:** The main green body of the pump, providing durability and heat dissipation.
- **Motor:** Integrated within the housing, providing the power for circulation.
- **Speed Selection Dial:** Located on the front label, allowing selection between three speeds (1, 2, 3) and an "eco" mode.
- **Electrical Connection Box:** Black box on the side for power input.
- **Fixed Flanges:** Connection points for plumbing lines.
- **Built-in Removable Check Valve:** Helps prevent backflow in the system.

## 4. INSTALLATION AND SETUP

Proper installation is crucial for the pump's performance and longevity. Refer to local plumbing and electrical codes.

1. **Mounting:** Securely mount the pump using its fixed flanges in the designated location within your hydronic system. Ensure the pump is installed in a horizontal position with the motor shaft horizontal to prevent air pockets.
2. **Plumbing Connections:** Connect the system piping to the pump's flanges. Use the provided gaskets (O-rings) to ensure a watertight seal. Avoid overtightening connections.
3. **Electrical Wiring:**
  - Ensure the power supply is disconnected before wiring.
  - Connect the pump to a 115-Volt (AC), 60Hz power supply. The pump draws a maximum of 1.5A.
  - Follow the wiring diagram provided inside the electrical connection box.
  - Ensure proper grounding to prevent electrical hazards.
4. **System Filling and Purging:** After installation, fill the hydronic system with water and thoroughly purge any air from the system. Air in the system can cause noise and reduce pump efficiency.

## 5. OPERATING INSTRUCTIONS

The Wilo Star S 33 FC features a three-speed motor, allowing you to adjust the pump's performance to match your system's requirements.

1. **Power On:** Once installed and the system is filled, restore power to the pump.
  2. **Speed Selection:** Locate the speed selection dial on the front of the pump (refer to Figure 1). The dial has settings for "max", "3", "2", "1", and "eco".
    - **Speed 3 (Max):** Provides the highest flow rate and pressure. Power consumption is approximately 202W.
    - **Speed 2:** Medium flow rate and pressure. Power consumption is approximately 143W.
    - **Speed 1 (Eco):** Lowest flow rate and pressure, designed for energy efficiency. Power consumption is approximately 98W.
- Rotate the dial to select the desired speed setting. The optimal speed depends on your specific heating system's design and heat load requirements. Start with a lower speed and increase if insufficient circulation is observed.
3. **Check Valve:** The built-in check valve can be removed if not required by your system design. Consult your HVAC professional if unsure.

## 6. MAINTENANCE

The Wilo Star S 33 FC pump is designed for minimal maintenance. However, periodic checks can ensure optimal performance and extend its lifespan.

- **Annual Inspection:** Annually inspect the pump for any signs of leaks, corrosion, or unusual noises.
- **System Water Quality:** Ensure the hydronic system water quality is maintained according to industry standards to prevent scale buildup and corrosion within the pump and piping.
- **Cleaning:** Keep the exterior of the pump clean and free from dust and debris to ensure proper heat dissipation.
- **Winterization:** If the system is shut down for an extended period in freezing temperatures, ensure the pump and system are properly drained to prevent freeze damage.

## 7. TROUBLESHOOTING

Refer to the following table for common issues and their potential solutions.

Problem	Possible Cause	Solution
Pump does not start	No power supply; Motor overload; Impeller jammed.	Check power connection and circuit breaker; Allow motor to cool; Disconnect power and check for obstructions in impeller.
Insufficient flow	Air in system; Incorrect speed setting; Clogged filter/piping.	Purge air from system; Increase speed setting; Check and clean filters or piping.
Noisy operation	Air in system; Cavitation; Loose mounting.	Purge air from system; Ensure adequate system pressure; Check mounting bolts for tightness.
Pump leaks	Loose connections; Damaged gaskets/seals.	Tighten connections; Replace gaskets or seals.

If the problem persists after attempting these solutions, contact a qualified service technician or Wilo customer support.

