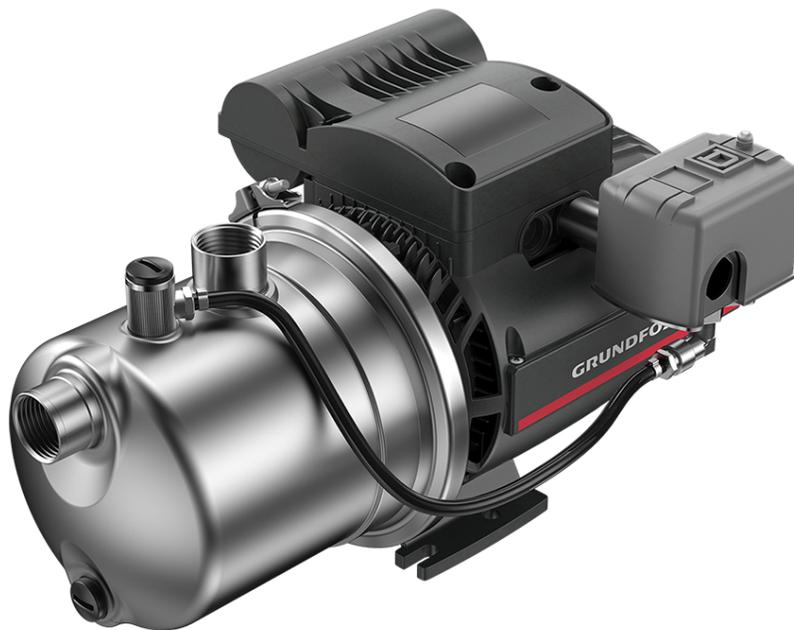


# JP PS

**Jet pumps with pressure switch, 115/230 V, 60 Hz**

Installation and operating instructions





# JP PS

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## English (US)

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## English (US) Installation and operating instructions

## Original installation and operating instructions

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**1. Limited warranty**

Products 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. 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 that may arise in

connection with a warranty claim. 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. 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 operating instructions and accepted codes of good practice. The warranty does not cover normal wear and tear. 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. Unless otherwise provided, the distributor or dealer will contact Grundfos or an authorized service station for instructions. Any defective product to be returned to Grundfos or a service station must be sent freight prepaid; documentation supporting the warranty claim and/or a Return Material Authorization must be included if so instructed. 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. 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. Products which are repaired or replaced by Grundfos or authorized service center under the provisions of these limited warranty terms will continue to be covered by Grundfos warranty only through the remainder of the original warranty period set forth by the original purchase date.

**2. General information**

 This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.

Children shall not play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.



Read this document before you install the product. Installation and operation must comply with local regulations and accepted codes of good practice.

**2.1 Target group**

These installation and operating instructions are intended for professional as well as non-professional users.

**2.2 Hazard statements**

The symbols and hazard statements below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.

**DANGER**

Indicates a hazardous situation which, if not avoided, will result in death or serious personal injury.

**WARNING**

Indicates a hazardous situation which, if not avoided, could result in death or serious personal injury.

**CAUTION**

Indicates a hazardous situation which, if not avoided, could result in minor or moderate personal injury.

The hazard statements are structured in the following way:

## SIGNAL WORD



### Description of the hazard

Consequence of ignoring the warning

- Action to avoid the hazard.

## 2.3 Notes

The symbols and notes below may appear in Grundfos installation and operating instructions, safety instructions and service instructions.



Observe these instructions for explosion-proof products.



A blue or gray circle with a white graphical symbol indicates that an action must be taken.



A red or gray circle with a diagonal bar, possibly with a black graphical symbol, indicates that an action must not be taken or must be stopped.



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



Tips and advice that make the work easier.

## 3. Receiving the product

### 3.1 Inspecting the product

On receipt of the product, do the following:

1. Check that the product is as ordered.  
If the product is not as ordered, contact the supplier.
2. Make sure that the supply voltage and frequency correspond to the values stated on the product nameplate.

#### Related information

[6.3.1 Nameplate example for JP PS](#)

### 3.2 Scope of delivery

The box contains the following items:

- 1 Grundfos JP PS pump
- 1 Quick Guide
- 1 Installation and Operating Instructions booklet.

## 4. Installing the product

### 4.1 Location

The product can be installed both indoors and outdoors. Use a suitable cover to protect the product from direct sunlight, rain or snow.

Please observe the following:

- Install the product in a well-ventilated location to ensure cooling of its components.
- Install the product to enable easy inspection, maintenance and service.
- We recommend that you place the product as close to the liquid to be pumped as possible.
- We recommend that you install the product near a drain or in a drip tray connected to a drain in order to lead away possible condensation from cold surfaces.

#### Related information

[4.1.3 Ambient temperature during operation](#)

#### 4.1.1 Minimum space

Ensure sufficient space for service and maintenance, and for motor cooling.

- We recommend a clearance of 20 inches (0.5 m) on three sides of the product which should include the rear for cooling of the motor.
- The motor is fan-cooled, so do not block the fan cover.
- If you install the product with one side against a wall, make sure that the nameplate is visible.

#### 4.1.2 Installation of the product in a frosty environment

Protect the product from freezing if it is to be installed outdoors where frost may occur.

#### 4.1.3 Ambient temperature during operation

The ambient temperature range for **continuous** operation (S1 mode) is up to 104 °F (40 °C).

The ambient temperature range for **intermittent** operation (S3 mode) is 104 to 131 °F (40 to 55 °C).

During intermittent operation (S3 mode), the product shuts off periodically to avoid overheating.

---

#### Ambient temperature, continuous operation (S1 mode)

---

Up to 104 °F (40 °C) The pump can run continuous operation. For intermittent operation, see the table below.

---



---

#### Ambient temperature, intermittent operation (S3 mode)

---

104 to 131 °F (40 to 55 °C) The overheating protection ensures that the pump runs intermittent operation when the air temperature is too high to cool the motor efficiently.  
Example of intermittent cycle: the pump runs for 20 minutes and stops for 40 minutes before it starts again.

---

#### Related information

[4.1 Location](#)

[10.1 Operating conditions](#)

## 4.2 Mechanical installation

### WARNING



#### Electric shock

- Death or serious personal injury
- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.



### CAUTION

#### Crushing of feet

- Minor or moderate personal injury
- Wear safety shoes when handling the product.



