Owner's Manual

Thank you for purchasing a

Trevoli

BLC Series Stainless Steel Centrifugal Pump

Congratulations on your purchase of this Trevoli BLC Series Pump. Like all products, it has been developed with the help of the latest technologies and manufactured with the most advanced electrical/electronic parts.

Please read this entire manual before operating this equipment and keep this manual in a safe place. Use these operating instructions to familiarize yourself with your pump, its proper use and the safety instructions. Pay attention to all danger, warning and caution statements in this manual. Failure to do so could result in serious personal injury or damage to equipment. Make sure that the protection provided by this equipment is not impaired. Do not use or install this equipment in any manner other than that specified in the installation manual. Failure to comply with the safety regulations not only causes risk to personal safety and damage to the equipment, but may also invalidate the warranty.

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Warnings for the safety of individuals and objects.
Carefully follow the instructions marked with the following symbols.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given instruction concerning use of the appliance by, or are under the supervision of, a person responsible for their safety.

Children should be supervised to ensure that they do not play with the appliance.

DANGER
Electric shock risk

Warns that the failure to follow the directions given may cause electric shock.

WARNING

This sign warns the operator that failure to follow instruction may damage the pump and/or the system. Also warns that failure to follow the directions given could cause serious risk to individuals or objects.

Attention: Please read the following carefully.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.

Please keep the operating instructions in a safe place.

1. Where to Use the Pump

The pump is intended to transfer clean water or other liquids with physical and chemical properties similar to water. It is used from pumping clean water from lakes, rivers, tanks, small scale irrigation and for general water transfer.

It must only be used to transfer clean water and other non-corrosive liquids with low viscosity. It must not be used to transport inflammable, explosive, gasified liquids and liquids containing solid particles.

WARNING! Corrosive (chemicals, cleaning fluids etc...), flammable or explosive substances (e.g, petrol, paraffin, cellulose thinners); grease, oil, salt water and sewage must not be pumped. Fluids other than water may damage the water pump and/or create a fire hazard.

CAUTION! The pH of water must between 6.5 and 8.5.

CAUTION! The temperature of the liquid conveyed may not exceed 85 °C.

CAUTION! In case the ambient temperature is lower than 4℃, or the pump is not used for a long time, empty the liquid in the pump and pipes to avoid ice cracking the pump chamber.

WARNING! Do not use in swimming pools or spas.

WARNING! This is not a submersible pump. Do not submerge in water.

CAUTION! Do not run the pump without water or allow the pump to run dry. This will damage the pump's seal and void the warranty

CAUTION! Do not place the suction line in mud or sludge. This can block the inlet and cause the pump to overheat.

CAUTION! The pump MUST be protected from the elements. The pump must be protected by a cover or similar. Do not expose the pump to the elements (frost, direct sunlight, rain, hail).

WARNING! Always use an electrical outlet that is protected by a Residual Current Device RCD (Safetyswitch) with a trip current of 30mA or less (single phase pumps only).

WARNING! DO NOT ABUSE THE MAINS LEAD

- Never pull the mains lead to disconnect the pump from the mains socket.
- Keep the mains lead away from heat, oil and sharp edges.
- If you have to use an extension lead with this product, it must be designed for outdoor use

2. Safety Instructions

Before starting the pump make sure that:

- The electrical plug and socket connections are fitted in an area which cannot flood. Protect the power plug from moisture and direct contact with water.
- There is no damage to the pump, especially to the cable and plug. A damaged pump must be checked and repaired by an approved service agent before use.
- For single-phase pumps, a power point of the correct size, installed to local or national standards, should be provided by a qualified electrician, and a residual current device with a nominal trip current of 30mA should be installed in compliance with the requirements of AS 3000.
- Three phase pumps must be installed by a licensed electrician and must have suitable overload protections installed.
- The mains supply voltage matches the voltage indicated on the pump identification plate.

3. Correct Operation of the Pump

Never carry the pump by its cable and do not pull the cable to disconnect it. Do not pull out the power cable from the socket as a method of turning the pump off.

