Model JEU

Self Priming Jet Pump

Operating Instructions, Installation & Maintenance Manual

Certified to NSF/ANSI 61, ANNEX G

** NSF/ANSI 61 Annex G listed*

EBARA Fluid Handling EBARA International Corporation

Contents

Manufacturer and Pump Identification Data

Manufacturer Data

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Pump Data

Description: Self-Priming Surface Pump
Model: JEU

Technical Assistance

If the malfunction of the pump is not included in the troubleshooting table (page 11), contact the nearest appointed distributor.

Introduction

This publication contains all the necessary information and instructions for use and maintenance of your JEU pump.

Follow the instructions provided to obtain optimum performance and correct operation of the pump. For any other information you may require, please contact the nearest appointed distributor.

General Safety Warnings

FAILURE TO OBSERVE THESE WARNINGS AND/OR TAMPERING WITH THE PUMP RELIEVES EBARA OF ANY RESPONSIBILITY IN THE EVENT OF DAMAGE TO PERSONS OR OBJECTS AND/OR TO THE PUMP.

Before starting the pump it is important for the user to know how to perform all the operations described in this manual and to apply them at all times during use or maintenance of the pump.

There are no RESIDUAL RISKS for JEU pumps.
No particular technical skills are required to use a JEU pump.

Preventative Measures to be Taken by The User

The user must comply with all the accident prevention regulations in force in the country in which the pump is being used. The instructions provided in the Technical Data (page 4) must be followed exactly.

During pump repairs or maintenance, remove the plug from the socket and/or turn off the switch (if provided), thus interrupting the supply of electric power to the pump. This will prevent accidental starting which could cause damage to persons and/or objects.

All maintenance operations, installations or shifting of the pump with the electric system live may cause severe or fatal injury. During operation, avoid moving or shifting the pump.

Before using the pump, always check that the cable and all the electric devices are in working condition.

Never start the pump (by inserting the plug in the socket and/or switching on the switch) with bare feet, with your feet in the water, or with wet hands.

JEU pumps are designed in such a way that all the moving parts are protected by the use of casings. EBARA declines all responsibility in the event of damage caused as a result of tampering with these devices.

Each lead or live part is electrically insulated to ground: there is also an additional safety device in that the accessible conductive parts are connected to a ground lead so that the parts within reach do not become electrically charged in the event of failure of the principal insulation.

Description

JEU pumps are similar in function and construction with the only differences:

- power
- flow rate
- head
- electric power supply (single-phase or three-phase)
- weight
- dimensions

JEU pumps are used for lifting and handling water, even at high temperatures (Technical Data). Due to the small construction and ease of transport, the JEU pump can be used for fixed or temporary installations, with easy disconnection from the system/application.

They are particularly silent-running pumps with good hydraulic performance. The **venturi nozzle** system allows an increase in pressure, exceptional operating safety, and suction from a well with a depth of about 25 ft.

The pumps are guaranteed to have a long life and constant performance if used according to the specifications as outlined on pages 8 and page 11.

Technical Data

Pump Technical Data

Max. fluid temperature	45°C
Max. suction depth	25 feet
Max. working pressure	6 bar
Type of impeller	closed
Type of seal on the shaft	mechanical seal
Type of bearing	shielded ball bearing
Suction diameter	1¼" NPT thread
Discharge diameter	1" NPT thread
Impeller material	stainless steel
Liner material	stainless steel
Shaft material	stainless steel
Venturi group material with diffuser	noryl
Max. number of starts per hour	40

Recommended (and Non-Recommended) Use

WARNING:

Failure to respect the prescribed limits constitutes a situation of use that is technically improper and endangers the safety of persons; RELIEVING EBARA OF ANY RESPONSIBILITY IN THE EVENT OF ACCIDENTS TO PERSONS OR DAMAGE TO OBJECTS OR TO THE PUMP AND ALSO RENDERING THE WARRANTY VOID.