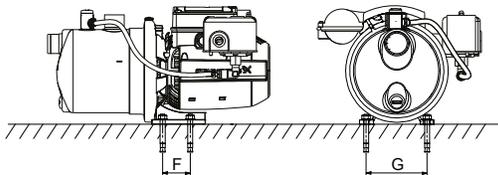
### CAUTION

#### Impurities in the water

- Minor or moderate personal injury
- Before the pump is used for supplying drinking water, flush the pump thoroughly with clean water.

### 4.2.1 Mounting the product

- Place the product in a horizontal position with a maximum inclination angle of  $\pm 5^\circ$ . The base plate must be facing downwards.
- Fasten the product to a solid horizontal foundation with screws through the holes in the base plate.



TM073985

Fig. Foundation of JP PS pump

Pos.	[in (mm)]
F	1.85 (47)
G	4.33 (110)

### 4.2.2 Connecting the pipe system



Install the product so that it is not stressed by the pipe system.

Pipe dimensions:



- The diameter of the inlet pipe must be larger than 1 inch, if the inlet pipe is longer than 32.8 ft (10 m), or if the suction lift exceeds 13.1 ft (4 m).
- If a hose is used as inlet pipe, it must be non-collapsible.



We recommend that you install isolating valves on both the inlet and outlet side of the pump.

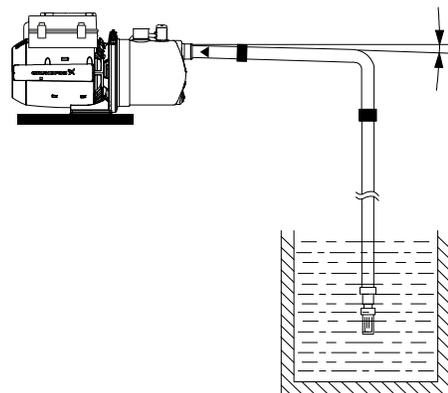


JP PS installations require a pressure tank.

- To ensure optimum operation and longer life of the pump, a pressure tank with a properly set air charge is included in the installation. See the tank manufacturer's instructions for proper tank size selection and specific setting of the air charge. See table below for general guidelines.

Pressure switch cut-on pressure [psi]	Tank air pre-charge (no water pressure) [psi]
20	18
30	28
40	38

- Seal the pipe fittings with thread sealing tape or similar.
- Connect the pipes to the inlet and outlet port on the pump. Do not let the pump support the pipes. Use a pipe wrench or similar tool.
- Fit a foot valve to the inlet pipe if the pump is installed above the liquid level, for example, if you pump from a well, tank or reservoir. We recommend using a foot valve with a strainer.
- We recommend installing a filter on the inlet side to protect the pump from sand, gravel or other debris if the pump is to be used for pumping rainwater or well water.
- Make sure that the inlet pipe has a gradual, slight upward slope towards the pump to avoid air pockets, especially under suction-lift conditions.



TM074041

Fig. Inlet pipe with gradual upward slope towards the pump

#### 4.2.2.1 Maximum system pressure

**!** Make sure that the system in which the pump is installed is designed for the maximum pump pressure.

The maximum inlet pressure depends on the feet of head at the actual duty point. The sum of the inlet pressure and the feet of head must not exceed the maximum system pressure.

We recommend installing a pressure-relief valve to protect the pump so that the outlet pressure does not exceed the maximum system pressure.

#### Related information

[10.1 Operating conditions](#)

[10.3 Inlet pressure](#)

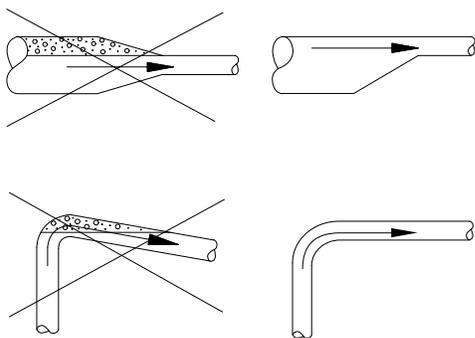
#### 4.2.2.2 Inlet and outlet pipes

Please follow these general precautions when connecting the inlet and outlet pipes.

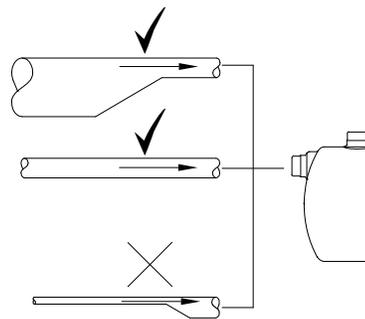
**!** Do not let the pump support the pipes. Use pipe hangers or other supports at proper intervals to provide pipe support near the pump.

**!** The internal diameter of the pipes must never be smaller than the diameter of the pump ports.

- Install the pipes so that air pockets are avoided, especially on the inlet side of the pump.
- Use eccentric reducers with the tapered side down.
- Make sure the pipes are as straight as possible to avoid unnecessary bends and fittings. We recommend long-radius 90° pipe bends to decrease friction loss.
- Run the inlet pipe as direct as possible and, ideally, make sure the length is at least ten times the pipe diameter.
- If possible, run a horizontal inlet line. We recommend a gradual upward slope for pumps operating in suction-lift conditions, and a gradual downward slope for pumps operating in positive inlet-pressure conditions.
- A short pipe must be of the same diameter as the inlet port or larger.
- A long pipe must be one or two sizes larger than the inlet port, depending on the length.



**Fig.** Recommended pipe installation to avoid friction and air pockets



**Fig.** Correct pipe sizing for connection to the pump inlet or outlet

TMG68227

#### 4.2.2.3 Adjusting the pressure switch



See the wiring diagram on the inside of the protective cover on the pressure switch.



A full turn of the adjustment nut is 2.5 psi.

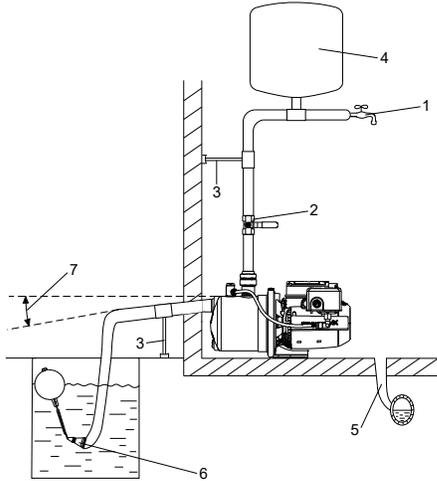
1. Turn the larger nut clockwise to raise the cut-on/cut-off pressures.
2. Turn the smaller clockwise to raise the the cut-off pressure only.

