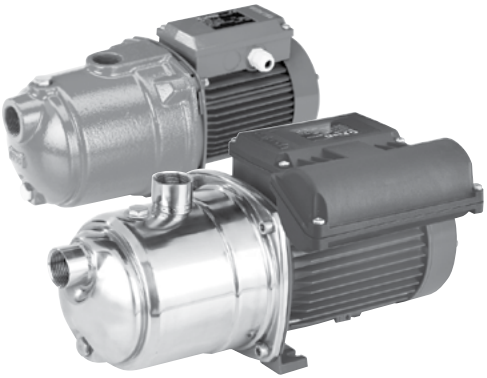
JCC - JSC
SHALLOW WELL PUMPS

INSTALLATION AND OPERATING INSTRUCTIONS

1. GENERAL INFORMATION



Before using the product carefully read the information contained in this instruction manual, the manual should be kept for future reference.
This manual is part of the essential safety requirement and must be retained until the product is finally decommissioned.
The customer, in case of loss, can request a copy of the manual by contacting the manufacturer or their agent, specifying the type of product data shown on the label of the machine (see 2.3 Marking)
Any changes, alterations or modifications made to the product or part of it, not authorized by the manufacturer, will revoke the "CE declaration" and warranty.
This appliance should not be operated by children younger than 8 years, people with reduced physical, sensory or mental capacities, or inexperienced people who are not familiar with the product, unless they are given close supervision or instructions on how to use it safely and are made aware by a responsible person of the dangers its use might entail.
Children must not play with the appliance.
It is the user's responsibility to clean and maintain the appliance. Children should never clean or maintain it unless they are given supervision.
Do not use in ponds, tanks or swimming pools or where people may enter or come into contact with the water.
Read carefully the installation section which sets forth:
- The maximum permissible structural working pressure (chapter 3.1).
- The type and section of the power cable (chapter 6.5).
- The type of electrical protection to be installed (chapter 6.5).

1.1. Symbols

To improve the understanding of the manual, below are indicated the symbols used with the related meaning.

Information and warnings that must be observed, otherwise there is a risk that compromise personnel safety.

The failure to observe electrical information and warnings, could damage the machine or compromise personnel safety.

Information and warnings that must be observed, otherwise there is a risk that compromise personnel safety.

Notes and warnings for the correct management of the machine and its parts.

Operations that could be performed by the final user. After carefully reading of the instructions, is responsible for maintenance under normal conditions. They are authorized to affect standard maintenance operations.

Operations that must be performed by a qualified electrician. Specialized technician authorized to affect all electrical operations including maintenance. They are able to operate with in the presence of high voltages.

Operations that must be done performed by a qualified technician. Specialized technician able to install the device, under normal conditions, working during "maintenance", and allowed to do electrical and mechanical interventions for maintenance. They must be capable of executing simple electrical and mechanical operations related to the maintenance of the device.

Indicates that it is mandatory to use individual protection devices.

OFF - Operations that must be done with the device switched off and disconnected from the power supply.

ON - Operations that must be done with the device switched on.

1.2. Authorized operators

The product is intended for use by expert operators divided into end users and specialized technicians. (see the symbols above).

It's forbidden, for the end user, carry out operations which must be done only by specialized technicians. The manufacturer declines any liability for damage related to the non-compliance of this warning.

1.3. Warranty

For the product warranty refer to the general terms and conditions of sale.

The warranty covers only the replacement and the repair of the defective parts of the goods (recognized by the manufacturer).

The Warranty will not be considered in the following cases:

- Whenever the use of the device does not conform to the instructions and information described in this manual.
- In case of changes or variations made without authorization of the manufacturer.
- In case of technical interventions executed by a nonauthorized personnel.
- In case of failing to carry out adequate maintenance.

1.4. Technical assistance

Any further information about the documentation, technical assistance and spare parts, shall be requested to the: manufacturer (paragraph 1.2).