Recommended Use

JEU pumps may be used for handling water in domestic systems including:

- for lifting and distributing water in domestic systems, in continuous or intermittent duty;
- for increasing the water supply mains pressure in derivations;
- for automatic water distribution with small or medium-size autoclave reservoirs;
- for emptying tanks and reservoirs;
- for irrigating and watering gardens;
- for supplying water under pressure to houses;
- for washing vehicles;
- for small autoclaves with automatic operation, with a preloaded air cushion and interchangeable diaphragm made of special rubber for food use. They maintain constant pressure in the system and also ensure that the necessary amount of water is supplied to all the user points.

Use the pump in keeping with its technical specifications (page 4).

Non-Recommended Use

JEU pumps cannot be used for handling dirty water or water with suspended bodies, water containing acids and corrosive liquids in general, water with temperatures higher than 45°C, seawater, flammable and generally dangerous liquids.

JEU pumps must never be allowed to run without water.

Handling and Transport

Unpacking

Check that there are no breaks or severe dents in the packing. If there are, point this out immediately to the person who delivered the material. After removing the pump from the package, check that it has not suffered any damage during shipping. If damage is found, inform the distributor **within 8 days of delivery**. Check that the specifications stated on the plate of the pump are the same as requested in your order.

Handling and Disconnecting

WARNING:
FAILURE TO FOLLOW THESE INSTRUCTIONS MAY CAUSE THE PUMP TO FAIL, SUFFERING SEVERE DAMAGE.

DO NOT USE THE POWER CABLE TO LIFT OR DRAG THE PUMPS.

To handle or disconnect the pump you must:

- remove the plug from the power socket and/or turn off the switch (if included);
- remove the discharge pipe if necessary;
- remove the suction pipe if necessary;
- roll up and hold the electric power cable in your hand;
- lift the pump in both hands;
- if the pump has a handle, fit it and anchor it well.

If the pump is set up for fixed applications, perform the following operations to move it; however, before lifting it, unscrew the screws that fasten the pump to the surface that it stands on.

Transport

The pump is packed in a cardboard box for transport; as its total weight and bulk are not excessive shipping presents no problems. However, check the total weight marked on the box.

Before installation, check that the characteristics stated on the plate of the pump are the same as you requested in your order and ensure that it has suffered no damage.

Installation

WARNING – TO LIFT OR LOWER THE PUMP, USE A ROPE FIXED TO THE HANDLE. NEVER USE THE ELECTRIC POWER CABLE.

a) Use plastic pipes with a certain degree of rigidity or metal pipes, to prevent them from collapsing under the vacuum that is created during suction.
b) If using flexible pipes or hoses for suction or distribution, avoid bending them to prevent choking or blockages due to treading on them or twisting them.
c) Seal any connections in the pipes: air infiltration in the suction pipe have a negative influence on pump operation.
d) The suction pipe must have a foot valve and filter to prevent the entry of foreign bodies.
e) The end of the suction pipe must be immersed at a depth of at least twice the diameter of the pipe; it must also be at a distance of at least one and a half times the pipe diameter from the bottom of the tank.
f) On the discharge pipe, at the output of the pump, it is advisable to fit a no-return valve (with quick closing, to reduce water hammer) and a gate valve, in this order.
g) Anchor the pipes to the tank, or to fixed parts, so that their weight is not borne by the pump.
h) Avoid using too many curves and valves in the system.
i) For suction depths greater than 12 feet, use a pipe with a larger diameter to obtain better performance.

Fixed Installation

a) The pump must be placed on a level surface, as near as possible to a source of water.
b) When positioning the pump, observe the minimum required distances from walls, so as to allow functioning, use and maintenance operations in safe conditions.
c) Use pipes with a suitable diameter (see page 4) fitted with threaded couplings, and screw them onto the suction and discharge of the pump.
d) Using a drill bit or a pen, mark the centers of the four holes for fixing the base of the pump to the surface on which it is to stand.
e) Move the pump aside for a moment and drill a hole in each center. The holes must be sufficiently deep to take a plastic expansion plug of suitable dimensions.
f) Check that the pump pipes are correctly positioned, then tighten the screws until the pipes are blocked in place.