TMG40338

### 4.2.3 Installation examples

We recommend that you follow the installation examples. Valves are not supplied with the pump.

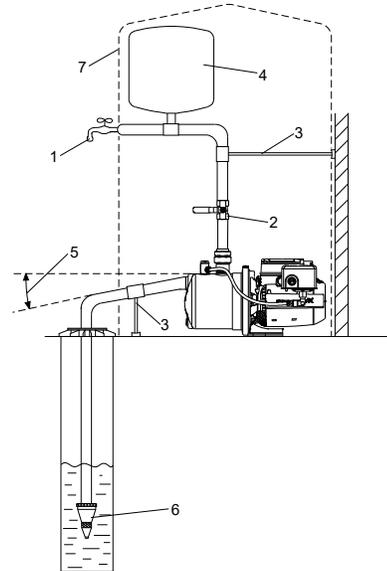
#### 4.2.3.1 Suction from a tank



TM073986

Pos.	Description
1	Highest faucet
2	Isolating valve
3	Pipe support
4	Pressure tank
5	Drain to sewer
6	Strainer. A foot valve is optional. We recommend using a foot valve together with JP PS.
7	Slight downward slope

#### 4.2.3.2 Suction from a well (outdoor installation)



TM073984

Pos.	Description
1	Highest faucet
2	Isolating valve
3	Pipe support
4	Pressure tank
5	Slight downward slope
6	Foot valve with strainer. The foot valve is optional. We recommend using a foot valve with a JP PS installation.
7	Pump and tank cover

### 4.3 Electrical connection

#### WARNING

##### Electric shock



- Death or serious personal injury
- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.

#### WARNING

##### Electric shock



- Death or serious personal injury
- The product is ready for connection with a grounding-type attachment plug or for direct wiring. To reduce the risk of electric shock, be certain that the product is connected only to a properly grounded, grounding-type receptacle (protective earth).

#### WARNING

##### Electric shock



- Death or serious personal injury
- If national, state, or local regulation requires a GFCI (ground fault circuit interrupter) or equivalent in the electrical installation, this must be Class A or better.

#### WARNING

##### Electric shock



- Death or serious personal injury
- If the product is used for cleaning or maintenance of garden ponds or similar places, make sure that the product is supplied through a GFCI (ground fault circuit interrupter) with a rated residual operating current not exceeding 6 mA.



All electrical connections must be carried out by qualified persons in accordance with local regulations.



Make sure that the electrical installation supports the rated current [A] of the product. See the product's nameplate.

#### 4.3.1 Motor protection

The pump incorporates current- and temperature-dependent motor protection. If the pump is running without water, is blocked or otherwise overloaded, the built-in thermal switch will cut out. When the motor has cooled sufficiently, it will restart automatically. No external motor protection is required.

### 4.3.2 Connecting to the power supply

#### WARNING

##### Electric shock



- Death or serious personal injury
- Disconnect the main switch prior to electrical work.
  - Assume all wires are live. Use an electrical tester to confirm the power is off at each wire.

#### WARNING

##### Electric shock



- Death or serious personal injury
- Power supply cables without a plug must be connected to a supply disconnecting device incorporated in the fixed wiring according to the local wiring regulations.



Do not turn on the power supply until the pump has been filled with liquid.

This product is delivered without a power cable. The pump can be powered by connecting it to:

- a power cable
- residential hard wiring (115 or 230 V).

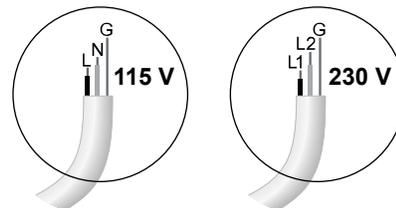
#### Related information

[4.3.2.1 Identifying voltage in existing residential wiring installations](#)

[4.3.3 Setting the voltage converter](#)

#### 4.3.2.1 Identifying voltage in existing residential wiring installations

- Disconnect the main switch prior to electrical work.
- Always assume all wires are live. Use an electrical tester to confirm the power is off at each wire.
- Verify the voltage in the existing electrical installation before installing the pump. Check the circuit breaker box for information.
- Possible wire colors are listed in the table. If in doubt, check with a qualified electrician.



Pos.	115 V wire colors	Pos.	230 V wire colors
L	Black (live)	L1	Black (live)
N	White or gray (neutral)	L2	Red (live)
G	Green (ground for power cable) or bare copper (ground for hard wiring)	G	Green (ground for power cable) or bare copper (ground for hard wiring)

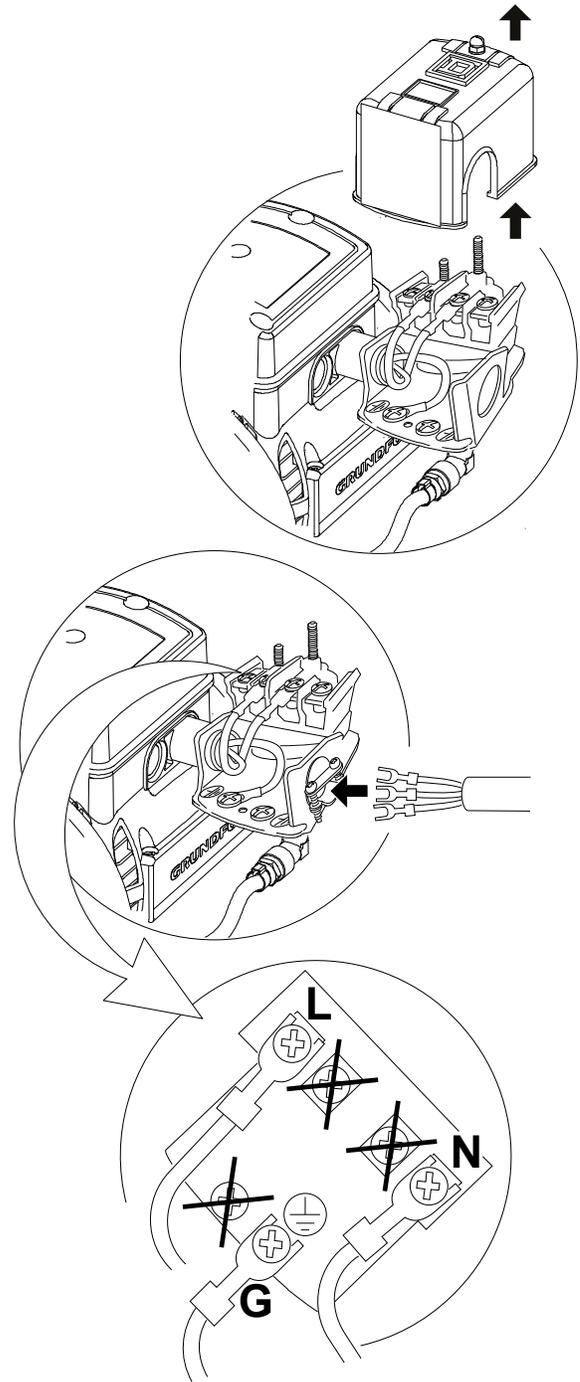
#### Related information

[4.3.2 Connecting to the power supply](#)

