JP

Installation and operating instructions

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GRUNDFOS

English (GB) Installation and operating instructions

Original installation and operating instructions.

CONTENTS

Warning

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

Warning

The use of this product requires experience with and knowledge of the product.
Persons with reduced physical, sensory or mental capabilities must not use this product, unless they are under supervision or have been instructed in the use of the product by a person responsible for their safety.
Children must not use or play with this product.

1. 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.

Warning

When pumping hot liquids, make sure that persons cannot accidentally come into contact with hot surfaces.

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.

2. General information

These instructions apply to JP 5 and JP 6 pumps in material variants A and B.

3. Applications

The Grundfos jet pumps, type JP, are horizontal, self-priming centrifugal pumps designed for pumping water and other thin, non-aggressive and non-explosive liquids, not containing solid particles or fibres.

If the pump has been used for dirty liquids, e.g. pool water, flush it through with clean water immediately after use.

Warning

Do not use the pump for flammable liquids, such as diesel oil and petrol.

Warning

Do not use the pump for aggressive liquids, such as acids and seawater.

4. Identification

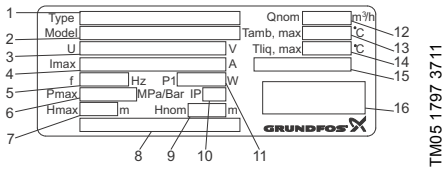

Fig. 1 Nameplate

Pos.	Description
1	Type
2	Model
3	Supply voltage
4	Maximum current
5	Frequency
6	Maximum pressure
7	Maximum head
8	Country of origin
9	Rated head
10	Enclosure class
11	Input power
12	Rated flow rate
13	Maximum ambient temperature
14	Maximum liquid temperature
15	Efficiency class
16	Production company

5. Installation

The pump must be installed horizontally.

When the suction pipe is longer than 10 metres or the suction lift is greater than 4 metres, the diameter of the suction pipe must be larger than 1". If there is a suction lift, we recommend that you fit a non-return valve to the suction pipe.

If a hose is used as a suction pipe, it must be non-collapsible.

To prevent solids from entering the pump, a filter can be fitted to the suction pipe.

Make sure that the pump is not stressed by the pipework.

Connect the discharge pipe to the pump discharge port (T). See fig. 2. H = maximum 7 metres.

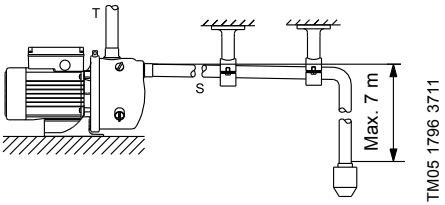

Fig. 2 Pipe connection

Installation dimensions can be found on page 206.

5.1 Handle

It is not necessary to fit the handle supplied on permanently installed pumps.

On portable pumps the handle can be fitted lengthwise or crosswise depending on the material variant.

5.2 Ejector valve

The ejector valve is supplied separate with the pump.

Remove the plug (V), see fig. 5, and fit the ejector valve into the hole.

Note The O-ring must be fitted to the ejector valve.

Tighten the valve using fingers only.

5.2.1 Ejector valve setting

The ejector valve in the plug hole (V) can be turned to two positions. See fig. 4.

Figure 3 shows an example of how the ejector valve position may affect the QH curve.

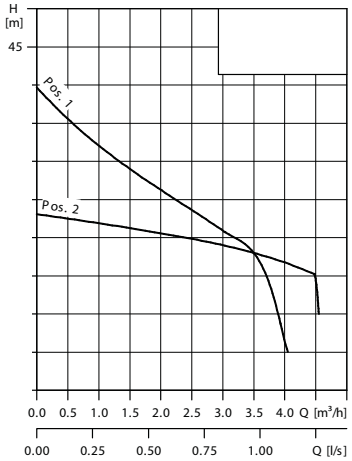

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Fig. 3 QH curve and ejector valve positions

Pos. 1

Turn the valve to the left (out).
Select pos. 1 when the suction pipe is empty and the pump is to be primed.

Select also pos. 1 when a small quantity of water and a high pressure are required.

Pos. 2

Turn the valve to the right (in).
Select pos. 2 when the pump has been primed, and a large quantity of water and a low pressure are required.