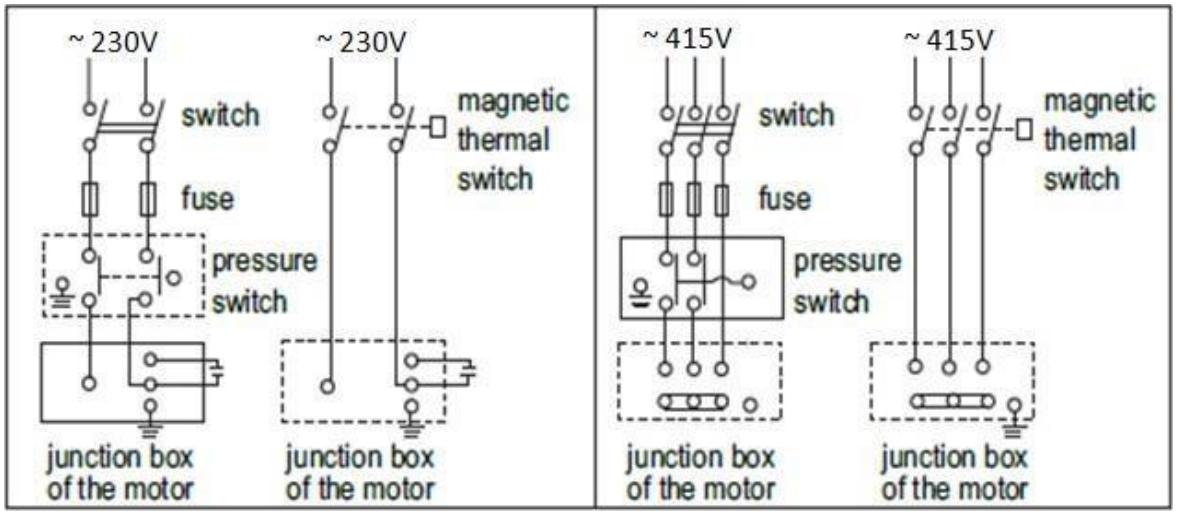
Before operating the pump, check the outlet and the inlet of the pump for any debris that may clog the pump. Clear the outlet and the inlet before starting and after any maintenance.

4. Electrical Connections

Electrical connection and protection should be conducted according to relevant authorities and standards applicable to where the pump is installed.

Specification of working voltage is marked on the nameplate.

Check the rotation of the motor (three-phase motor). This could be observed from the fan rotation. (Fan should be spinning in a clockwise rotation. If the fan rotation is incorrect, cut off power to the pump and exchange the two supply wires).



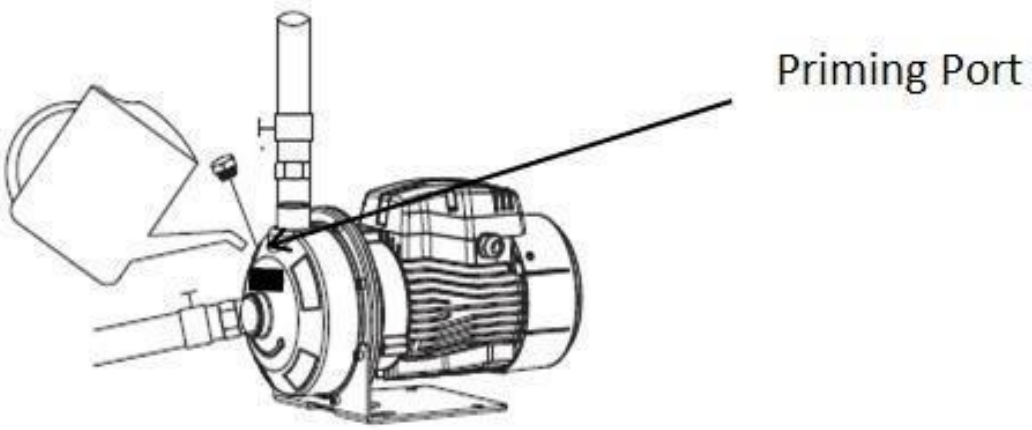
5. Pump Startup and Maintenance

Attention: Please read the following carefully.