#### 4.3.2.2 Connecting a 115 or 230 V power cable

Follow these steps to connect a power cable to the product:

1. Loosen the nut on the top cover of the pressure switch.
2. Lift up the pressure switch cover and set it aside.
3. Inside the pressure switch, gently push aside the factory wires. Do not disconnect them.
4. Locate the open knockout in the metal plate inside the pressure switch.
5. In the knockout, install a clamp-type fitting designed for connecting a power cable.
6. Loosen the screws on the clamp.
7. Strip wire ends of the power cable wires.
8. Install crimp connectors on wire ends.
9. Push the wire ends through the opening in the clamp.
10. Follow the wiring diagram to connect the wire ends to the terminal screws in the pressure switch.
11. Tighten the terminal screws. Avoid overtightening.
12. Tighten the clamp screws to hold the wires in place.
13. Refit the top cover. Replace the nut and hand tighten it.
14. If the other end of the power cable does not have a pre-molded three-pronged plug, strip the wire ends and connect the power cable wires to a three-pronged plug.
15. Do not plug the power plug into an electrical outlet until the voltage selection and priming are completed.



**Fig.** Connecting a power cable

#### Related information

[4.3.2.4 Wiring diagram, pressure switch to 115 V power cable](#)

[4.3.2.5 Wiring diagram, pressure switch to 230 V power cable](#)

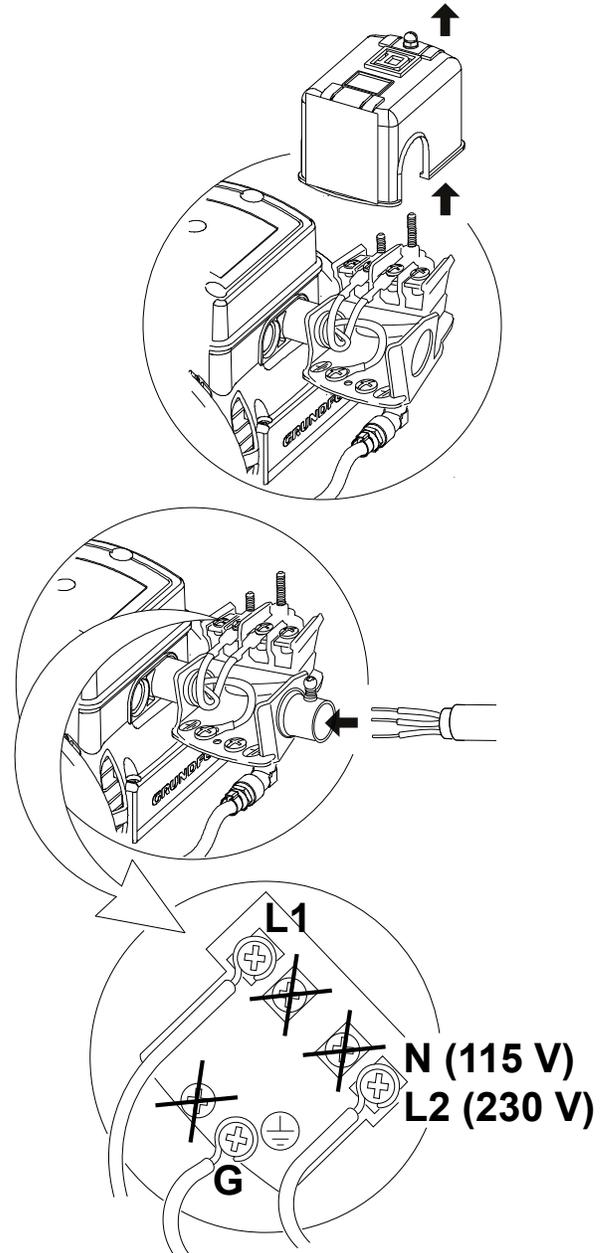
#### 4.3.2.3 Connecting to residential hard wiring, 115 or 230 V

For residential hard wiring, use the following:

Pump model	Recommended cable type
JP PS, all models, 115 V or 230 V	SJOW 12AWGx3 UL

Follow these steps to connect the the product to the power supply:

1. Loosen the nut on the top cover of the pressure switch.
2. Lift up the pressure switch cover and set it aside.
3. Inside the pressure switch, gently push aside the factory wires. Do not disconnect them.
4. Locate the open knockout in the metal plate inside the pressure switch.
5. In the knockout, install a clamp-type fitting designed for residential hard wiring.
6. Loosen the screw on the clamp.
7. Strip wire ends of the residential hard wiring.
8. Push the wire ends through the opening in the clamp.
9. Follow the wiring diagram to connect to the terminal screws in the pressure switch.
10. Tighten the terminal screws. Avoid overtightening.
11. Tighten the clamp screw to hold the wires or conduit in place.
12. Refit the top cover. Replace the nut and hand tighten it.
13. Strip the other end of the residential hard wiring.
14. Connect the residential hard wiring to an external main switch.
15. Do not power up the pump until the voltage selection and priming are completed.



