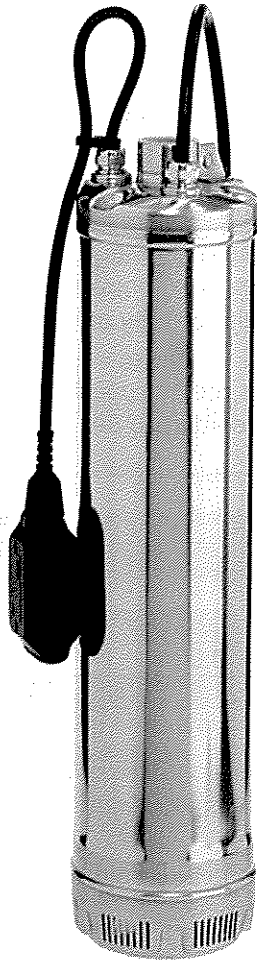




Franklin Electric

CS Series Bottom Intake Submersible Pump OWNER'S MANUAL



SAFETY RULES

NOTE: Before installing and using the electrical pump, carefully read the instructions provided below.

This manual contains fundamental instructions that must be followed during installation, operation and maintenance. This manual must be consulted by the person in charge of assembly and by all qualified personnel who will follow its operation, as designated by the installation manager. In addition, this manual must always be available at the location where the electrical pump is used.

Identification of the coded instructions contained in this manual



The safety rules in this manual whose lack of observance can cause physical damage are marked with the general danger symbol.

Risks deriving from the failure to observe safety rules

The failure to respect the safety rules can cause physical and material damage in addition to possibly polluting the environment. The failure to observe safety rules can void the warranty.

To cite a few examples, the failure to respect safety rules can cause:

- the failure of the installation or the electrical pump's principal functions,
- compromised maintenance operations,
- mechanical or electrical damage to people

GENERAL INFORMATION

This electrical pump has been manufactured using the most recent and advanced techniques, in full respect for laws in force, and has been subjected to strict quality control.

This manual will help you understand its operation and will help you become familiar with its possible applications.

The operation manual contains important recommendations for the correct and economical operation of the electric pump. It is necessary to respect these recommendations in order to guarantee its reliability and longevity, as well as to avoid the risk of accident deriving from improper use.

The electrical pump must never be used outside the limitations described in the technical specifications. It is necessary to respect the instructions regarding nature, density, temperature, flow rate and pressure of the pumped liquid, speed and direction of rotation and power of motor as well as all other instructions contained in this manual or in the documentation attached to the contract.

The name plate indicates the model, the principal service specifications and the serial number. It is important to provide this information when requesting assistance or support and to request replacement parts.

The manufacturer declines all responsibility in the case of accident or damage caused by negligence, improper use of the electrical pump or the failure to observe the instructions provided in this manual or use under conditions other than those stated in the name plate data.

1. PRELIMINARY INSPECTION

1.1 Delivery and Packing

Submerged electrical pumps are supplied in their original packing, in which they must remain until installation.

Remove the electrical pump from its packing and verify its integrity. Also verify that the data on the name plate corresponds to that desired. Immediately contact the supplier if there are any anomalies, indicating the nature of the defect.



If you are unsure about the safety of the electric pump, do not use it.

2. APPLICATIONS

These submerged electrical pumps are designed for a wide range of applications, such as water supply to private homes, for irrigating small areas and for pressure boosting. They are indispensable in the case of lowering of the water table and to increase pressure.



Do not use the electrical pump in swimming pools, garden ponds and similar places where and when people are in the water.

2.1 Liquids Pumped

Clean, non-aggressive liquids compatible with the materials used to construct the pump, without solid particles or fibres.

Any sand in the water must not exceed 50 g/m³. A higher concentration of sand will reduce the life of the electrical pump and increase the risk of its locking up.

3. PREPARATION / INSTALLATION

3.1 Conditions of Use

The electrical pump is suitable for both vertical and horizontal installation and must be used with respect for the following conditions:

- Maximum operating pressure: 10 bar.
- Maximum temperature of the liquid: +40 °C.
- Maximum density of the liquid pumped: 1.1 kg/dm³.
- Voltage variation allowed: ±5% (single-phase voltage 220-240 V 50 Hz - 220-230 V 60 Hz, 3-phase 380-415 V 50 Hz - 380-400 V 60Hz).
- Protection degree: IP 68.
- Maximum immersion depth: 20 m.
- Maximum diameter of the sucked solid bodies: 2 mm.