2. TECHNICAL DESCRIPTION

Close-coupled self-priming shallow well jet pumps with built-in ejector.
JCC: version with pump casing in cast iron.
JSC: version with pump casing in stainless steel (AISI 304).

2.1. Intended use

For water and other clean liquids which are nonaggressive for the pump materials; for slightly dirty surface water.
Liquid temperature from 32 °F to + 95 °F.

2.2. Improper use

The device is designed and built only for the purpose described in paragraph 2.1.

Improper use of the device is forbidden, as is use under conditions other than those indicated in these instructions.

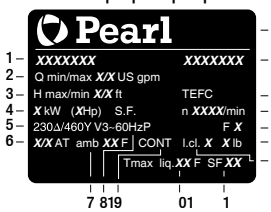
Improper use of the product reduces the safety and the efficiency of the device, the manufacturer shall not be responsible for failure or accident due to improper use.

2.3. Marking

The following picture is a copy of the name-plate that is on the external case of the pump.

1 Pump type
2 Delivery
3 Head
4 Rated power
5 Tension nominale
6 Nom. motor current
7 Ambient temperature
8 Frequence
9 Operation Duty
10 Liquid temperature
11 Service factor
12 Insulation class
13 Weight
14 Power factor
15 Rotation speed rpm
16 Protection
17 Serial number
18 Certifications

Example plate pump



3. TECHNICAL FEATURES

3.1. Technical data

Dimensions and weight (see technical catalogue).
Nominal speed 3450 rpm
Protection TEFC
The electric data marked on the label are referred to the nominal power of the motor.
Sound pressure: < 70 dB (A).
Max. starts per hour: 40 at regular intervals.
Maximum permissible pressure in the pump casing:
- 267 ft (116 PSI)
- 334 ft (145 PSI) for JCCQ15, JCCH 15, JCCH 20.

3.2. OPERATING CONDITIONS

Installation in well ventilated location protected from the weather, with a maximum ambient temperature of 104 °F.

4. SAFETY

4.1. General provisions

Before using the product it is necessary to know all the safety indications.

Carefully read all operating instructions and the indications defined for the different steps: from transportation to disposal.
The specialized technicians must carefully comply with all a pplicable standards and laws, including local regulations of the country where the pump is sold.
The device has been built in conformity with the current safety laws. The improper use could damage people, animals and objects.
The manufacturer declines any liability in the event of damage due to improper use or use under conditions other than those indicated on the name-plate and in these instructions.

Follow the routine maintenance schedules and the promptly replace damaged parts, this will allows the device to work in the best conditions.

Use only original spare parts provided by the manufacturer or from an authorized distributor.

Don't remove or change the labels placed on the device.

Do not start the device in case of defects or damaged parts.

Maintenance operations, requiring full or partial disassembly of the device, must be done only after disconnection from the supply.

4.2. Safety devices

The device has an external case that prevents any contact with internal parts.

4.3. Residual risks

The appliance, designed for use, when used in-line with the design and safety rules, doesn't have residual risks.

4.4. Information and Safety signals

For this product there will not be any signals on the product.

4.5. Individual protection devices

During installation, starting and maintenance it is suggested to the authorized operators to consider the use of individual protection devices suitable for described activities.
During ordinary and extraordinary maintenance interventions, safety gloves are required.

Signal Individual protection device

HAND PROTECTION
(gloves for protection against chemical, thermal and mechanical risks).

5. TRANSPORTATION AND HANDLING

The product is packed to maintain the content intact.
During transportation avoid to stack excessive weights.
Ensure that during the transportation the box cannot move.
It is not necessary to use any special vehicle to transport the packaged device.
The transport vehicles must comply, for the weight and dimensions, with the chosen product (see technical catalogue dimensions and weights).

5.1. Handling

Handle with care, the packages must not receive impacts.
Avoid to impact onto the package materials that could damage the pump.
If the weight exceeds 55 lbs the package must be handled by two person at the same time.

6. INSTALLATION

6.1. Dimensions

For the dimensions of the device (see technical catalogue).