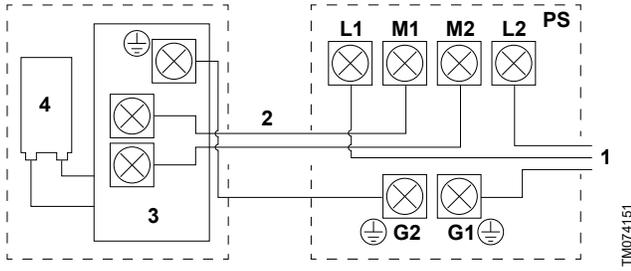
**Fig.** Connecting to residential hard wiring, 115 or 230 V

#### Related information

[4.3.2.6 Wiring diagram, pressure switch to 115 V residential hard wiring](#)

[4.3.2.7 Wiring diagram, pressure switch to 230 V residential hard wiring](#)

4.3.2.4 Wiring diagram, pressure switch to 115 V power cable

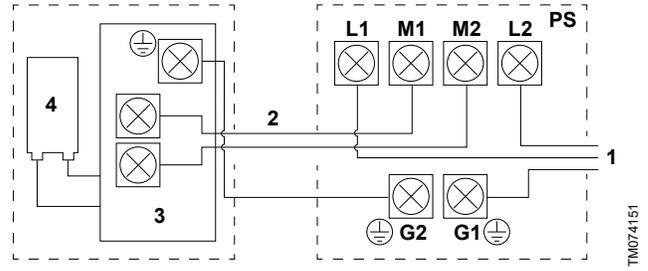


Pos.	Description
PS	Pressure switch
1	Power cable (in)
2	To motor (out)
3	Motor
4	Capacitor
From power cable to pressure switch	
G1	Green (ground)
L1	Black (live)
L2	White (neutral)
From pressure switch to motor	
G2	Yellow (ground)
M1	Brown (live)
M2	Blue (neutral)

**Related information**

[4.3.2.2 Connecting a 115 or 230 V power cable](#)

4.3.2.5 Wiring diagram, pressure switch to 230 V power cable

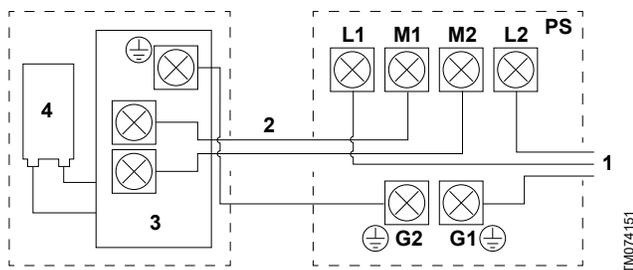


Pos.	Description
PS	Pressure switch
1	Power cable (in)
2	To motor (out)
3	Motor
4	Capacitor
From power cable to pressure switch	
G1	Green (ground)
L1	Black (live)
L2	Red (live)
From pressure switch to motor	
G2	Yellow (ground)
M1	Brown (live)
M2	Blue (neutral)

**Related information**

[4.3.2.2 Connecting a 115 or 230 V power cable](#)

**4.3.2.6 Wiring diagram, pressure switch to 115 V residential hard wiring**

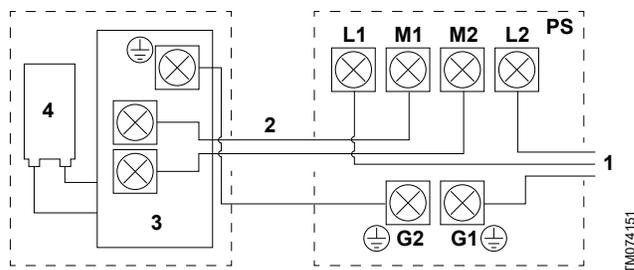


Pos.	Description
PS	Pressure switch
1	Residential hard wiring (in)
2	To motor (out)
3	Motor
4	Capacitor
From residential hard wiring to pressure switch	
G1	Bare copper (ground)
L1	Black (live)
L2	White (neutral)
From pressure switch to motor	
G2	Yellow (ground)
M1	Brown (live)
M2	Blue (neutral)

**Related information**

[4.3.2.3 Connecting to residential hard wiring, 115 or 230 V](#)

**4.3.2.7 Wiring diagram, pressure switch to 230 V residential hard wiring**



Pos.	Description
PS	Pressure switch
1	Residential hard wiring (in)
2	To motor (out)
3	Motor
4	Capacitor
From residential hard wiring to pressure switch	
G1	Bare copper (ground)
L1	Black (live)
L2	Red (live)
From pressure switch to motor	
G2	Yellow (ground)
M1	Brown (live)
M2	Blue (neutral)

**Related information**

[4.3.2.3 Connecting to residential hard wiring, 115 or 230 V](#)

### 4.3.3 Setting the voltage converter

#### WARNING

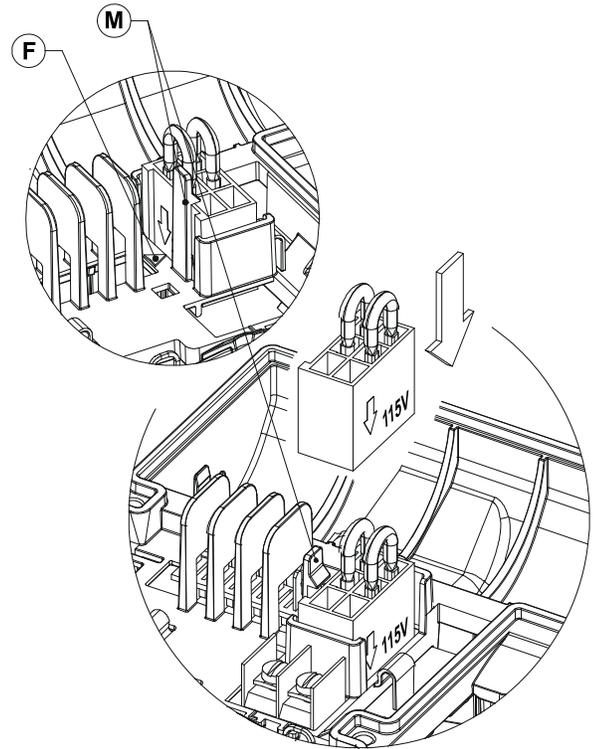
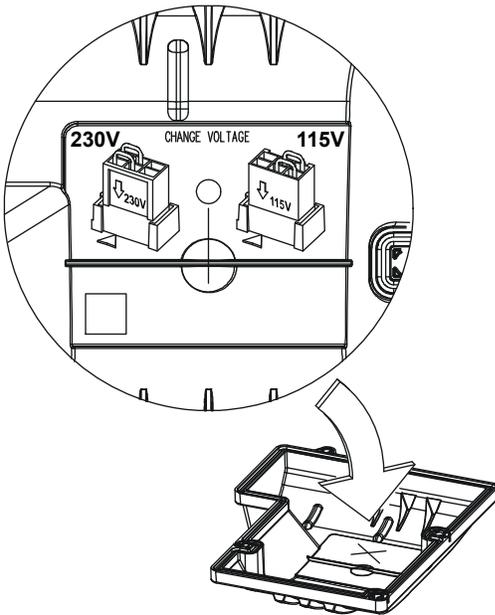
##### Electric shock

Death or serious personal injury



- Do not pull the voltage switching plug by the wires. To avoid damage, only use a firm hand grip around the voltage switching plug.

