

# English (US) Installation and operating instructions

## Original installation and operating instructions

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<b>1. Limited warranty</b>	<b>1</b>	be liable for any costs of removal, installation, transportation, or any other charges which may arise in connection with a warranty claim.
<b>2. Symbols used in this document</b>	<b>1</b>	All other UP and UPS small circulators manufactured by GRUNDFOS PUMPS CORPORATION (GRUNDFOS) are warranted to the original user only to be free of defects in material and workmanship for a period of 24 months from date of installation, but not more than 30 months from date of manufacture.
<b>3. Product description</b>	<b>1</b>	GRUNDFOS' liability under this warranty shall be limited to repairing or replacing at GRUNDFOS' option, without charge, F.O.B. GRUNDFOS' factory or authorized service station, any product of GRUNDFOS manufacture. GRUNDFOS will not be liable for any costs of removal, installation, transportation, or any other charges which may arise in connection with a warranty claim.
3.1 Introduction	1	Products which are sold but not manufactured by GRUNDFOS are subject to the warranty provided by the manufacturer of said products and not by GRUNDFOS' warranty.
3.2 Delivery and handling	1	GRUNDFOS will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair, or if the product was not installed in accordance with GRUNDFOS' printed installation and operation instructions.
3.3 Pre-installation checklist	1	To obtain service under this warranty, the defective product must be returned to the distributor or dealer of GRUNDFOS products from which it was purchased together with proof of purchase and installation date, failure date, and supporting installation data.
<b>4. Installation</b>	<b>3</b>	Unless otherwise provided, the distributor or dealer will contact the GRUNDFOS factory or authorized service station for instructions.
4.1 Position of the terminal box	1	Any defective product to be returned to the factory or service station must be sent freight prepaid; documentation supporting the warranty claim and/or a Return Authorization must be included if so instructed.
4.2 How to change the terminal box position	3	GRUNDFOS WILL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, OR EXPENSES ARISING FROM INSTALLATION, USE, OR ANY OTHER CAUSES. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTEND BEYOND THOSE WARRANTIES DESCRIBED OR REFERRED TO ABOVE.
4.3 Installation requirements	1	Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages and some jurisdictions do not allow limitations on how long implied warranties may last. Therefore, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.
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## WARNING



Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

### 1. Limited warranty

UPS 15, 26, 43 circulator pumps manufactured by GRUNDFOS PUMPS CORPORATION (GRUNDFOS) are warranted to the original user only to be free of defects in material and workmanship for a period of 36 months from date of manufacture. GRUNDFOS' liability under this warranty shall be limited to repairing or replacing at GRUNDFOS' option, without charge, F.O.B. GRUNDFOS' factory or authorized service station. GRUNDFOS will not

## 2. Symbols used in this document



### WARNING

If these safety instructions are not observed, it may result in personal injury.



### WARNING

If these instructions are not observed, it may lead to electric shock with consequent risk of serious personal injury or death.

### CAUTION

Caution

If these safety instructions are not observed, it may result in malfunction or damage to the equipment.

Note

Notes or instructions that make the job easier and ensure safe operation.

## 3. Product description

### 3.1 Introduction

Grundfos pumps are carefully inspected and tested before shipment. This pump should provide long, efficient, trouble-free performance. To ensure maximum performance and reliability, please follow the simple instructions in this manual.

When installing this pump, always follow basic safety precautions and any federal, state, and local requirements.

### 3.2 Delivery and handling

Examine the components carefully to make sure no damage has occurred to the pump during shipment. Take care to ensure the pump is NOT dropped or mishandled; dropping will damage the pump.

### 3.3 Pre-installation checklist

Before beginning installation procedures, the following checks should be made. They are all important for proper installation of the circulator pump.

#### 3.3.1 Applications

Model UP(S)15, 26, 43 and 50 series pumps are generally designed to circulate water from +32 °F to +230 °F (0 °C to +110 °C) up to a maximum pressure of 150 psi (10 bar). Some models have temperature limitations which are shown in Table A below. If required, a 50 % by volume solution of ethylene or propylene glycol and water can be used; however, a decrease in pump performance may result due to an increase in the viscosity of the solution. Check with manufacturer for information regarding suitability of pumping other liquids.

#### Closed systems

Model UP(S) 15, 26, 43 and 50 series pumps with cast iron pump housings are designed to pump water compatible with their cast iron construction. They are recommended for use in closed hydronic systems (i.e. airless, non-potable water).

