
	Installation Checklist		Document No.: CFP 007
			Revision G
Issued By: Andrew Irons Issued Date: 20 th June 2024	Approved by: David Hale Technical Mgr.	Date: 20 th June 2024	Effective Date: 25 th June 2024

This checklist is intended to assist with installation of your submersible pump and motor under normal conditions on site, no less than 30ft water depth. If otherwise, please contact Clearflow Solutions for instructions.

Note: Prior to starting the installation of the unit, ensure that the Operating Mode (DOL / Y-Δ / Soft Starter / VFD) settings have been checked, verified by Clearflow Solutions and confirmed on the Warranty Checklist.

- Verify that the model, rating, power supply on the motor nameplate matches the installation requirements.
- Check that the motor, pump, and motor leads have not been compromised and that the motor leads have not been damaged during transportation.
- Lift the pump, motor assembly in the vertical position, remove the motor fill plug, check the fluid level, and top up with clean potable water if necessary. Re-fit the plug ensuring the O-ring is in place.
- Check insulation resistance, using a 1000vdc megger/ohm meter, phase to ground and check resistance readings phase to phase for balanced resistance readings.
 - Record reading on Warranty Checklist.
 - Resistance should be at least 100 MΩ, motor only.
- Visually inspect the exterior of the pump and motor assembly for signs of damage.
- Remove the suction strainer, turn shaft to check 'free rotation' then replace suction strainer.
- Use power cable suitable for use in sea water, sized to carry the motor current without overheating in water and in air, while complying with local regulations.
- Include a ground wire to the motor, if required by the local codes.
- Connect male to female sub-sea connectors, if present, or splice motor leads to approved cable.
- Secure the cable to the discharge pipe or hose using correct size Clearflow cable bands, fitting at least one band every meter along the length of the pipe and 'double-up' above and below flange connections to ensure no slackness with the cable. Utilize notches in flanges, where available.
- Ensure the check valve is installed above pump discharge.

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- Set pump depth to ensure that the pump will always have proper NPSHa to meet requirements, per design, at the lowest water level. Our recommendation for normal operating depth to avoid cavitation is 30ft anything less should be referred to Clearflow Solutions.
However: the problems associated with working in shallow water are:

- a) Operate the unit too close to the surface and you will encounter NPSH/vortex problems.
- b) Operate the unit too close to the seabed and you will draw sand/silt into the unit.

If in doubt, please contact Clearflow Solutions.

- Check insulation resistance, using a 1000vdc megger and ohm meter, phase to ground (megger) and check resistance readings (Ohm meter) phase to phase for balanced resistance readings after submergence.
 - Record reading on Warranty Checklist.
 - Resistance may drop from initial reading, direct to motor leads, as length of cable is added, and cable enters the water.
 - Any extreme drop could indicate a damaged cable or faulty splice.

If reading is less than 100MΩ, DO NOT connect the motor, Contact Clearflow Solutions.

- Make sure that all temperature sensors and monitoring devices are connected and that their function is tested.
- The unit must be started with the discharge valve partially closed and then opened slowly.
- Start the pump and check motor amps and fluid delivery. If normal, record running amps on the Warranty Checklist, continue to run. If pressure or fluid delivery is low, this could indicate reverse rotation of the pump, therefore swap over any two conductor leads. If the problem persists, check pipe connections for loss of pressure. If the issue is not resolved, contact Clearflow Solutions for assistance.
- At this point the equipment should be operating as designed.
- Please send the data collected on the Warranty Checklist to Clearflow Solutions to validate the warranty.