1. Check the voltage indicated on the side of the voltage converter.
2. Turn the indicator so that the desired voltage (115 V or 230 V) points towards the side with the "M" lock catch.
3. The arrow on the converter next to the required voltage must be aligned with the "F" arrow on the housing.
4. Push the converter into position until the reference catch "M" clips in place.



#### Related information

[4.3.2 Connecting to the power supply](#)

[5. Startup of the product](#)

## 5. Startup of the product

### WARNING



#### Electric shock

- Death or serious personal injury
- Do not use the product for cleaning and other maintenance of swimming pools or similar places if there are people in the water.

### CAUTION



#### Hot surface

- Minor or moderate personal injury
- Use protective gloves if the liquid or ambient temperature is higher than 104 °F (40 °C).

### CAUTION



#### Hot surface

- Minor or moderate personal injury
- Do not run the pump continuously with a closed inlet or outlet valve.

### CAUTION



#### Hot or cold liquid

- Minor or moderate personal injury
- Make sure that escaping hot or cold liquid does not cause injury to persons or damage to the equipment.



Do not turn on the power supply until the pump has been filled with liquid.



The number of starts and stops must not exceed 20 times per hour.



The pump must not run without delivering water for more than 5 minutes.



Only use the product for the intended use and for the pumped liquids stated in these installation and operating instructions.

#### Related information

[4.3.3 Setting the voltage converter](#)

[5.1 Priming the product](#)

[6.1.1 Intended use](#)

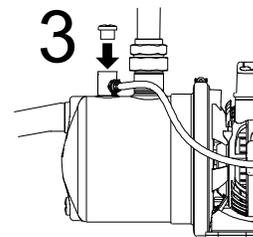
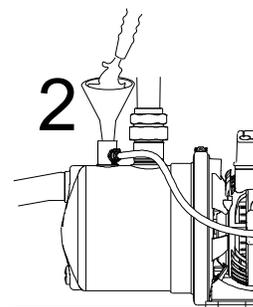
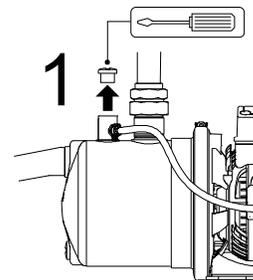
[6.2 Pumped liquids](#)

## 5.1 Priming the product



Always tighten the priming plug by hand.

1. Unscrew the priming plug.
2. Fill the pump with water.
3. Refit the priming plug and tighten by hand.



**Fig.** Priming the JP PS pump

#### Related information

[5. Startup of the product](#)

## 5.2 Starting up the product

After installing the product, do the following:

1. Open all isolating valves. Make sure that the water supply is sufficient on the inlet side of the pump.
2. Turn on the power supply to the pump, and the pump will start. If there is a suction lift, it can take up to five minutes before the pump delivers water. This period depends on the length and diameter of the inlet pipe.
3. Open the tapping point that is highest or furthest away from the pump to let out air trapped in the system.
4. When water flows through the tapping point, close it.
5. Startup is completed, and the pump is ready for operation.

### 5.2.1 Shaft seal run-in

The shaft seal faces are lubricated by the pumped liquid. A slight leakage from the shaft seal of up to 10 ml per day or 8 to 10 drops per hour may occur. Under normal conditions, the leaking liquid will evaporate. As a result, no leakage will be detected.

When the pump is started for the first time, or when the shaft seal has been replaced, a certain run-in period is required before the leakage is reduced to an acceptable level. The time required for this depends on the operating conditions, that is, every time the operating conditions change, a new run-in period will be started.

Leaking liquid will drain through the drain holes in the motor flange.

Install the product in such a way that leakage cannot cause undesirable collateral damage.

## 6. Product introduction

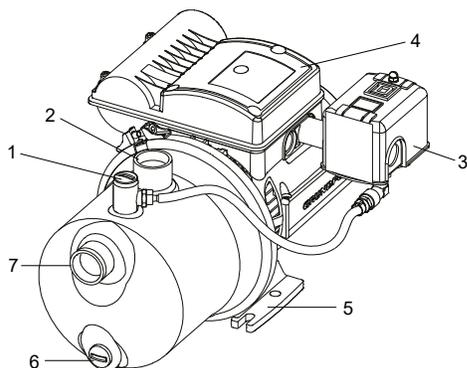
### JP PS

Grundfos JP PS pumps are designed for domestic use and ensure a constant supply of clean water to households and gardens as well as light commercial applications.

JP PS is a self-priming, single-stage centrifugal jet pump. The jet pump has excellent suction capacity and is designed for long and trouble-free operation. The built-in ejector with guide vanes ensures optimum self-priming properties. JP PS is small and compact. The pump housing is made of stainless steel.

JP PS pumps have a built-in pressure switch. The pressure control allows the pump to start and stop automatically according to demand when you open the tap.

### 6.1 Product overview, JP PS



TM074051

Pos.	Description
1	Priming plug
2	Outlet connection, 1" NPT
3	Pressure switch and cable connection
4	Terminal box

Pos.	Description
5	Base plate
6	Drain plug
7	Inlet connection, 1" NPT

### 6.1.1 Intended use



Only use the product according to the specifications stated in these installation and operating instructions.

The product is suitable for pressure boosting of clean water in domestic water-supply systems.

### Related information

[5. Startup of the product](#)

[6.2 Pumped liquids](#)

### 6.2 Pumped liquids

#### WARNING

##### Flammable material

Death or serious personal injury

- Do not use the product for flammable liquids such as diesel oil, gasoline or similar liquids. The product must only be used for water.



#### WARNING

##### Toxic material

Death or serious personal injury

- Do not use the product for toxic liquids. The product must only be used for water.



#### WARNING

##### Corrosive substance

Death or serious personal injury

- Do not use the product for aggressive liquids. The product must only be used for water.



If the water contains sand, gravel or other debris, there is a risk of pump blockage and pump damage. Install a filter on the inlet side or apply a floating strainer to protect the pump.

The product is suitable for pumping clean, thin, non-aggressive, non-toxic and non-explosive liquids without solid particles or fibers. Examples of liquids:

- potable water
- rainwater.