#### Open systems

Model UP(S) 15, 26, 43 and 50 series pumps with stainless steel or bronze pump housings are designed to pump water compatible with their construction and can be used in both open and closed systems.

#### 3.3.2 Maximum water temperature

The maximum allowable water temperature is determined by the ambient or surrounding air temperature as shown in Table A.

### 3.3.3 Inlet pressure requirements

The pressure required at the inlet of the pump is a function of the temperature of the water as shown in Table B.

In a pressurized system, the required inlet pressure is the minimum allowable system pressure.

In a system open to the atmosphere, the required inlet pressure is the minimum distance the pump must be located below the lowest possible water level of the water source (tank, pool, etc.).

**Table A: Maximum water temperature**

Ambient temperature	+104 °F (+40 °C)	+120 °F (+48 °C)	+140 °F (+60 °C)	+160 °F (+71 °C)	+175 °F (+79 °C)
Water temperature All UP*	+230 °F (+110 °C)	+220 °F (+104 °C)	+210 °F (+98 °C)	+190 °F (+87 °C)	+175 °F (+79 °C)

**\* Exceptions below:**

UPS 15-35	+165 °F (+73 °C)	+140 °F (+60 °C)	-	-	-
UP 15-100F	+205 °F (+96 °C)	+195 °F (90 °C)	+185 °F (+85 °C)	+175 °F (+79 °C)	-
UP 26-120U	+205 °F (+96 °C)	+195 °F (90 °C)	+185 °F (+85 °C)	+175 °F (+79 °C)	-
UP 26-116	+150 °F (+65 °C)	+140 °F (+60 °C)	-	-	-

**Table B: Minimum required inlet pressure**

Water temperature	230 °F (110 °C)	190 °F (88 °C)	140 °F (60 °C)
Inlet pressure in feet (m)	36 ft (1.10 m)	9 ft (2.8 m)	3 ft (0.9 m)
Inlet pressure in psi (bar)	15.6 psi (1.07 bar)	4.0 psi (0.27 bar)	1.3 psi (0.08 bar)

## 4. Installation

### 4.1 Position of the terminal box

Proper installation of the pump will have the terminal box located to one side of the pump or the other, with the conduit entry down. See fig. 1.

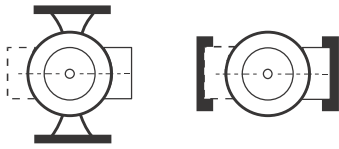


Fig. 1 Recommended terminal box orientation

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### 4.2 How to change the terminal box position

#### WARNING



If the terminal box position needs to be changed, ensure that the power supply is turned off and close the isolating valves before removing the hex socket head screws.

How to change terminal box position:

1. Remove the four (4) hex socket head screws (4 or 5 mm wrench) while supporting the stator (motor).
2. Carefully separate the stator from the pump housing and rotate it to the correct terminal box orientation.
3. Replace the hex socket head screws and tighten diagonally and evenly (7 ft.-lb.torque).
4. Check that the impeller turns freely. If the impeller does not turn easily, repeat the disassembly/reassembly process.

#### 4.2.1 Pump mounting: for indoor use

When making pipe connections, be sure to follow the pipe manufacturer's recommendations and all code requirements for piping material.

Arrows on the side or bottom of the pump housing indicate direction of flow through the pump. Grundfos circulator pumps can be installed in both vertical and horizontal lines. The pump must be installed with the motor shaft positioned horizontally.

Under no circumstances should the pump be installed with the shaft vertical or where the shaft falls below the horizontal plane.

See fig. 2.



Fig. 2 Acceptable pump mounting positions

We recommend that isolating valves be installed on each side of the pump. If possible, do not install elbows, branch tees, and similar fittings just before or after the pump. Provide support to the pump or adjacent plumbing to reduce thermal and mechanical stress on the pump.

### 4.3 Installation requirements

1. Thoroughly clean and flush the system prior to pump installation.
2. Do not install the pump at the lowest point of the system where dirt and sediment naturally collect.
3. Install an air vent at the high point(s) of the system to remove accumulated air.
4. Ensure that water does not enter the terminal box during the installation process.
5. Open system: Install the pump in the supply line; the suction side of the pump should be flooded with water. Ensure that the static head requirement from Table B is achieved.
6. Closed system: Install a safety relief valve to protect against temperature and pressure build-up.
7. If the water contains suspended particles, we recommend that a strainer and/or filter be installed and cleaned regularly.