Warning

This position must only be used for high flow rates and constant water consumption.

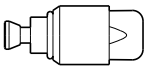
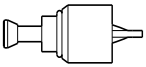
Pos.	Ejector valve	Direction	
1		Left (out)	TM04 2299 2308
2		Right (in)	TM04 2300 2308

Fig. 4 Ejector valve positions

6. Electrical connection

Carry out the electrical connection according to local regulations.

Warning

During electrical installation, make sure that the power supply cannot be accidentally switched on.

Warning

The pump must be connected to an external mains switch with a minimum contact gap of 3 mm in all poles.

As a precaution, the pump must be connected to a socket with earth connection.

We recommend that you fit the permanent installation with an earth leakage circuit breaker (ELCB) with a tripping current ≤ 30 mA.

Single-phase motors incorporate a thermal switch and require no additional motor protection.

Three-phase motors must be connected to an external mains switch and a motor-protective circuit breaker.

Carry out the electrical connection as shown in the diagram on the inside of the terminal box cover.

6.1 Checking the direction of rotation (three-phase motors)

Warning

Do not start the pump until it has been filled with liquid.

Arrows on the motor fan cover indicate the correct direction of rotation.

If the direction of rotation is wrong, switch off the power supply and interchange any two of the incoming supply wires.

7. Startup

Warning

Do not start the pump until it has been filled with liquid.

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

7.1 Filling the pump with water

1. Remove the plug (P). See fig. 5.
2. Fill the pump with water.
3. Refit the plug and tighten it using fingers only.

The pump can now be started.

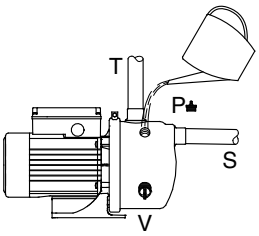


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Fig. 5 Filling the pump with water

If there is a suction lift, up to four minutes may pass from the moment the pump is started until it delivers water. This period depends on the length and diameter of the suction pipe.

When the pump is delivering water without air, you may turn the ejector valve to position 2. See fig. 4.

7.2 Shaft seal run-in

The seal faces are lubricated by the pumped liquid, meaning that there may be a certain amount of leakage from the shaft seal.

When the pump is started up for the first time, or when a new shaft seal is installed, 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, i.e. every time the operating conditions change, a new run-in period will be started.

Under normal conditions, the leaking liquid will evaporate. As a result, no leakage will be detected.

8. Maintenance

If the pump has been used for dirty liquids, e.g. pool water, it must be flushed through with clean water immediately after use.

8.1 Cleaning the pump

It is only necessary to clean the pump if it does not work as intended and flushing it with clean water did not eliminate the problem.

Warning

Before starting work on the product, switch off the power supply. Make sure that the power supply cannot be accidentally switched on.

The position numbers mentioned in the following sections refer to fig. 6.

8.1.1 Dismantling

1. Pumps with ejector valve: Turn the ejector valve to pos. 1. See fig. 4.
2. Drain the pump by removing plug (pos. 25) or ejector valve (pos. 25a).

Warning

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

3. Remove screw (pos. 93) and clamp (pos. 92) holding pump sleeve (pos. 16).
4. Push pump sleeve (pos. 16) free of the motor stool with a screwdriver and take it off.
5. Pull ejector (pos. 14) out of the pump sleeve.
6. Clean the ejector and the pump sleeve using a soft brush or a water jet.
7. Check if impeller (pos. 49) is dirty. If that is the case, clean the impeller (in place) using a soft brush or a water jet. See fig. 7.
   To prevent the impeller and shaft from rotating, hold the motor fan blades.

Caution Do not use a high-pressure jet cleaner.

8.1.2 Assembly

1. Moisten O-ring (pos. 13) with soapy water and fit it into the recess of the suction port of ejector (pos. 14).
2. Fit the ejector into pump sleeve (pos. 16). Check that O-ring (pos. 13) is positioned correctly on the collar of the suction port of the sleeve.
3. Moisten O-ring (pos. 31) with soapy water and place it on the ejector.
4. Moisten seal ring (pos. 91) with soapy water, fit it into the recess of the ejector and turn it against the stop.
5. Fit the pump sleeve with the ejector to the motor stool. Check that O-ring (pos. 31) is positioned correctly.
6. Place clamp (pos. 92) on the pump sleeve, and fit and tighten the screw and nut.
7. Refit plug (pos. 25) or ejector valve (pos. 25a). Check that the ejector valve is in position 1. See fig. 4. Tighten the plug or ejector valve using fingers only.