Installation *(continued)*

Temporary Installation (For Temporary Use)

a) The pump must be placed on a level surface, as near as possible to a source of water.

b) When positioning the pump, observe the minimum required distances from walls, so as to allow functioning, use and maintenance operations in safe conditions.

c) Use pipes with a suitable diameter (see page 4) fitted with threaded couplings, and screw them onto the suction and discharge areas of the pump.

Assembly and Disassembly

The pump has no separate accessories, so no assembly is required for installation.

If the pump has to he disassembled (due to breakage or any other reason), the user must notify their distributor or Ebara International Corporation.

FAILURE TO COMPLY WITH THIS RENDERS THE WARRANTY VOID.

Preparation for Use

On three phase JEU pumps, check the direction of rotation of the motor. The impeller must turn in a clockwise direction when viewing the pump from above (see the arrow on the pump). As it is not possible to check the direction of rotation of the impeller visually, proceed as follows: before anchoring the pump in the system and without the pipes, connect the power cables to the electric panel and switch on the main switch for a moment; the direction of rotation of the fan that cools the motor of the pump is the same as the direction of rotation of the impeller. If it is turning in the wrong direction (that is counterclockwise), invert two of the three leads on the motor base.

Electrical Connection

AVOID GETTING THE BASE WET OR DAMP WHEN CONNECTING THE PUMP.

THE ELECTRICAL CONNECTION MUST BE CARRIED OUT BY A TRAINED ELECTRICIAN.

FOR BOTH THE THREE-PHASE AND THE SINGLE-PHASE VERSION, EBARA RECOMMENDS FITTING A HIGH-INTENSITY DIFFERENTIAL PRESSURE SWITCH IN THE ELECTRIC SYSTEM (0.03A).

Preparation for Use *(continued)*

Electrical Connection *(continued)*

- For connection to the power mains, use a cable complying with IEC standards with a suitable section (bearing in mind the installed power, as on page 4) and a suitable length; remember also the mains voltage and polarity (page 4).
- The power cable must be connected to the terminals as illustrated in the wiring diagram.
- The mains must have an efficient ground system complying with the electrical standards in force in the users country; the installer is responsible for checking this.

Single Phase Version

The pump must preferably be fed by means of an electric panel with a switch and fuses. The electric panel must be prepared by a trained electrician.

Three Phase Version

The three phase version does not have an internal motor protector, therefore the protection against overload must be supplied by the user. The pump must be fed by means of an electric panel with switch, fuses and a thermal switch set at the current absorbed by the pump. The electric panel must be prepared by a trained electrician.

Filling the Pump

WARNING – THIS OPERATION MUST BE PERFORMED WITH THE ELECTRIC BASE OF THE MOTOR COMPLETELY CLOSED.

a) Unscrew the hexagonal cap located on the top of the pump body, in front of the delivery union.
b) Using a funnel, fill the pump body with water until it overflows.
c) Screw the hexagonal cap back on until it is firmly locked, to prevent air infiltration.

Adjusting and Registering

Check that there are no leaks in the system.

Ensure that the pump does not vibrate abnormally during operation, is not too noisy, and does not have large variations in pressure and electric absorption. If any of these are found, refer to page 11.

Use and Start-up

WARNING – NEVER RUN THE PUMP WITHOUT WATER. LACK OF WATER MAY CAUSE SEVERE DAMAGE TO THE INTERNAL COMPONENT.

General Warnings

STARTING – When the pump is up to operating speed, open the discharge valve to obtain desired capacity or pressure.