## 8. SPECIFICATIONS







Attribute	Detail
Model Number	4190420
Brand	Wilo
Material	Cast Iron
Voltage	115 Volts (AC)
Frequency	60 Hz
Max Current Draw	1.5 Amps
Power Consumption (Speed 3)	202 Watts
Power Consumption (Speed 2)	143 Watts
Power Consumption (Speed 1/Eco)	98 Watts
Item Weight	9.46 pounds (4.3 Kilograms)
Package Dimensions	7.4 x 7.24 x 5.12 inches
Enclosure Class	CSA enclosure 2
Insulation Class	Class F
Max. Water Temperature	230°F (110°C)
Max. Working Pressure	145 PSI (10 bar)
Certifications	UL/CSA listed

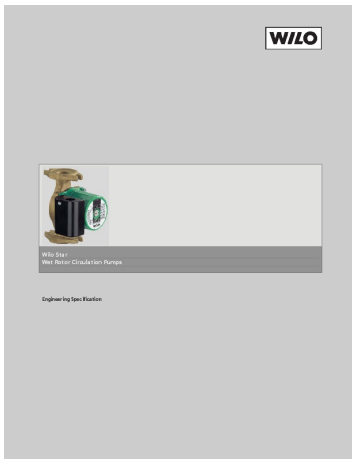
## 9. WARRANTY AND SUPPORT

Wilo products are manufactured to high standards and come with a manufacturer's warranty. For specific warranty terms and conditions, please refer to the documentation included with your purchase or visit the official Wilo website. For technical support, troubleshooting assistance, or to inquire about replacement parts, please contact Wilo customer service. Contact information can typically be found on the Wilo website or on your purchase receipt.

Wilo Official Website: [www.wilo.com](http://www.wilo.com)



 <p>Wilo-Star RS, RSD, ST, RSG, AC</p>	<p><a href="#">Wilo-Star RS, RSD, ST, RSG, AC Installation and Operating Instructions</a></p> <p>Comprehensive guide for the installation, operation, and maintenance of Wilo-Star RS, RSD, ST, RSG, and AC circulating pumps. Covers safety, technical specifications, assembly, electrical connection, operation, troubleshooting, and spare parts.</p>
 <p>Wilo-Star RS, RSD, ST, RSG, AC</p>	<p><a href="#">Wilo-Star RS, RSD, ST, RSG, AC Circulating Pump Installation and Operating Instructions</a></p> <p>Comprehensive installation and operating instructions for Wilo-Star RS, RSD, ST, RSG, AC circulating pumps, covering general information, safety, transport, description, assembly, installation, electrical connection, operation, maintenance, and troubleshooting.</p>
 <p>Wilo-Atmos PICO</p>	<p><a href="#">Wilo-Atmos PICO Installation and Operating Instructions</a></p> <p>Comprehensive guide for the Wilo-Atmos PICO high-efficiency circulator pump, covering installation, operation, safety precautions, technical specifications, troubleshooting, and disposal. Essential reading for proper setup and maintenance.</p>
 <p>Wilo-Yonos PICO1.0</p>	<p><a href="#">Wilo-Yonos PICO1.0 Circulating Pump Quick Start Guide</a></p> <p>Concise guide for installing and operating the Wilo-Yonos PICO1.0 circulating pump. Includes safety information and links to full documentation. Suitable for hot-water heating systems.</p>
 <p>Wilo-Star-Z/-ZD</p>	<p><a href="#">Wilo-Star-Z/-ZD: Einbau- und Betriebsanleitung</a></p> <p>Umfassende Anleitung zur Installation und zum Betrieb von Wilo-Star-Z/-ZD Zirkulationspumpen, einschließlich Sicherheitshinweisen, technischen Daten und Wartungsanleitungen.</p>
 <p>Wilo-Stratos ECO</p>	<p><a href="#">Wilo-Stratos ECO Installation and Operating Instructions</a></p> <p>Comprehensive guide for the installation and operation of the Wilo-Stratos ECO circulating pump, covering safety, technical data, and troubleshooting.</p>

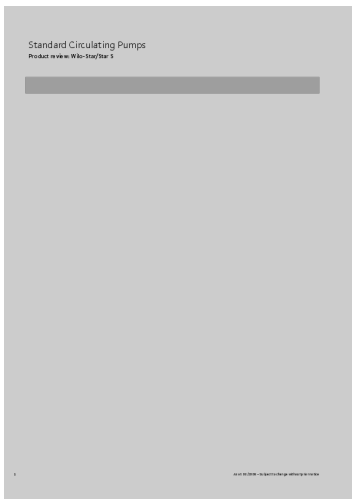


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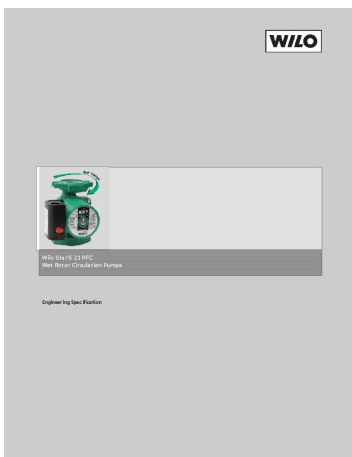