Do not start the pump before the pump chamber is filled with water.

Do not unscrew the pump terminal box unless the power has been turned off for at least 5 minutes.

Do not undo the pump body unless the water in the pump chamber has been emptied.



Before startup,

1) Ensure that the fan blade rotates freely
2) Unscrew the priming plug from the priming port and fill the pump chamber completely with clean water (*Note This ensures that the mechanical seal is well lubricated. Dry operation causes irreparable damage to the mechanical seal)
3) Tighten the plug screw after the pump is filled with clean water
4) Start the pump momentarily.
5) Check the run direction of the motor for three phase models. Swap the position of two of the phases if running in reverse.
6) Start the pump.
7) If no water comes out of discharge or there is limited flow, repeat steps 2-4 above. Also check for any possible leaks in the pipework
8) Once pump is primed and there is sufficient water, adjust discharge valve to the desired flow rate ensuring that the flow falls within the working limitations of the pump (refer to pump nameplate)

Attention: Please read the following carefully.

Running the pump dry will damage the mechanical seal beyond repair. The pump should not be started more than 20 times in one hour so as not to subject the motorto excessive thermal shock. If the pump is noisy, turn off and check for any faults.

DANGER OF FROST: When the pump remains inactive for a long time at temperatures of less than 0°C, the pump body must be completely emptied through the drain cap to prevent possible cracking of the hydraulic components. This operation is advisable even in the event of prolonged inactivity at normal temperature. When starting after long periods of inactivity, the starting-up operations listed above must be repeated.

In summer, or when the ambient temperature is high, pay special attention to ventilation, avoid moisture on electrical parts which will result in electrical faults. In case the motor is hot or abnormal, cut off the power immediately and check faults according to the following table.

If the pump is drawing water from a supply below the level of the pump (suction lift), the pump will need to re-prime each time it starts or may not prime at all. This can be avoided by fitting a non-return valve to the end of the delivery line.

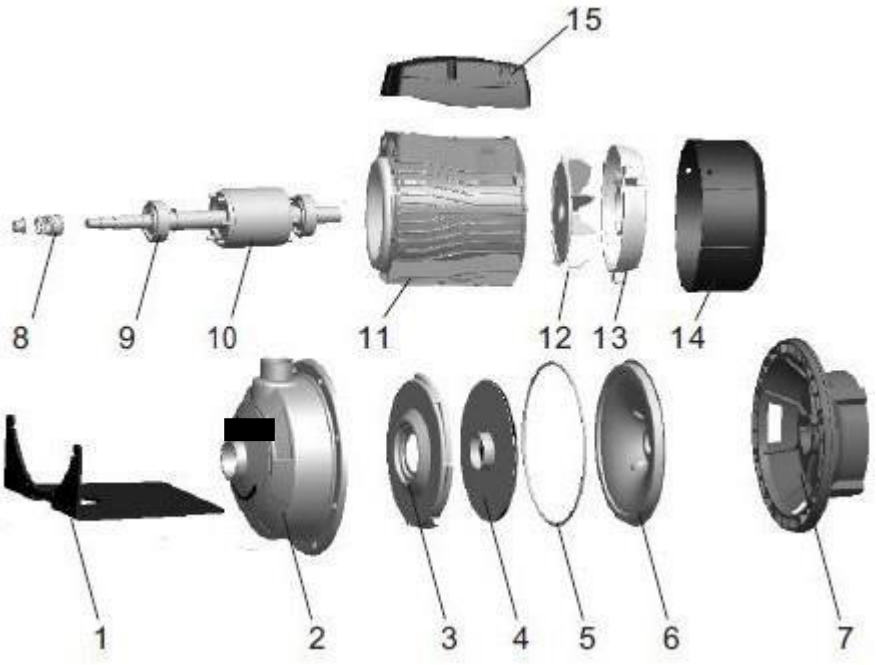
When used with a Pressure switch, always install a pressure tank on the delivery side of the pump. A run dry protection product is recommended to be installed when the pump is controlled by an electro/mechanical pressure switch.