In orders for spare parts, please mention the position number in fig. 6 and the pump data marked on the pump nameplate.

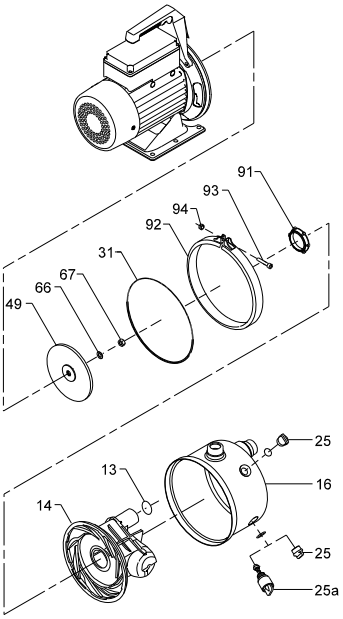

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Fig. 6 Exploded view of jet pump

Note The pump illustrated in fig. 6 may differ from the actual pump version.

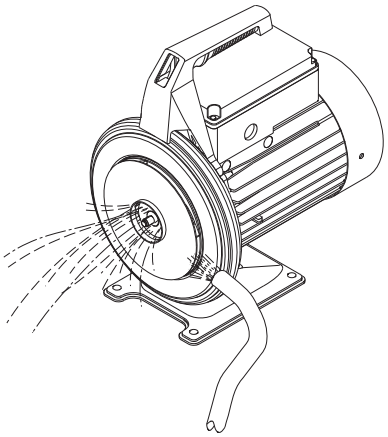

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Fig. 7 Cleaning the impeller

8.2 Frost protection

Caution If the pump is not used during periods of frosts, it must be drained to avoid damage.

To drain the pump, remove the plug (P) and the plug or the ejector valve (V). See fig. 8.

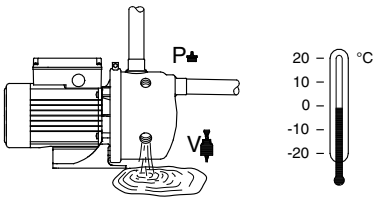

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Fig. 8 Draining the pump

Warning

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

Refit the plugs and tighten them using fingers only.

9. Technical data

Ambient temperature

Maximum +40 °C.

Storage temperature

Minimum -20 °C.

Maximum +70 °C.

Liquid temperature

See pump nameplate.

System pressure

Maximum 6 bar.

Inlet pressure

At inlet pressures above 1.5 bar the discharge pressure must be at least 2.5 bar.

Supply voltage

1 x 220-240 V, 50 Hz.

3 x 220-240/380-415 V, 50 Hz.

Insulation class

F.

Enclosure class

IP44.

Relative air humidity

Maximum 95 %.

Dimensions

See page 206.

Sound power level

The sound power level of the pump is lower than 72 dB(A).

Start/stop frequency

Maximum 100 per hour.

10. Fault finding

Warning

Before starting fault finding, switch off the power supply. Make sure that the power supply cannot be accidentally switched on.