3.2 Diameter of the electrical pump

The maximum diameter of the electrical pump is 134 mm. Verify that the well does not offer restrictions or obstacles to the descent of the electrical pump.

4. ELECTRICAL CONNECTIONS



Before beginning to work on the electrical pump, make sure that you have disconnected the electricity from the power supply mains and that it cannot be accidentally reconnected.

4.1 General Information

Connections must only be performed by an authorized electrician in compliance with law in force. Verify that the data on the name plate match the nominal values for the power line. Make the connection after verifying the existence of a working grounding circuit.



It is the installer's responsibility to perform the connection in compliance with regulations in force in the country of installation.

Single-phase versions are equipped with a different internal condenser according to the power, as given in the table below.

Power P2 (kW) on name plate		Capacitor μF	
50 Hz	60 Hz	50 Hz	60 Hz
0,55		16	
0,75	0,75	20	20
0,9	0,9	30	20
1,1	1,1	30	25

For all single-phase versions, motor is protected against overloads by a thermal device (motor safety device) inserted in the winding.

For the connection of the three-phase versions refer to the instructions here below.

BLUE or GREY	U
BROWN	V
BLACK	W

The 3-phase versions need external protection (rapid disconnect magnetic overload cut-out) with intervention time calibrated to:

- Less than 10 seconds with 5 times I_N
- Less than 10 minutes with 1.5 times I_N

I_N = maximum value of current shown on name plate
Moreover, it is necessary to install a differential switch upstream of the electrical pump (max 30mA).

4.2 Checking the direction of rotation

After connecting the power supply, the direction of rotation can be inverted in the 3-phase versions; in this case, performance will be significantly lower than the nominal values. To verify a correct connection, proceed as follows:

1) Start the electrical pump before it is installed. By reaction, it must tend to rotate in a counter-clockwise direction as viewed from above. **Caution! This operation will be performed dry and must not last more than a few seconds.**

2) With the electrical pump operating, installed and submerged in the fluid to be pumped, use a clamp meter to measure the current absorbed. If the rotation is incorrect, you will see values about double those indicated on the name plate. To correct the problem, just reverse two of the phases.

5. INSTALLING THE ELECTRICAL PUMP



Before beginning to work on the electrical pump, make sure that you have disconnected the power supply from the power supply mains and that it cannot be accidentally reconnected.

The installation of the electrical pump can involve a certain amount of complexity. For this reason, it must be performed by competent and authorized installers.

5.1 Delivery Pipe

The diameter of the delivery pipe depends on the flow rate and pressure available at the points of use. For installations with long lengths of delivery pipe, friction loss can be reduced by using a pipe diameter larger than the discharge outlet on the pump. It is advisable to install a check valve after the discharge outlet to avoid dangerous water hammers in the event the electrical pump should stop suddenly. Do not use excessive force when screwing the pipe to the discharge outlet in order to avoid damage. The electrical pump can be installed for use with either a metal pipe (which can be used to support it) or flexible tubing. In the latter case, the electrical pump must be supported by a cable made of material with long-lasting resistance, passing through the eyelet at its head. Fix the power cable to the delivery pipe using suitable strap.

Caution! Do not underestimate the risk of drowning if the installation must be performed in a well of a certain depth. Make sure there is no danger of toxic vapours or harmful gases in the work atmosphere.

5.2 Inserting the Electrical pump in the Well

We recommend verifying that the well is not obstructed for its entire length.

Lower the electrical pump into the well, avoiding damage to the electrical cable.



Do not use the power cable to lower or support the pump in the well.

6. MAINTENANCE AND SERVICE

The electrical pump requires no particular maintenance. Having the electrical pump repaired by personnel who are not authorized by the manufacturer will void the guarantee and leave you working with equipment that is unsafe and potentially dangerous.