6.2. Ambient requirements and installation site dimensions.
The customer has to prepare the installation site in order to guarantee the right installation and in order to fulfill the device requirements (electrical supply, etc...).
The place where the device will be installed must fulfill the requirements in the paragraph

3.2. Operating conditions

It's Absolutely forbidden to install the machine in an environment with potentially explosive atmosphere.

6.3. Unpacking

Inspect the device in order to check any damages which may have occurred during transportation.
Package material, once removed, must be discarded/ recycled according to local laws of the destination country.

6.4. Installation

See installation examples, par. 13 fig. 1 and 2.
The pumps must be installed with the rotor axis in the horizontal position and with the feet under the pump.
Place the pump as close as possible to the suction source.
Provide space around the pump for motor ventilation, to allow for checking of shaft rota-tion, for filling and draining the pump.

6.4.1. Pipes

Ensure the insides of pipes are clean and unobstructed before connection.

ATTENTION: The pipes connected to the pump should be secured to rest clamps so that they do not transmit stress, strain or vibrations to the pump (par. 13 fig. 3).
Tighten the pipes or union coupling to the extent sufficient to ensure a tight seal.
Excessive torque may cause damage to the pump.
When the pipe or union coupling is mounted, keep the pump casing connection blocked with a second wrench, making sure the connection is not deformed by excessive tightening.
The pipe diameters must not be smaller than the pump connections.

6.4.2. Suction pipe

For capacities over 17,6 US gpm use a suction pipe 1" 1/4 (DN 32).
The suction pipe must be perfectly airtight and be led upwards in order to avoid air pockets.
With a pump located above the water level (suction lift operation, par. 13. fig. 2) fit a foot valve with strainer which must always remain immersed or a check valve on the suction connection.
If operating with flexible hoses use a reinforced spiral suction hose, in order to avoid the hose narrowing due to suction vacuum.
With the liquid level on the suction side above the pump (inflow under positive suction head, par. 13. fig.1 fit an inlet gate valve.
For suction from a storage tank fit an anti-backflow valve. Follow local specifications if increasing network pressure.
Install a strainer on the suction side of the pump to prevent foreign particles from entering the pump.

6.4.3. Delivery pipe
Fit a gate valve in the delivery pipe to adjust delivery and head.
Install a pressure gauge.
With a geodetic head at outlet over 49 ft fit a check valve between the pump and the gate valve in order to protect the pump from water hammering.

6.5. Electrical connection

Electrical connection must be carried out only by a qualified electrician in accordance with local regulations.

Always follow the National Electrical Code (NEC), or the Canadian Electrical Code, as well as all local, state and provincial codes. Code questions should be directed to your local electrical inspector. Failure to follow electrical codes and OSHA safety standards may result in personal injury or equipment damage. Failure to follow manufacturer's installation instructions may result in electrical shock, fire hazard, personal injury or death, damaged equipment, provide unsatisfactory performance, and may void manufacturer's warranty.

Install, ground and wire according to local and National Electrical Code Requirements.

Electrical supply MUST match pump's nameplate specifications. Incorrect voltage can cause fire, damage to the motor and voids the warranty.

Pumps not protected MUST be provided with contactors and thermal overloads for single phase motors. See motor nameplate.

Use only copper wire to motor and ground. The ground wire MUST be at least as large as the wire to the motor.
Wires should be color coded for ease of maintenance.
Compare the frequency and mains voltage with the name-plate data and connect the supply conductors to the terminals in accordance with the appropriate diagram inside the terminal box cover.

