# Base Load Power Hub (BLPH)

## PRE-COMMISSIONING -COMMISSIONING PROCEDURES
## For Sea Water Lift Progressive Cavity Pumps (P-50001 A/B)

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PCM | keep it moving

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## Revision / Change Log

| Rev. | Description |
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# 1 DOCUMENT SCOPE

This document aims at describing the required actions for Pre-commissioning & Commissioning. Note that Installation, Commissioning, Start-up, Operation & Maintenance procedures will be in Installation, Operatio & Maintenance Manual

## 1.1 REFERENCES

| Doc. No. | Description |
|---|---|
| 1724000936-MAC-MAN-00031 | INSTALLATION, OPERATING AND MAINTENANCE MANUAL (PUMP AND MOTOR, INCLUDING SITE ERECTION INSTRUCTIONS AND PROCEDURES) |
| 1724000936-MAC-DS-00012 | PUMP DATA SHEETS INCLUDING WEIGHT DATA SHEET |
| 1724000936-MAC-DA-00004 | GENERAL ARRANGEMENT AND DIMENSIONAL OUTLINE DRAWINGS |
| 1724000936-MAC-DD-00006 | PUMP CROSS SECTIONAL DRAWING AND BILL OF MATERIAL |
| 1724000936-MAC-DD-00007 | SHAFT SEAL DRAWING AND BILLS OF MATERIAL |

*Table 1 - Reference Documents*

## 1.2 DEFINITIONS AND ABBREVIATIONS

| | |
|---|---|
| COMPANY or Client (CPY): | Crosswind |
| CONTRACTOR (CTR): | ROSETTI MARINO S.p.A. |
| PROJECT: | HOLLANDSE KUST NOORD WIND PARK Project |
| VENDOR: | PCM |

*Table 2 - Definitions and Abbreviations*

# 2 EXTRACT OF PCM STANDARD IOM FOR VERTICAL PUMPS.

# 3. Operation

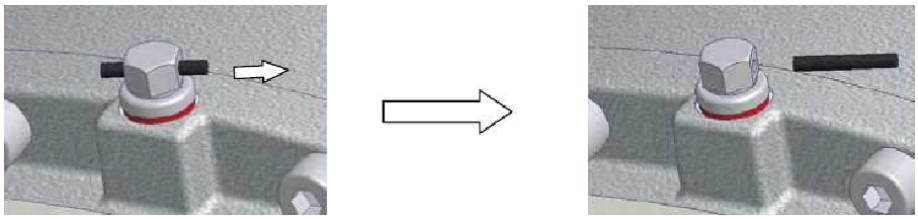
## 3.1. Commissioning

Always wear personal protective equipment (at least shoes, gloves, goggles/mask and ear defenders) when working on or near the pump.

### 3.1.1. Before start-up

Ensure that:

- The motor and baseplate are grounded (earthed).
- The electrical connections are correct and their arrangement does not lead to supplementary risks (falls).
- The gearbox has been filled with lubricant to the correct level.
- The motor has been filled with lubricant to the correct level.
- The gearbox screw (or vent valve or oil expansion tank) has been correctly installed and activated.



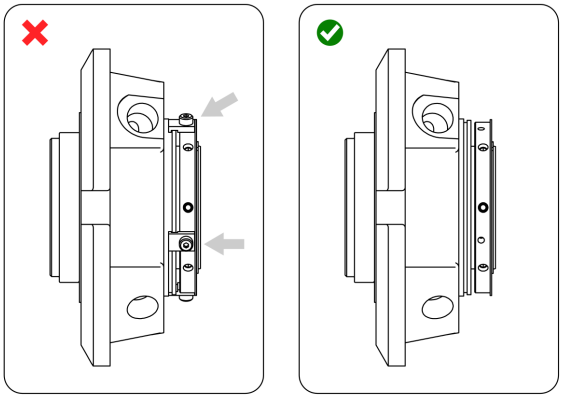
*Activation of the vent screw*



*Installation of the vent valve*

NOTE: for the positioning of the vent screw and the connection of the expansion tank, see the drive system instructions in the appendix.

- The product to be pumped is present in the tank and the pump body.
- The mechanical seal is connected to its sealing plan.
- The mechanical seal is vented (if used in a vertical installation or with a barrier fluid).
- The spacers (shown by the arrows on the diagram below) have been removed from the mechanical seal and conserved for maintenance operations.



- All valves installed upstream and downstream from the pump are open.
- The temperature and type of product to be pumped are correct.
- The alignment of the coupling has been checked.
- The screws are tightened to the right torque for their diameter.
- The direction of shaft rotation corresponds to the desired direction of pumped fluid flow.

Also follow the motor manufacturer's instructions (supplied in the appendix).

### 3.1.2. Start-up

WARNING: Never allow the pump to run dry!

To prevent dry running, PCM can supply a dry run protection system.

If the pump is not primed, you are advised to fill the pump body by hand. If the pump is temporarily not primed, the small amount of liquid remaining in the pump is enough to lubricate the stator until the next priming.

During the first few minutes of operation, check the following:

- The liquid being pumped reaches the end of the discharge pipe.
- The pump is not vibrating abnormally.
- No unusual noise.
- Sealing system functioning well.
- Check that the pressure stabilises, if a pressure gauge is installed.
- No abnormal heating of the stator or sealing system.

Check that the parameters (speed, flow rate, pressure, viscosity, and temperature) match the design parameters of the pump.

Note: it is normal for a fine black powder to form behind the mechanical seal. This is due to wear of the fix throttle bushing in the first moments of operation.

WARNING: If the values are not those indicated, consult your PCM service centre.

## 3.2. Normal operating procedure

The pump and its drive system can reach significant surface temperatures.



Always wear personal protective equipment (at least shoes, gloves, goggles/mask and ear defenders) when working on or near the pump.

### 3.2.1. Start-up procedure

Before each start-up, check the following:

- Fluid present at suction.
- Valves open on the suction and discharge pipes.
- Correct temperature of the product to be pumped.

Start the pump.

### 3.2.2. General Operating Precautions

During operation, ensure that:

- The pump is continuously supplied with product and power.
- The discharge pressure remains stable and below the maximum capacity of the pump.
- The temperature of the product being pumped remains within the operating limits.
- The operating instructions in force at the production site are observed.

### 3.2.3. Shutdown Procedure

This shutdown procedure depends on the type of product being pumped. Refer to the specific characteristics on the technical description (see Appendices).

The shutdown procedure is therefore defined by the process.

Nonetheless, the minimum procedure is to switch off the pump, then close the suction and discharge valves.



WARNING: for a product which settles, clean the pump using a suitable product in order to enable the pump to be restarted without damage. .



It is important to protect the pump against water hammer, which could destroy the equipment and cause a risk to staff and other equipment nearby.

WARNING: it is important to limit the time for which food is in contact with the pump components, and to flush the pump in the event of a prolonged stoppage (over 30 minutes).

### 3.2.4. Operating Procedure in the Event of an Incident

In the event of operating irregularities, such as:

- Pump does not start.
- Pump does not prime itself.
- Flow rate too low or irregular.
- Pump stops.
- Pump is not delivering.
- Pump is abnormally noisy.

Proceed as follows:

- Shut down the pump according to the shutdown procedure (see page 24).
- Hydraulically isolate the pump (suction, discharge).
- See "Troubleshooting" section (see page 37).

### 3.2.5. Automatic control

It is advisable to use devices that automatically control the operation of the pump.

Examples: pressure switch, valves with electrical position contact, dry running protection probe (capacitance probe).