### Related information

[5. Startup of the product](#)

[6.1.1 Intended use](#)

## 6.3 Identification

### 6.3.1 Nameplate example for JP PS

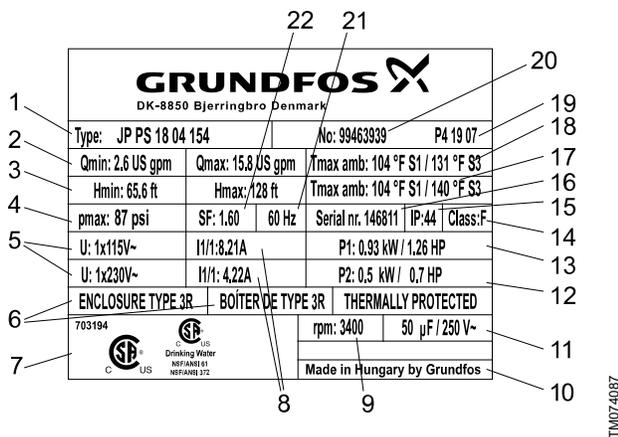


Fig. Nameplate, JP PS

Pos.	Description
1	Type (see the type key)
2	Min. flow rate and max. flow rate [gpm]
3	Min. head and max. head [ft]
4	Max. pressure [psi]
5	Supply voltage [V]
6	Enclosure type
7	Approvals
8	Full-load current [A]
9	Speed of rotation [rpm]
10	Country of origin
11	Capacitor data
12	Power consumption [Hp]
13	Rated power [Hp]
14	Insulation class
15	Enclosure class
16	Serial number
17	Max. liquid temperature [°F]
18	Max. ambient temperature [°F]
19	Factory, production code, year and week
20	Product number
21	Frequency
22	Service factor

#### Related information

##### 3.1 Inspecting the product

### 6.3.2 Type key, JP PS

#### Example:

**JP PS 18-05-154 1x115/230V 60 Hz Conduit XX**

Type designation	Description
JP	Jet pump
PS	Pressure switch
18	Nominal flow rate [US gpm]
05	Horsepower [Hp]
154	Max. head [ft]
1x115/230V	Dual voltage (115 or 230 V)
60 Hz	Frequency [Hz]
Conduit	Type of power connection
XX	Country of origin (Example: HU (Hungary))

## 7. Service

### WARNING

#### Electric shock

- Death or serious personal injury
- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.



### WARNING

#### Chemical hazard

- Death or serious personal injury
- Make sure that the product has only been used for water. If the product has been used for pumping aggressive liquids, flush the system with clean water before you start work on the product.



### WARNING

#### Pressurized system

- Death or serious personal injury
- Before dismantling the pump, drain the system or close the isolating valves on both sides of the pump. Slowly loosen the drain plug and depressurize the system.



### CAUTION

- Minor or moderate personal injury
- Before the pump is used for supplying drinking water, flush the pump thoroughly with clean water.



Only qualified persons are allowed to service the pump.

### 7.1 Maintenance

The product is maintenance-free during normal operation. For cleaning, use a dry and dust-free cloth.

### 7.2 Service kits

For further information on service kits, see Grundfos Product Center at <https://us.grundfos.com/products>.

## 8. Taking the product out of operation

### WARNING

#### Electric shock

- Death or serious personal injury
- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.



If the product is taken out of operation for a period of time, for example, during winter, it must be disconnected from the power supply and placed in a dry location. Follow these steps:

1. Disconnect the product from the power supply.
2. Open a tap to release the pressure in the pipe system.
3. Close the isolating valves and/or drain the pipes.
4. Gradually loosen the drain plug to release the pressure in the product.
5. Drain the product.
6. Store the product according to the recommended storing conditions.

#### Related information

[8.1 Draining the pump](#)

[8.2 Storage of the product](#)

### 8.1 Draining the pump

To drain the JP PS pump:

1. Unscrew the drain plug using a screwdriver.
2. Let the water flow out of the pump.
3. When the pump is empty, refit the plug by hand.

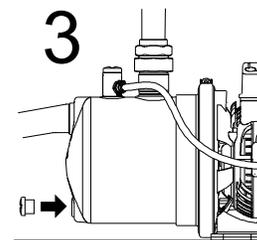
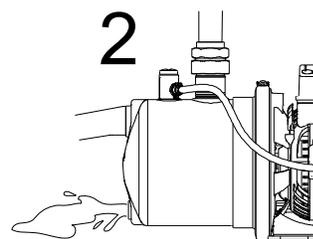
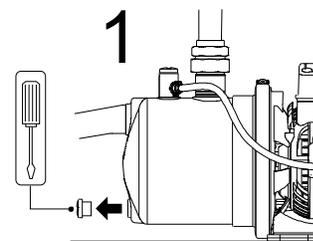


Fig. Draining the JP PS pump

#### Related information

[8. Taking the product out of operation](#)

### 8.2 Storage of the product

### WARNING

#### Electric shock

- Death or serious personal injury
- Switch off the power supply before you start any work on the product. Make sure that the power supply cannot be switched on accidentally.



If the product is to be stored for a period of time, for example, during winter, drain it by removing the drain plug and store the product indoors in a dry location.

During storage, the temperature must be between  $-40$  and  $+158$  °F ( $-40$  and  $+70$  °C) and have a maximum relative humidity of 98 % RH.

#### Related information

[8. Taking the product out of operation](#)

### 8.3 Frost protection

If the product is not used during periods of frost, it must be drained to avoid damage.

## 9. Troubleshooting

### 9.1 The motor does not start and makes no noise

<b>Cause</b>	Power supply failure
<b>Remedy</b>	<ul style="list-style-type: none"> <li>• Check the electrical connections. If the fault is repeated immediately, this means the motor is short circuiting.</li> <li>• Check that the motor is live. If the fault is repeated immediately, this means that the motor is short circuiting.</li> <li>• Check the protection fuses or breakers. If required, change burnt fuses or switch on tripped breakers.</li> <li>• Check that the pressure switch is live. Verify power at the switch terminals.</li> <li>• Ensure that the tank pre-loading pressure is not higher than the minimum value of the pressure switch. Set the pre-loading pressure at 2 psi below the minimum value of the pressure switch.</li> </ul>

### 9.2 The motor does not start but makes noise

<b>Cause</b>	Problem with electrical connections or blockage
<b>Remedy</b>	<ul style="list-style-type: none"> <li>• Ensure that the power supply values are the same as the values on the nameplate. Correct any errors.</li> <li>• Ensure that the connections have been made correctly. Correct any errors.</li> <li>• Check the condition of the capacitor. Replace the capacitor.</li> <li>• Look for possible blockages in the pump or motor. Remove the blockage.</li> </ul>