ATTENTION: never allow washers or other metal parts to fall into the internal cable opening between the terminal box and stator. If this occurs, dismantle the motor to recover the object which has fallen inside.
If the terminal box is provided with an inlet gland, use a flexible power supply cord of the H07 RN-F type with section of cable not less than 11 TAB IEC 60335-1.
If the terminal box is provided with an inlet bushing, connect the power supply cord through a conduit.
For use in swimming pools (not when persons are in the pool), garden ponds and similar places, a residual current device with IΔN not exceeding 30 mA must be installed in the supply circuit.
Install a device for disconnection from the mains (switch) with a contact separation of at least 0,12 inch in all poles.
With a three-phase motor install an overload protection device with curve D appropriate for the rated current of the pump.
Single-phase, are supplied with a capacitor connected to the terminals with an incorporated thermal protector.

ATTENTION: When the pump is fed by a frequency converter, the minimum frequency should not fall below 25Hz and in any case the total head of the pump should never be lower than 10 ft.

7. STARTUP AND OPERATION

7.1. Preliminary checks before start-up of the pump
Do not start-up the device in case of damaged parts.

7.2. First starting

ATTENTION: never run the pump dry. Start the pump after filling it completely with liquid.
When the pump is located above the water level (suction lift operation par. 13 fig. 2) or with a positive suction head which is too low (less than 33 ft) to open the non-return valve, fill the pump through the priming hole (par. 13 fig. 4).
When the liquid level on the suction side is above the pump (inflow under positive suction head part. 13
fig. 1), fill the pump by opening the suction gate valve slowly and completely, keeping the delivery gate valve open to release the air.
Before starting, check that the shaft turns by hand. For this purpose use the screwdriver notch on the shaft end on the ventilation side.
When starting, with a three-phase motor, check that the direction of rotation is as shown by the arrows on the lantern bracket.
Otherwise, disconnect electrical power and reverse the connections of two phases.
Check that the pump works within its field of perfor-mance and that the absorbed current
shown on the name-plate is not exceeded. Otherwise adjust the delivery gate valve or the setting of any pressure switches.
If a priming loss occurs (interruption of delivery flow)
or if a pressure oscillation is indicated by the pressure gauge, make sure all the suction pipe couplings are perfectly sealed and tighten the two sealed plugs on the pump casing.

Never run the pump for more than five minutes with a closed gate valve.

Prolonged operation without a change of water in the pump causes dangerous increases of temperature and pressure.
When the water is overheated due to prolonged operation with a closed port, stop the pump before opening the gate valve.
To avoid any risk of danger to users and the creation of harmful thermal stress in the pump and system due to large temperature differentials, wait until the water has cooled inside the pump before starting again.
If the water is overheated on account of prolonged operation with a non-primed or insufficiently filled pump (suction lift operation), wait until cool before opening the draining and filling plugs.

Care must be taken when the pumped fluid has a high temperature. Do not touch the fluid when its temperature is higher than 140 °F. Do not touch the pump when the surface temperature is higher than 176 °F.

7.3. Self-priming

(Capability to clear the air in the suction pipe when starting with the pump located above the water level).

Conditions for self-priming:

• suction pipe with connections perfectly airtight and properly immersed in the water to be lifted;
• discharge pipe with a straight vertical free line above discharge port ≥16,5 ft (≥33 ft for JCCQ15, JCCH 15, JCCH 20), before a non-return valve (par. 13 fig. 6).
• pump casing completely filled with clean cold water berfore starting.

The pump is not self-priming with liquids containing oil, alcohol or foaming substances.
The check valve prevents reverse siphoning through the pump when the pump is stopped and retains water in the pump for the next start.
Without a foot valve or a check valve on the suction connection the filling operation must be repeated before each start-up.

ATTENTION: avoid a prolonged operation with unprimed pump, without water delivery from the completely opened outlet. If the pump does not prime in 5 minutes: stop the motor, remove the priming plug and add more water.
If necessary, repeat the priming operation after the pump has been first emptied and then completely filled with clean cold water.

7.4. Gate valve regulation

With the gate valve completely open or with an outlet pressure lower than the minimum pressure shown on the name-plate, the pump may be noisy. To reduce noise regulate the delivery gate valve.

7.5. Switch off of the pump

The appliance must be switch off every time there are faults. (see troubleshooting).