Fault	Cause	Remedy
1. The pump does not start.	a) Supply failure.	Cut in the circuit breaker or replace the fuses. If the new fuses also blow, check the electric installation.
	b) Pump blocked by impurities.	Clean the pump. Check or replace the strainer in the suction pipe.
	c) Motor defective.	Repair or replace the motor.*
	d) Three-phase motors: The motor-protective circuit breaker has tripped.	Cut in the motor-protective circuit breaker. If the problem still persists, check these two possible causes: • Impeller stuck. Clean the pump according to section *8.1*. • Motor defective. Repair or replace the motor.*
2. The pump runs, but gives no water or delivers a reduced quantity of water.	a) Pump is not filled with water.	Prime the pump. See section *7*.
	b) Suction pipe blocked by impurities.	Clean the pump. Check or replace the strainer in the suction pipe.
	c) Pump blocked by impurities.	Clean the pump. Check or replace the strainer in the suction pipe.
	d) Suction lift is too high (over 7 metres).	Change the position of the pump.
	e) Suction pipe is too long.	Change the position of the pump.
	f) Diameter of suction pipe is too small.	Replace the suction pipe.
	g) Suction pipe is not immersed deeply enough.	Make sure that the suction pipe is immersed sufficiently.
	h) Suction pipe is leaking.	Repair or replace the pipe.
	i) Ejector valve setting is incorrect (only pumps fitted with ejector valve).	Set the valve. See section *5.2*.
	j) Direction of rotation is incorrect (three-phase pumps).	Interchange two phases.
3. The pump runs, but gives no water or delivers a reduced quantity of water at high pressure.	a) Discharge pipe blocked.	Clean pipe or open isolating valves, if fitted. Check that no additional work is being carried out in the system.

Fault	Cause	Remedy
4. The motor cuts out during operation.	a) Single-phase motors: The thermal switch in the motor has tripped due to overheating.	The thermal switch will cut in automatically when the motor has cooled sufficiently. If the problem still persists, check these two possible causes: • Impeller stuck. Clean the pump according to section *8.1*. • Motor defective. Repair or replace the motor.*
	b) Three-phase motors: Motor-protective circuit breaker has tripped.	Cut in the motor-protective circuit breaker. If the problem still persists, check these two possible causes: • Impeller stuck. Clean the pump according to section *8.1*. • Motor defective. Repair or replace the motor.*

* Or contact the nearest Grundfos company or service workshop.

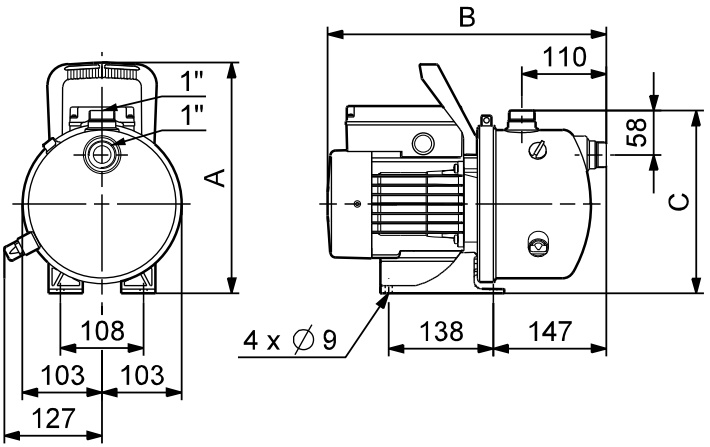
11. Disposal

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.

Appendix

Material variant A



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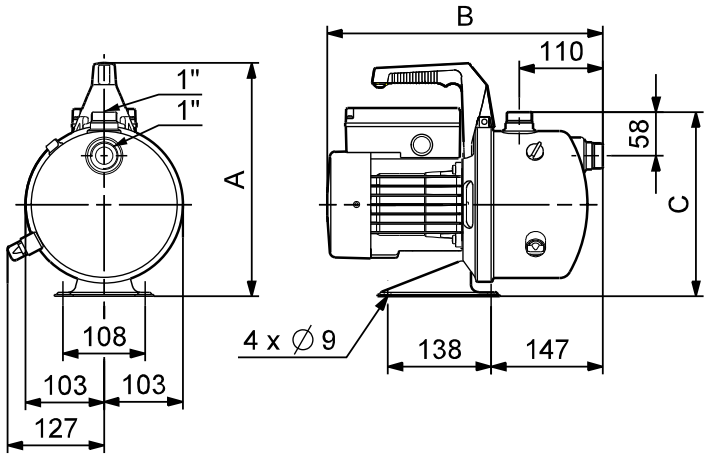
Pump type	Dimensions [mm]		
	A	B	C
JP 5, material variant A	300	364	240
JP 6, material variant A	300	401	240

Material variant B



TM04 2347 2308

Pump type	Dimensions [mm]		
	A	B	C
JP 5, material variant B	306	364	240
JP 6, material variant B	306	401	240

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