Vortex Distributors recommends the use of a Trevoli Pump controller or Variable Frequency Drive to protect the pump, provide additional protection features and to run the pump at its optimal efficiency.

Fault	Possible Cause	Corrective Action
1. The motor does not start and makes no noise.	A. Check the electric connections. B. Check that the motor is live. C. Check the protection fuses.	C. If they are burnt-out, change them. **N.B.** If the fault is repeated immediately this means that the motor is short circuiting.
2. The motor does not start but makes noise.	A. Ensure that the mains voltage is the same as the value on the plate. B. Ensure that the connections have been made correctly. C. Check that all the phases are present on the terminal board. (3~) D. Look for possible blockages in the pump or motor. E. Check the condition of the capacitor.	B. Correct any errors. C. If not, restore the missing phase. D. Remove the blockage. E. Replace the capacitor.
3. The motor turns with difficulty.	A. Check the voltage which may be insufficient. B. Check whether any moving parts are scraping against fixed parts.	B. Eliminate the cause of the scraping.
4. The pump does not deliver.	A. The pump has not been primed correctly. B. On three-phase motors, check that the direction of rotation is correct. C. The diameter of the intake pipe is insufficient. D. Blocked foot valve.	B. If necessary, invert the connection of two supply wires C. Replace the pipe with one with a larger diameter. D. Clean the foot valve.
5. The pump does not prime.	A. The intake pipe or the foot valve is taking in air. B. The downward slope of the intake pipe favours the formation of air pockets.	A. Eliminate the phenomenon and prime again. B. Correct the inclination of the intake pipe.
6. The pump supplies insufficient flow.	A. Blocked foot valve. B. The impeller is worn or blocked. C. The diameter of the intake pipe is insufficient. D. On three-phase motors, check that the direction of rotation is correct.	A. Clean the foot valve. B. Remove the obstructions or replace the worn parts. C. Replace the pipe with one with a larger diameter. D. If necessary, invert the connection of two supply wires.
7. The pump vibrates and operates noisily.	A. Check that the pump and the pipes are firmly anchored. B. There is cavitation in the pump, that is the demand for water is higher than it is able to pump. C. The pump is running above its plate characteristics.	A. Fix the loose parts more carefully. B. Reduce the intake height or check for load losses. C. It may be useful to limit the flow at delivery.

Ensure the pump is disconnected from the mains power supply before doing any maintenance to the pump.

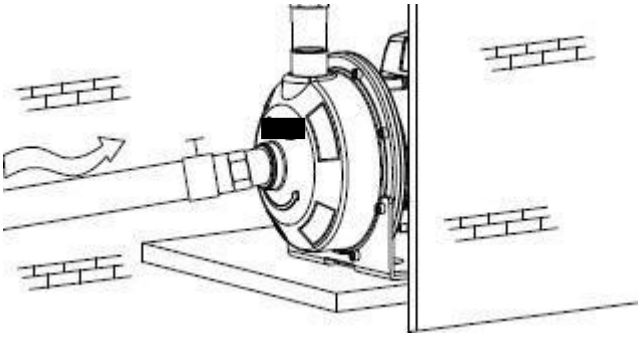
6. Pump Exploded View



POS.	Part
1	Bottom support
2	Pump casing
3	Diffuser
4	Impeller
5	O-ring
6	Bracket cover
7	Support
8	Mechanical seal

POS.	Part
9	Ball bearing
10	Rotor
11	Stator
12	Fan
13	End plate
14	Fan cover
15	Terminal box