### 9.3 The motor turns with difficulty

<b>Cause</b>	Insufficient voltage or blockage
<b>Remedy</b>	<ul style="list-style-type: none"> <li>• Check the voltage which may be insufficient. Correct any errors.</li> <li>• Check whether any moving parts are scraping against fixed parts. Eliminate the cause of the scraping.</li> </ul>

### 9.4 The motor does not stop when the demand for water has ceased

<b>Cause</b>	Problem with the pressure switch
<b>Remedy</b>	<ul style="list-style-type: none"> <li>• Ensure that the value at which the pressure switch is set to stop the motor is not higher than the pressure than the pump can generate (suction + delivery). Set the pressure switch at a lower pressure.</li> <li>• Check that the pressure switch contacts move freely. If not, change the pressure switch.</li> </ul>

### 9.5 The pump does not deliver water

<b>Cause</b>	Insufficient intake or priming failure
<b>Remedy</b>	<ul style="list-style-type: none"> <li>• The pump has not been primed correctly. Repeat the priming procedure.</li> <li>• The diameter of the intake pipe is insufficient. Replace the pipe with a larger diameter one.</li> <li>• Blocked foot valve. Clean the foot valve.</li> </ul>

### 9.6 The pump does not prime

<b>Cause</b>	Air pockets
<b>Remedy</b>	<ul style="list-style-type: none"> <li>• The intake pipe or the foot valve is taking in air. Correct the problem and prime again.</li> <li>• The downward slope of the intake pipe favors the formation of air pockets. Correct the inclination of the intake pipe.</li> </ul>

### 9.7 The pump supplies insufficient flow

<b>Cause</b>	Insufficient intake due to blockage or worn parts
<b>Remedy</b>	<ul style="list-style-type: none"> <li>Blocked foot valve. Clean the foot valve.</li> <li>The impeller is blocked or worn. Remove the blockage or replace the worn parts.</li> <li>The diameter of the intake pipe is insufficient. Replace it with a larger diameter pipe.</li> </ul>

### 9.8 The pump vibrates and operates noisily

<b>Cause</b>	Loose parts or problem with flow
<b>Remedy</b>	<ul style="list-style-type: none"> <li>Check that the pump and the pipes are firmly anchored. Tighten or fix the loose parts.</li> <li>Cavitation in the pump, that is greater demand than the pump's ability to deliver. Reduce the intake height or check for load losses.</li> <li>The pump is running above its intended maximum capacity. Limit the flow at delivery.</li> </ul>

### 9.9 The pump stops unexpectedly during operation and starts again after a while

<b>Cause</b>	Overheating
<b>Remedy</b>	<ul style="list-style-type: none"> <li>The thermal switch in the motor has tripped. The motor will restart when it has cooled. If not, check the impeller for blockage. Check that the ambient temperature is below that stated on the nameplate.</li> <li>If you find no blockage or high ambient temperature, then the motor is defective. Replace the product.</li> </ul>

### 9.10 The pressure switch starts and stops frequently during normal water delivery

<b>Cause</b>	Incorrect pressure switch setting
<b>Remedy</b>	<ul style="list-style-type: none"> <li>Check the setting of the pressure switch. Increase the setting value incrementally until the problem is resolved. Do not forget to reset the minimum intervention pressure.</li> <li>Ensure that the air charge in the pressure tank is set at 2 psi less than the pressure switch setting while there is no water pressure in the system.</li> <li>The pressure tank diaphragm is broken. Replace the pressure tank.</li> </ul>

## 10. Technical data

### 10.1 Operating conditions

System pressure	Max. 87 psi (6 bar / 0.60 MPa)
Suction lift	Max. 26.25 ft (8 m), including inlet-pipe pressure loss at a liquid temperature of 68 °F (20 °C)
Liquid temperature	Max. 104 °F (40 °C) (S1 mode*) / 140 °F (60 °C) (S3 mode**)
Ambient temperature	Max. 104 °F (40 °C) (S1 mode*) / 131 °F (55 °C) (S3 mode**)
Relative humidity	Max. 98 %
Enclosure class	IP44
Insulation class	F
Supply voltage	1 x 115 V, 60 Hz 1 x 230 V, 60 Hz
Start/stop frequency	Max. 20 per hour
Sound pressure level	Max. sound pressure level of the pump: JP 13 03 137: 68 [dB(A)] JP 18 05 154: 70 [dB(A)] JP 18 07 177: 74 [dB(A)] JP 22 10 157: 81 [dB(A)]

\* S1 mode: The pump runs continuous operation.

\*\* S3 mode: The pump's overheating protection ensures the pump runs intermittent operation when the air temperature is too high to cool the motor efficiently.

### Related information

[4.1.3 Ambient temperature during operation](#)

[4.2.2.1 Maximum system pressure](#)

### 10.2 Head and flow rate

Max. head	JP PS 13 03 137: 137 ft (42 m) JP PS 18 05 154: 154 ft (47 m) JP PS 18 07 177: 177 ft (54 m) JP PS 22 10 157: 157 ft (48 m)
Max. flow rate	JP PS 13 03 137: 13.2 gpm (3 m <sup>3</sup> /h) JP PS 18 05 154: 17.6 gpm (4 m <sup>3</sup> /h) JP PS 18 07 177: 17.6 gpm (4 m <sup>3</sup> /h) JP PS 22 10 157: 22.0 gpm (5 m <sup>3</sup> /h)

### 10.3 Inlet pressure

Model	Max. inlet pressure
JP 13 03 137	21.75 psi (1.5 bar / 0.15 MPa)
JP 18 05 154	14.50 psi (1.0 bar / 0.10 MPa)
JP 18 07 177	7.25 psi (0.5 bar / 0.05 MPa)
JP 22 10 157	14.50 psi (1.0 bar / 0.10 MPa)

### Related information

[4.2.2.1 Maximum system pressure](#)

### 10.4 Miscellaneous data

Cut-in pressure	Preset cut-in pressure (start pressure): JP PS: 30-50 psi
Min./max. storage temperature	-4/+158 °F (-20/+70 °C)

## 11. Disposing of the product

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop. See also end-of-life information at [www.grundfos.com/product-recycling](http://www.grundfos.com/product-recycling).
3. Consider recycling scrap metal to reduce waste and to help to limit new mining.

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