The product is designed for a continuous duty, the switch off is performed by disconnecting the power supply by means the

expected disconnecting devices.
(see paragraph “6.5 Electrical connection”).

8. MAINTENANCE

Before any operations it’s necessary to disconnect the power supply.

If required ask to an electrician or to an expert technician.
Every maintenance operations, cleaning or reparation executed with the electrical system under voltage, it could cause serious injuries to people.
In case of extraordinary maintenance, or maintenance operations that require part-removing, the operator must be a qualified technician able to read schemes and drawings.
It is suggest to register all maintenance operation executed.

During maintenance keep particular attention in order to avoid the introduction of small external parts, that could compromise the device safety.

It is forbidden to execute any operations with the direct use of hands. Use water-resistant, anti-cut gloves to disassemble and clean the filter or in other particular cases.

During maintenance operations external personnel is not allowed.

Maintenance operations that are not described in this manual must be made only by special personnel authorized by the manufacturer.
For further technical information regarding the use or the maintenance of the device, contact the manufacturer.

8.1. Routine maintenance

Before every maintenance operations disconnect the power supply and make sure that the device could not accidentally operate.

For good measure, as in the case of temporary operation with dirty liquids, run the pump briefly with clean water to remove deposits.

When the pump remains inactive it must be emptied completely if there is a risk of freezing (par. 13 fig. 5).
Before restarting the unit, check that the shaft is not jammed and fill the pump casing completely with liquid.

8.2. Dismantling the system

Close the suction and delivery gate valves and drain the pump casing before dismantling the pump.

8.3. Dismantling the pump

Close the suction and delivery gate valves and drain the pump casing before dismantling the pump (par. 13 fig. 5).
For dismantling and re-assembly see construction
in the cross section drawing.

9. DISPOSAL

The final disposal of the device must be done by specialized company.
Make sure the specialized company follows the classification of the material parts for the separation.
Observe the local regulations and dispose the device accordingly with the international rules for environment protection.

10. SPARE PARTS

10.1. Spare-parts request

When ordering spare parts, please quote their designation, position number in the cross section drawing and rated data from the pump name plate (type, date and serial number).
The spare parts request shall be sent to the manufacturer by phone, fax, e-mail.

11. DESIGNATION OF PARTS

N°	Designation	N°	Designation
14.00	Pump casing	70.00	Lantern bracket
14.04	Plug	73.00	Ball bearing
14.12	Plug	76.00	Motor casing with winding
14.20	O-ring	76.04	Cable gland
14.24	Screw	76.16	Support
14.46	Plug with washer	76.20	Pin
22.00	Ejector	76.54	Terminal box, set
22.12	O-ring	78.00	Shaft with rotor packet
22.16	O-ring	81.00	Ball bearing
26.00	Diffuser	82.00	Motor end shield
26.02	Diffuser plate	82.04	Compensating spring
26.06	O-ring	82.08	Screw
28.00	Impeller	88.00	Motor fan
28.04	Impeller nut	90.00	Fan cover
28.12	Circlip	90.04	Screw
28.20	Impeller key	92.00	Tie-bolt
32.00	Lantern bracket	94.00	Capacitor
34.00	Casing cover	94.02	Capacitor gland
36.00	Mechanical seal	98.00	Terminal box cover
36.52	Shoulder ring	98.04	Screw
46.00	Deflector	98.08	Gasket

Changes reserved

12. TROUBLESHOOTING

WARNING:

Turn off the power supply before performing any operations.
Do not allow the pump or motor to run when dry even for a short period.
Strictly follow the user instructions and if necessary contact an authorized service centre.