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Standard Circulating Pumps Product review: Wilo-Star/Star S 1 As at: 03/2008 - Subject to change without prior notice Standard Circulating Pumps Product review: Wilo-Star/Star S Range: Wilo-Star Range: Wilo-Star S 0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 Q m3/h H ft Wilo-Star 25 20 15 10 Star 1...

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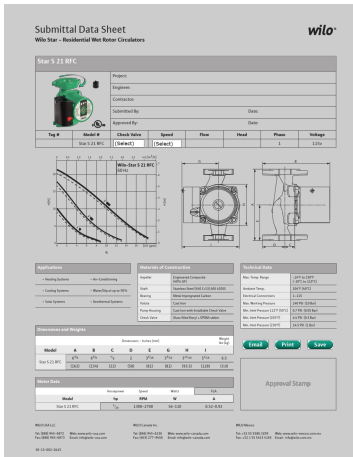
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Technical SpecificationsWilo Star S 33 FC 230V 3 Speed Cast Iron Series Circulator Pump Nordik RadiantWilo star circulator brochurecdn shopify s files 1 0561 6805 4868 Wilo brochure v 1706803504 SpecificationsTechnical brochureWilo 1706803504cdn 4190420 Model 6 HP 115 Volts Phase GPM Max 32 ft HeadWilo brochureBrochure Single and Three Wet Rotor Circulatorscdn 1706803504pumpproducts media amasty amfile attach Brochure Circulators Gustavo PrestonTechnical Specificationsf available in 1~115v 230v f Working Pressure 140 PSI 10 Bar Flow 38 USGPM Head feet Materials of Construction Cast Wilo Headwilo seriesWilo Circulatorsgustavopreston 2023 03 wilo seriescdn STAR 21 FX BrochureBrochure 1706803504cpesupply ASSETS DOCUMENTS ITEMS EN srsltid AfmBOooHvVBVZcZDU ugPVkcS0b2Cn3QLAj dRU8ASNWKf8w2hBSk CKpumpproducts ||| Pioneering for You For hot water heating, potable water, closed cooling circuits, industrial circulation, air-conditioning, solar and geothermal applications. Wilo Star Series Single and Three-Speed Residential Wet Rotor Circulators 2 Star Series Wilo Star Cast Iron Volute Features Benefits R... lang:en score:14 filesize: 1.65 M page\_count: 4 document date: 2015-04-17



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Submittal Data Sheet Sid Harvey IndustriesThe Wilo Star circulator has a max temp range of 14°F to 230°F 140 PSI pressure 115v and 1300 2700 RPM motor speed4171560 Specsidsidharvey documents 4171560 Spec speedWilo 4190420 Model S 33 FC 3 Speed Cast Iron Series Circulator 1 6 HP 115 Volts Phase GPM Max 32 ft HeadSubmittal Sheets Seriessidharvey Specpumpproducts media amasty amfile attach IndustriesSpecification SheetThe speedThos Somerville Co Wilo® 4105032 Residential Wet Rotor 38 gpm Flow Rate VAC phaseWilo HeadWilo USA 4090765 Specification SheetSubmittal Specassets 03160eb054 cdn insitecloud net Sheetpumpproducts ||| Submittal Data Sheet Wilo Star - Residential Wet Rotor Circulators H ft H m H A E Star S 21 RFC Project: Engineer: Contractor: Submitted By: Approved By: Tag # Model # Star S 21 RFC Check Valve Select Speed Select 0 0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 m3/h Wilo-Star S 21 R... lang:en score:14 filesize: 3 M page\_count: 9 document date: 2015-06-30



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Equipment Sheet Metal, ... erful starting torque Ultra quiet Installable hi-temp check

Part # 57565 159808 Model # 4090765 **4190420** Description Wilo Star S 21 FX

Circulator Wilo Star S 33 FC Circulator Speeds 3 3 Flange S...

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