WARNING! DO NOT ALLOW THE PUMP TO RUN WITH THE DISCHARGE VALVE TIGHTLY CLOSED. IF THE PUMP RUNS FOR AN EXTENDED PERIOD OF TIME WITHOUT LIQUID BEING DISCHARGED, THE LIQUID IN THE PUMP CASE CAN GET EXTREMELY HOT CAUSING SEVERE DAMAGE TO THE PUMP AND POSSIBLY CAUSE INJURY TO PEOPLE.

Starting

a) Ensure that the foot valve is not blocked.
b) Switch on and off two or three times to check operating conditions.
c) Begin continuous operation and gradually open the gate valve on delivery.
d) Check that noise, vibrations, pressure and electric voltage are at normal level (refer to page 11).

Stopping

a) Close the gate valve on delivery (this should always be done if the system is without no-return valves, especially in the presence of high heads), to prevent over-pressures in the pipes and pump due to water hammer.
b) Switch off.

Maintenance and Repairs

WARNING – BEFORE CARRYING OUT ANY MAINTENANCE OPERATIONS, DISCONNECT THE PLUG AND/OR SWITCH OFF.

THE PUMP MUST BE DISMANTLED ONLY BY TRAINED ELECTRICIANS. FAILURE TO OBSERVE THIS RULE RENDERS THE WARRANTY VOID. THE SAME APPLIES TO REPAIR JOBS AND/OR REPLACEMENTS.

When the pump remains inactive for a long period, it is advisable to empty it completely, removing the drainage and filling caps, wash it out thoroughly with clean water, then drain it again, ensuring that no water is left inside it.

This operation must always be performed when there is a risk of frost, to prevent breakages of the pump body.

Troubleshooting

Type of Fault
The pump does not work (the motor does not turn over).

Cause	Remedy
No electric power	Check the contactor on the electric line
Plug not inserted	Check power connection to the line
Automatic switch has tripped	Reset the switch and check the cause
Thermal protection has tripped *(single phase)*	This resets automatically *(single phase only)*
Protection fuses are burnt out *(three phase)*	Replace the fuses with others of the *(three phase)*
Incorrect electric connection	Check terminal board and electric panel
Faulty motor or capacitor	Contact the nearest distributor
Damaged bearing (noisy)	Contact the nearest distributor

Type of Fault
The pump does not work (the motor does not turn over).

Cause	Remedy
Voltage drop on the power line	
Clogged filter at end of suction	Dismantle and clean the filter
Foot valve blocked	Clean the valve and check its operation
No water in the pump	Fill the pump (page 9)
Pressure too low	Choke the delivery gate valve

Type of Fault
The pump works at a low flow rate.

Cause	Remedy
Foot valve partly clogged	Clean the valve and check its operation
Water level too low	Switch off the pump or immerse the foot valve
Wrong direction of rotation	Check the direction of rotation *(three phase only, page 9)*
Wrong supply voltage	Supply the pump with the correct voltage as indicated on the data plate.
Leaking pipes	Check the connections
Pressure too high	Check the system

Type of Fault
The pump stops after brief periods of operation (tripping of the thermal protection).

Cause	Remedy
Liquid temperature too high	The temperature exceeds the technical limits of the pump
Internal defect	Contact the nearest distributor

Troubleshooting *(continued)*

Type of Fault

The pump stops after brief periods of operation (booster set applications).

Cause	Remedy
Very small difference between maximum and minimum pressure	Increase the difference in pressure

Type of Fault

The pump does not stop.

Cause	Remedy
Maximum pressure too high	Set the maximum pressure at lower values

Type of Fault

The pump vibrates or makes too much noise while operating

Cause	Remedy
Flow rate too high	Reduce flow rate
Cavitation	Contact Ebara
Irregular piping	Adjust the pipe configuration
Noisy bearing	Contact Ebara
Foreign bodies rubbing	Remove the foreign bodies against the motor fan

EBARA Fluid Handling

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