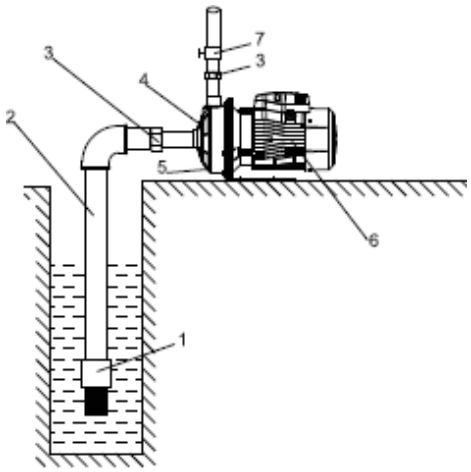
7. Pump Installation



For pump installations, the inlet (or suction) pipe should be as short as possible with the least number or bends. The pump should be installed in a ventilated environment. It could be installed outside, provided the pump is adequately covered from the elements. Permanent installations should have the pump securely bolted to the floor using the holes in the pump bracket.

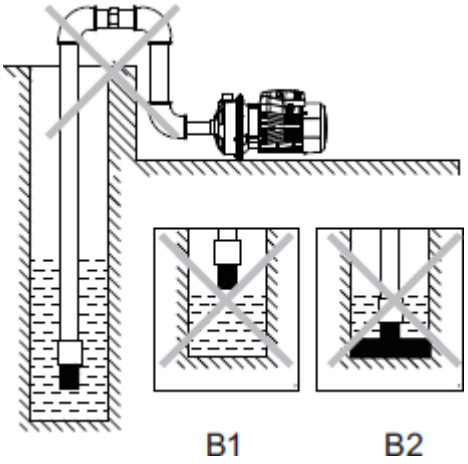
It is good practice to have a check valve installed on the inlet pipework.

There should be no taps or take-off lines installed between the pump delivery outlet and pump controller when used with a Pressure Switch.



Correct Installation Diagram

1. Foot valve
2. Inlet (Suction) Pipe Inlet (Suction) Pipe
3. Barrel Union
4. Fill (Priming) Plug
5. Drain Plug
6. Pump
7. Isolation valve



While installing the pump, use correctly rated suction tube for the inlet pipeline

The foot valve should be vertically placed and installed at least 30cm from the bottom of the tank to avoid sucking in sand and stones (B2);

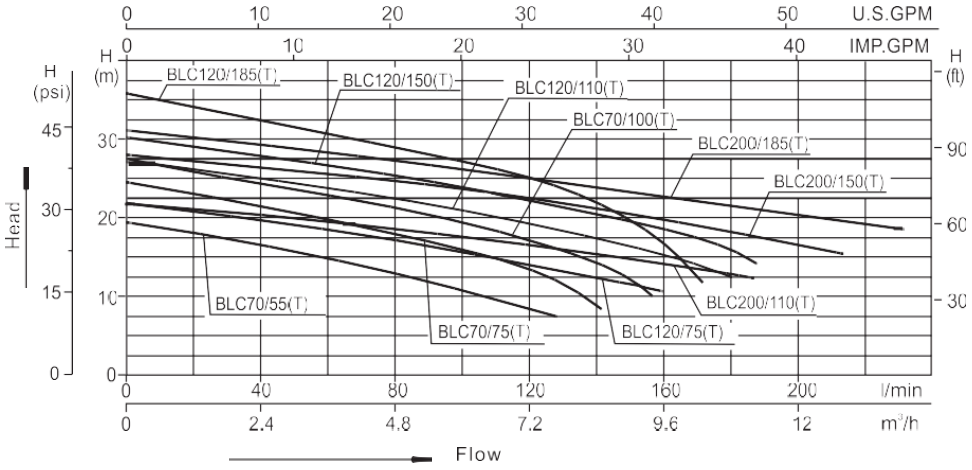
Diameter of the inlet pipe should be at least the same size of the diameter of the pump inlet.

Pay attention to drop of water level while the pump is operating. The foot valve should not be above the water surface (B1).