Do not start the pump until the system has been filled.

#### 4.3.1 Check valve removal

1. Use needle-nose pliers to remove check valve from pump housing.
2. Check to make sure no part of the valve remains in the pump housing.
3. Apply the enclosed round "Check Valve Removed" label over the check mark symbol located on the nameplate of the pump.

## 5. Electrical installation

### WARNING



All electrical work should be performed by a qualified electrician in accordance with the latest edition of the National Electrical Code and local codes or regulations.

### WARNING



The safe operation of this pump requires that it be grounded in accordance with the National Electrical Code and local codes or regulations.

### WARNING



The ground conductor should be a copper conductor of at least the size of the circuit conductor supplying power to the pump. Minimum ground conductor size is 14 AWG. Connect the ground conductor to the grounding point in the terminal box and then to an acceptable ground.



### WARNING

Do not ground to a gas supply line.

### WARNING



For fig. 3, some pump models may come with two access wiring ports (cable entries) to the terminal box. To ensure safe operation of your installation, the enclosed terminal box cap (blanking) plug **MUST** be inserted into the unused wiring access port (cable entry).

The proper operating voltage and other electrical information can be found on the nameplate attached to the top of the motor.

Depending on pump model, the motor has either built-in, automatic, resetting of thermal protection or is impedance protected and in either case does not require additional external protection. The temperature of the windings will never exceed allowable limits, even if the rotor is locked.

Wire sizes should be based on the ampacity (current-carrying properties of a conductor) as required by the latest edition of the National Electrical Code or local regulations.

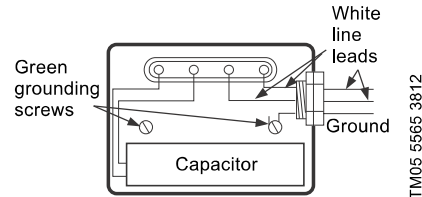
Both the power and grounding wires must be suitable for at least 194 °F (90 °C).

If rigid conduit is to be used, the hub must be connected to the conduit system before it is connected to the terminal box of the pump.

## 5.1 For all 115 V and 230 V models

### 5.1.1 Single-speed pump wiring

1. Connect the white/white electrical leads from the circulator pump to the incoming power leads with wire nuts or other approved connectors.
2. Attach incoming grounding wire to either of the green grounding screws.

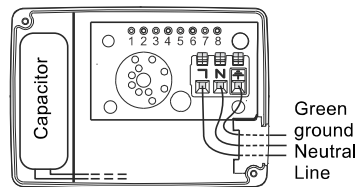


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**Fig. 3** Wiring diagram for all 115 V and 230 V single-speed pumps.

### 5.1.2 Multi-speed pump wiring

1. Insert black conductor into terminal "L" position.
2. Insert white conductor into terminal "N" position.
3. Insert grounding conductor into terminal "⏏" position.



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**Fig. 4** Wiring diagram for 115 V and 230 V multi-speed pumps\*

- \* UP(S) 15 capacitor wire position 4 & 8;  
UP(S) 26/43/50 capacitor wire position 2 & 4.

## 6. Startup

**Caution** Do not use the pump to vent the system.

**Caution** Do not start the pump before filling the system.

**Caution** Never let the pump run dry.

## 7. Operation

Grundfos domestic circulator pumps, installed properly and sized for correct performance, will operate quietly and efficiently and provide years of service.

**Caution** Under no circumstances should the pump be operated without water circulation or without the minimum required inlet pressure for prolonged periods of time. This could result in motor and pump damage.

**UPS** model pumps are multispeed, and the speed can be changed via a speed selector switch located on the front of the terminal box.

**UP** models are single-speed.

## 8. Troubleshooting

### 8.1 Failure to operate

When UP and UPS 15, 26, 43, and 50 pumps are first started, the shaft may rotate slowly until water has fully penetrated the bearings.

If the pump does not run, the shaft can be rotated manually. To accomplish this, switch off the power supply, and close the isolation valves on each side of the pump. Remove the indicator plug in the middle of the nameplate. Insert a small flat-blade screwdriver into the end of the shaft, and gently turn until the shaft moves freely. Replace and tighten the plug. Open the isolating valves and wait 2 to 3 minutes for the system pressure to equalize before starting the pump.

**Note** After a long shutdown period, multi-speed pumps should be started on speed 3 and then adjusted to the regular setting.

The UPS 15-42 has an automatic function to assist in restarting.

## 9. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

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Subject to alterations.