Before beginning to work on the electrical pump, make sure that you have disconnected the power supply from the power supply mains and that it cannot be accidentally reconnected.

Should the cable be damaged, it is necessary to have it replaced by the manufacturer or by authorized people. Moreover, it is suggested to verify periodically the status of cables and fairleads, especially on the connection points, as well as the cleaning of the suction grate.

DECLARATION OF CONFORMITY


The above listed products comply with the following Directives:

Machinery Directive 98/37/EC.

Low Voltage Directive 2006/95/EC.

Electromagnetic Compatibility 2004/108/EC.

They are also subject to the following harmonized standards: EN 809, EN 60335-2-41


Riccardo Fornasa
Director of Engineering - R&D

LIMITED WARRANTY

Franklin Electric Co., Inc.

Franklin Electric Co., Inc. warrants its new products to be free of defects in material and workmanship for a period of 1 year from date of installation or 2 years from date of manufacture, whichever comes first, WHEN installed in clean, potable water applications. Warranty does not cover applications pumping saltwater or other corrosive liquids. Consult and adhere to local codes for all applications. Franklin Electric Co., Inc. also provides additional warranty coverage on specific products as specified herein.

Franklin Electric's warranty obligation with regard to equipment not of its own manufacture is limited to the warranty actually extended to Franklin Electric by its suppliers.

This warranty extends only to the original retail purchaser and only during the time in which the original retail purchaser occupies the site where the product was originally installed.

Requests for service under this warranty shall be made by contacting the installing Franklin Electric dealer (point of purchase) as soon as possible after the discovery of any alleged defect. Franklin Electric will subsequently take corrective action as promptly as reasonably possible.

Franklin Electric at its discretion may replace or repair any product that fails under this warranty after inspection by an authorized company representative or after Franklin Electric has received the product at our factory. Replacement or repair cannot be made until after the product is inspected. All charges or expenses for freight to and from the factory, removal and reinstallation of the product, or installation of a replacement product are the responsibility of the purchaser.

THIS WARRANTY SUPERSEDES ANY WARRANTY NOT DATED OR BEARING AN EARLIER DATE. ANY IMPLIED WARRANTIES WHICH THE PURCHASER MAY HAVE, INCLUDING MERCHANT ABILITY AND FITNESS FOR A PARTICULAR PURPOSE, SHALL NOT EXTEND BEYOND THE APPLICABLE WARRANTY PERIOD. IN NO EVENT SHALL FRANKLIN ELECTRIC BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

This warranty does not apply to any product which has been subjected to negligence, alteration, accident, abuse, misuse, improper installation, vandalism, civil disturbances, or acts of God. The only warranties authorized by Franklin Electric are those set forth herein. Franklin Electric does not authorize other persons to extend any warranties with respect to its products, nor will Franklin Electric assume liability for any unauthorized warranties made in connection with the sale of its products.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM COUNTRY TO COUNTRY.

ASEAN

Franklin Electric (SEA) Pte Ltd.
Singapore Representative Office
1 Changi Business Park Avenue 1
03-01, Ultro Building
Singapore 486058

Phone: +65.6789.6865

Fax: +65.6789.0155

CHINA

Franklin Electric (Shanghai) Co., Ltd.
Room 1101, New HongQiao Center Bldg.
No. 83 LouShanGuan Road,
Shanghai 200336, China

Phone: +86.21.6236.8900

Fax: +86.21.6236.8903

AUSTRALIA / NEW ZEALAND

Franklin Electric (Australia) Pty. Ltd.
106 - 110 Micro Circuit
Dandenong South, Victoria 3175
Australia

Phone: +61.3.9799.5000

Fax: +61.3.9799.5050

www.franklin-electric.com.au

LATIN AMERICA

Motores Franklin S.A. de C.V.
Avenida Churubusco #1600
(Bodega #16)
Col. Francisco I. Madero
Monterrey, N.L.
Mexico C.P. 64560

Phone: +52.81.8000.1000

Fax: +52.818.864.8445

UNITED STATES

Franklin Electric Co., Inc.
400 E. Spring St., Bluffton, IN 46714 USA
Tel: +1.260.824.2900 Fax: +1.260.824.2909