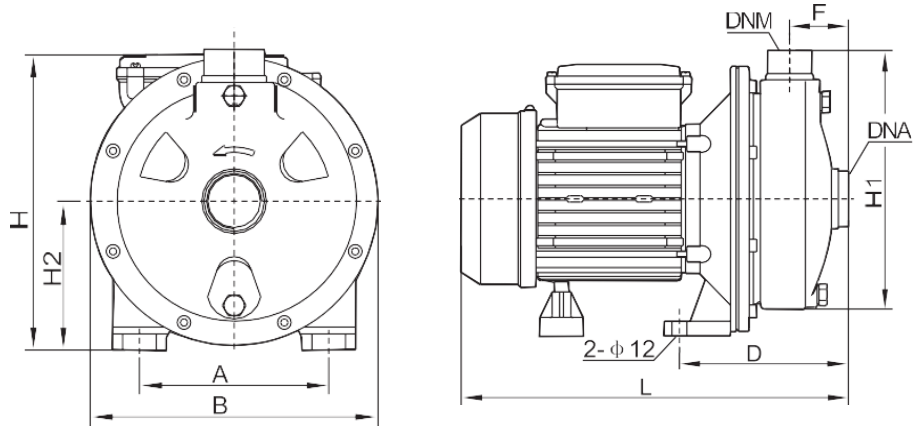
In the case where the inlet pipe is longer than 10m or its lifting height exceeds 4m, the pipe diameter should exceed diameter of water inlet of the pump.

8. Pump Specifications

PERFORMANCE CURVES



OVERALL DIMENSION



Model	Dimension									
	A	B	D	F	L	H	H_1	H_2	DNA	DNM
BLC70/55	140	213	138	49	315	218	232	110	G1¼	G1
BLC70/75	140	213	138	49	315	218	232	110	G1¼	G1
BLC70/100	140	213	138	49	315	218	232	110	G1¼	G1
BLC120/75	140	213	138	49	315	218	232	110	G1¼	G1
BLC120/110	140	213	138	49	337	230	232	110	G1¼	G1
BLC120/150	150	234	140	46	373	255	240	120	G1¼	G1
BLC120/185	150	234	140	46	373	255	240	120	G1¼	G1
BLC200/110	140	213	138	49	337	230	222	110	G1½	G1 or G1¼
BLC200/150	140	213	138	49	366	255	222	110	G1½	G1 or G1¼
BLC200/185	140	213	138	49	354	255	222	110	G1½	G1 or G1¼

WARRANTY TERMS & CONDITIONS

(Subject to the provisions of the Consumers Guarantee Act)

Vortex Distributors Ltd warrants that this TREVOLI product that we distribute is free from defects in workmanship and materials for a period of 24 months from the date of purchase. Subject to the conditions of the warranty, Vortex Distributors Ltd will repair any defective products that are installed / used in New Zealand free of charge at the premises of Vortex Distributors Ltd, or our authorised service agents throughout New Zealand.

1)This warranty excludes transportation costs to and from Vortex Distributors Ltd or its appointed service agents.

2) The warranty does not cover normal wear and tear, replacement of product consumables (mechanical seals, bearing and capacitors) and excludes defects due to non-compliance with installation instructions, neglect or misuse, inadequate protection against freezing, low voltage or use or operation for purposes other than those for which they were designed. Failure to carry out maintenance, using corrosive or abrasive water of other liquids, voltage spikes (including lightning) or having unauthorised persons attempting repairs will render the warrantee null and void. For further information regarding the suitability of your intended application please contact us.

3) The warranty only applies to the original owner, purchaser or end user, and is subject to the Consumers Guarantee Act. The right to the guarantee is applicable in the country in which the appliance was purchased.

4) Our warranty commences from the date of purchase of the above-mentioned pumps. Proof of purchase is required before consideration under warranty is given.

5) Damage claims will not be accepted unless the damage is the result of gross or intentional negligence on the part of the manufacturer. The amount of damages is limited to the amount paid for the unit. No further claims are covered by the guarantee.

Record your date of purchase in the space below and retain this copy for records.

Date of Purchase:

Model Purchased:

Invoice #:

Vortex Distributors

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