PROBLEM		POSSIBLE CAUSE	REMEDY
1.MOTOR DOES NOT START	1a	Unsuitable power supply	Check that the mains frequency and voltage correspond to the electrical characteristics shown on the indicator plate
	1b	Incorrect electrical connections	Connect the power supply cable to the terminal board correctly. Check that the thermal overload protection is set correctly (see data on the engine indicator plate) and make sure that the fuseboard upline of the engine has been properly connected
	1c	Engine overload protective device cuts in.	Check the power supply and make sure that the pump shaft is turning freely. Check that the thermal overload protection has been set correctly (see engine indicator plate)
	1d	Blown or defective fuses	Replace the fuses, check the electric power supply and points a) and c)
	1e	Shaft blocked	Remove the cause of blockage as indicated in the “Blocked pump” instruction booklet
	1f	If the above causes have already been checked, the engine may be malfunctioning	Repair or replace the engine by applying to an authorized service centre
2. PUMP BLOCKED	2a	Prolonged periods of inactivity with formation of rust inside the pump	Rotation may be started directly from the pump shaft or from the joint (remember to turn off the electricity supply first) or contact an authorized service centre
	2b	Presence of solid bodies in the pump rotor	If possible, dismantle the pump casing and remove any solid foreign bodies inside the rotor, if necessary contact an authorized service centre
	2c	Bearings siezed	If the bearings are damaged replace them or if necessary contact an authorized service centre
3. THE PUMP FUNCTIONS BUT NO WATER COMES OUT	3a	Possible infiltration of air from suction tube connections, drain plugs or filling of pump or from the gaskets of the suction pipe	Check which part is not tight and seal the connection adequately
	3b	Foot valve blocked or suction pipe not fully immersed in liquid	Clean or replace the bottom valve and use a suction pipe suitable for the application
	3c	Suction filter blocked	Clean the filter, if necessary, replace it . See point 2a) also.
4. INSUFFICIENT FLOW	4a	Pipes and accessories with diameter too small causing excessive loss of head	Use pipes and accessories suitable for the specific application
	4b	Presence of deposits or solid bodies in the internal passages of the rotor	Clean the rotor and install a suction filter to prevent other foreign bodies from entering
	4c	Rotor deteriorated	Replace the rotor, if necessary, contact an authorised service centre
	4d	Worn rotor and pump case	Replace the rotor and the pump casing
	4e	Excessive viscosity of the liquid pumped (if other than water)	The pump is unsuitable
	4f	Incorrect direction of rotation	Invert the electrical connections on the terminal board or control panel
	4g	Suction head excessive in relation to the suction capacity of pump	Try to close the feeder gate partially and/or reduce the difference in level of the pump and the liquid being aspirated
	4h	Suction pipe too long	Bring the pump closer to the suction tank so as to use a shorter pipe. If necessary use a pipe of a wider diameter
5. NOISE AND VIBRATIONS FROM THE PUMP	5a	Rotating part unbalanced	Check that no solid bodies are obstructing the rotor
	5b	Worn bearings	Replace the bearings
	5c	Pump and pipes not firmly attached	Anchor the delivery and suction piping as needed
	5d	Flow too strong for the diameter of the delivery pipe	Use bigger diameters or reduce the pump flow
	5e	Functioning in cavitation	Reduce the flow by adjusting the feeder gate and/or using pipes with a bigger internal diameter. See point 4g) too
	5f	Unbalanced power supply	Check that the mains voltage is right
	5g	Incorrect alignment of pump-motor unit	If necessary, the unit must be re-aligned
6. LEAKAGE FROM THE MECHANICAL SEAL	6a	The mechanical seal has functioned when dry or has stuck	Make sure that the pump casing (and the suction pipe if the pump is not self-priming) are full of liquid and that all the air has been expelled. See point 5 e) too.
	6b	Mechanical seal scored by presence of abrasive parts in the liquid pumped	Install a suction filter and use a seal suited to the characteristics of the liquid being pumped.
	6c	Mechanical seal unsuitable for the type of application	Choose a seal with characteristics suitable for the specific application
	6d	Slight initial drip during filling or on first start-up	Wait for the seal to adjust to the rotation of the shaft. If the problem persists, see points 6a), 6b) or 6c) or contact an authorized service centre.
			In cases 6a), 6b) and 6c), replace the seal, if necessary contact an authorized service centre